

APPENDIX J

TRAFFIC IMPACT STUDY

TRAFFIC IMPACT STUDY

For

Sycamore Canyon Commercial Development

Prepared For: The City of Riverside

Submitted To:

Eugene Marini

KA Enterprises

5820 Oberlin Drive, Suite 201

San Diego, CA 92121

Prepared By:

Bill E. Darnell, P.E.

(RCE 22338)

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4411 Mercury Street, Suite 207A

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Signature: Bill E. Darnell

Date Signed: 8/2/2018



August 2, 2018

May 15, 2018

Original: December 29, 2017

Darnell & ASSOCIATES, INC.

TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

August 2, 2018

Eugene Marini
KA Enterprises
5820 Oberlin Drive, Suite 201
San Diego, CA 92121

D&A Ref. No: 170805

Subject: Traffic Impact Study for Proposed Sycamore Canyon Commercial Development located at Sycamore Canyon Boulevard/Central Avenue in the City of Riverside.

Dear Mr. Marini:

In accordance with your authorization, Darnell & Associates, Inc. (D&A) has prepared this traffic impact study to assess the impacts associated with the proposed Sycamore Canyon Commercial Development which is located at Sycamore Canyon Boulevard/Central Avenue in the City of Riverside, California.

The traffic study analyzes the traffic impacts related to the proposed Sycamore Canyon Commercial Development on local roadways and intersections under the following conditions: Existing, Opening Day (2019) and Opening Day 2019 plus Project. The report has been prepared to cover the work identified in the approved scoping agreement and comments from City of Riverside dated April 20, 2018.

If you have any questions, please feel free to contact this office.

Sincerely,

Darnell & Associates, Inc.



Bill E Darnell, P.E.
Firm Principal
RCE 22338



Date Signed: 8/2/2018

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TRAFFIC IMPACT STUDY
FOR
SYCAMORE CANYON
COMMERCIAL DEVELOPMENT
IN THE CITY OF RIVERSIDE

Submitted To:

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TABLE OF CONENTS

SECTION I - INTRODUCTION	
STUDY AREA DETERMINATION	1
PROJECT DESCRIPTION	1
SCENARIOS STUDIED	2
Existing Conditions refers to that condition which exists on the ground today including existing traffic and existing lane configurations at roadway segments.	2
Opening Day 2019 Conditions refers to those conditions which include the traffic volumes and lane configurations generated by Opening Day 2019 conditions.	2
Opening Day 2019 Plus Project Conditions refers to those conditions which include the Opening Day 2019 traffic volumes and lane configurations plus the traffic generated by of the proposed project.	2
REPORT ORGANIZATION	2
ANALYSIS METHODOLOGY	2
Level of Service Definitions and Procedures	2
Figure 3 – Existing 2017 Conditions and Study Area Intersections	5
Level of Service Threshold	6
ROADWAY CAPACITY	7
SECTION II - EXISTING CONDITIONS	8
TRAFFIC VOLUMES WITHOUT PROJECT SCENARIOS	8
EXISTING TRAFFIC VOLUMES	8
KEY ROADWAY SEGMENTS	8
ROADWAY SEGMENT DAILY TRAFFIC	8
INTERSECTION CONTROLS AND TRAFFIC COUNTS	8
EXISTING LEVEL OF SERVICE CONDITIONS	10
Existing – Roadway Segments	10
Existing - Intersections	10
SECTION III - PROJECT RELATED CONDITIONS	11
PROJECT TRAFFIC	11
Project Trip Generation	11
Project Trip Distribution	12
Opening Day (2019) Traffic Volumes	12
TRAFFIC VOLUMES WITH PROJECT SCENARIOS	12
Cumulative Projects	12
SECTION IV - PROJECT IMPACTS	17
OPENNG DAY 2019 PLUS PROJECT LEVEL OF SERVICE CONDITIONS	17
2019 Opening Day Plus Project Roadway Segments	17
2019 Opening Day Plus Project Intersection	17
SECTION V - PROJECT ACCESS AND INTERNAL CIRCULATION	20
SECTION VI – SUMMARY OF FINDINGS AND CONCLUSSIONS	23

LIST OF FIGURES

Figure 1 - Vicinity Map.....	3
Figure 2 – Proposed Site Plan.....	4
Figure 3 – Existing 2017 Conditions and Study Area Intersections.....	5
Figure 4 – Existing 2017 Traffic Volumes.....	9
Figure 5 – Project Trip Distribution with Right in/Out Access.....	13
Figure 6 – Project Trip Assignment with Right in/out Access.....	14
Figure 7 – Opening Day 2019 Traffic Volumes.....	15
Figure 8 – Opening Day 2019 plus Project Traffic Volumes with Right in/out Access.....	16
Figure 9 – Existing Striping and Sight Distance.....	21
Figure 10 – Recommended Channelization for Sycamore Canyon Blvd north of Central Ave.....	22

LIST OF TABLES

Table 1 - Level of Service Definitions.....	6
Table 2 - Level of Service Criteria for Unsignalized and Signalized Intersections.....	6
Table 3 – City of Riverside Roadway Capacity ⁽¹⁾	7
Table 4 – Existing Roadway Segment Level of Service.....	10
Table 5 - Existing Conditions Intersection LOS Summary.....	10
Table 6 – PROJECT TRIP GENERATION.....	11
Table 7 – Opening Day 2019 Roadway Segment Level of Service.....	17
Table 8 – Opening Day 2019 Intersection Level of Service.....	18

LIST OF APPENDICES

APPENDIX A

- Scoping Agreement
- AM/PM Peak Hour Traffic Counts
 - 24 Hour Machine Counts

APPENDIX B

- Existing Conditions Synchro Worksheets

APPENDIX C

- Opening Day 2019 Synchro Worksheets
- Opening Day 2019 Plus Project Synchro Worksheets

SECTION I - INTRODUCTION

This traffic impact analysis (TIA) has been prepared to assess the potential circulation impacts associated with the proposed Sycamore Canyon Development Project located at the northeast corner of Sycamore Canyon Boulevard at Central Avenue in the City of Riverside (City). Figure 1 is a vicinity map that illustrates the regional and project location and Figure 2 presents the project site plan.

This report is intended to satisfy the requirements established by the City of Riverside "Traffic Impact Preparation Guide," dated January 2016, 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 trip generation, trip distribution, study area, and analysis methodologies, has been approved by City staff via the Scoping Agreement process. A copy of the Scoping Agreement is included as Appendix A.

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

- Existing traffic conditions;
- Opening Day (2019) conditions; and
- Opening Day (2019) with project traffic conditions.

For each scenario, traffic operations at study intersections are evaluated for the AM and PM peak hours. The AM peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 AM. The PM peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 PM.

STUDY AREA DETERMINATION

The study area was approved by City staff via the City's scoping agreement process (Appendix A). Study intersections were selected based on discussion with City staff and where project traffic has the potential to cause a significant impact. The study area includes the following four intersections:

1. Sycamore Canyon Boulevard/Central Avenue;
2. Central Avenue/SR-60 Southbound On/Off Ramp;
3. Central Avenue/ SR-60 Northbound Off Ramp; and
4. Watkins Drive at Poarch/SR-60 Westbound On Ramp.

Figure 3 illustrates the Project location, the study area intersections and existing intersection geometry and traffic control.

PROJECT DESCRIPTION

The proposed project consists of a 3,200-square foot C-Store with 16 Fueling Stations with a carwash and a 3,800-square foot Fast Food Restaurant with a drive thru.

Access to the project will be provided by two driveways on the eastside of Sycamore Canyon Boulevard north of Central Avenue.

SCENARIOS STUDIED

For purposes of this analysis, the following scenarios are included:

Existing Conditions refers to that condition which exists on the ground today including existing traffic and existing lane configurations at roadway segments.

Opening Day 2019 Conditions refers to those conditions which include the traffic volumes and lane configurations generated by Opening Day 2019 conditions.

Opening Day 2019 Plus Project Conditions refers to those conditions which include the Opening Day 2019 traffic volumes and lane configurations plus the traffic generated by of the proposed project.

REPORT ORGANIZATION

Following this introduction, Section II introduces the Existing 2017 conditions. Section III Project Related Conditions which discusses trip generation and trip distribution associated with the proposed project. Section IV provides analysis of project's traffic impacts. Section V addresses the project's access and internal circulation. Section VI summarizes the projects direct and cumulative impacts of the project and provides mitigation measures.

ANALYSIS METHODOLOGY

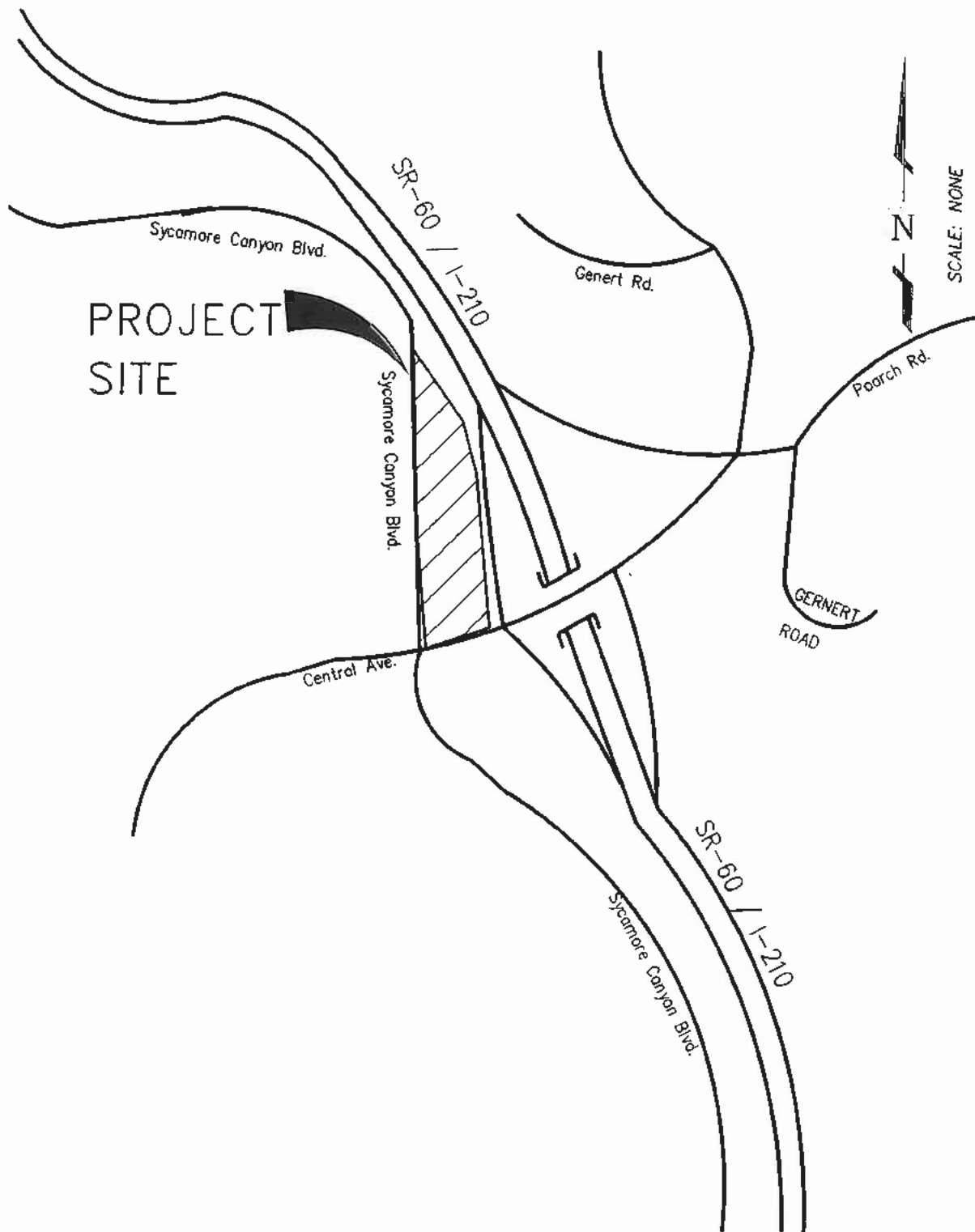
Level of Service Definitions and Procedures

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., 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 2009, *Highway Capacity Manual* (HCM). The HCM establishes levels of service, as shown in Table 1.

Table 2 shows the level of service criteria for unsignalized and signalized intersections.

Consistent with the City's TIA guidelines, the 2010 HCM analysis methodologies were used to determine intersection levels of service for all study area intersections. All levels of service were calculated using Synchro 8.0 software, which uses the HCM 2010 methodologies.



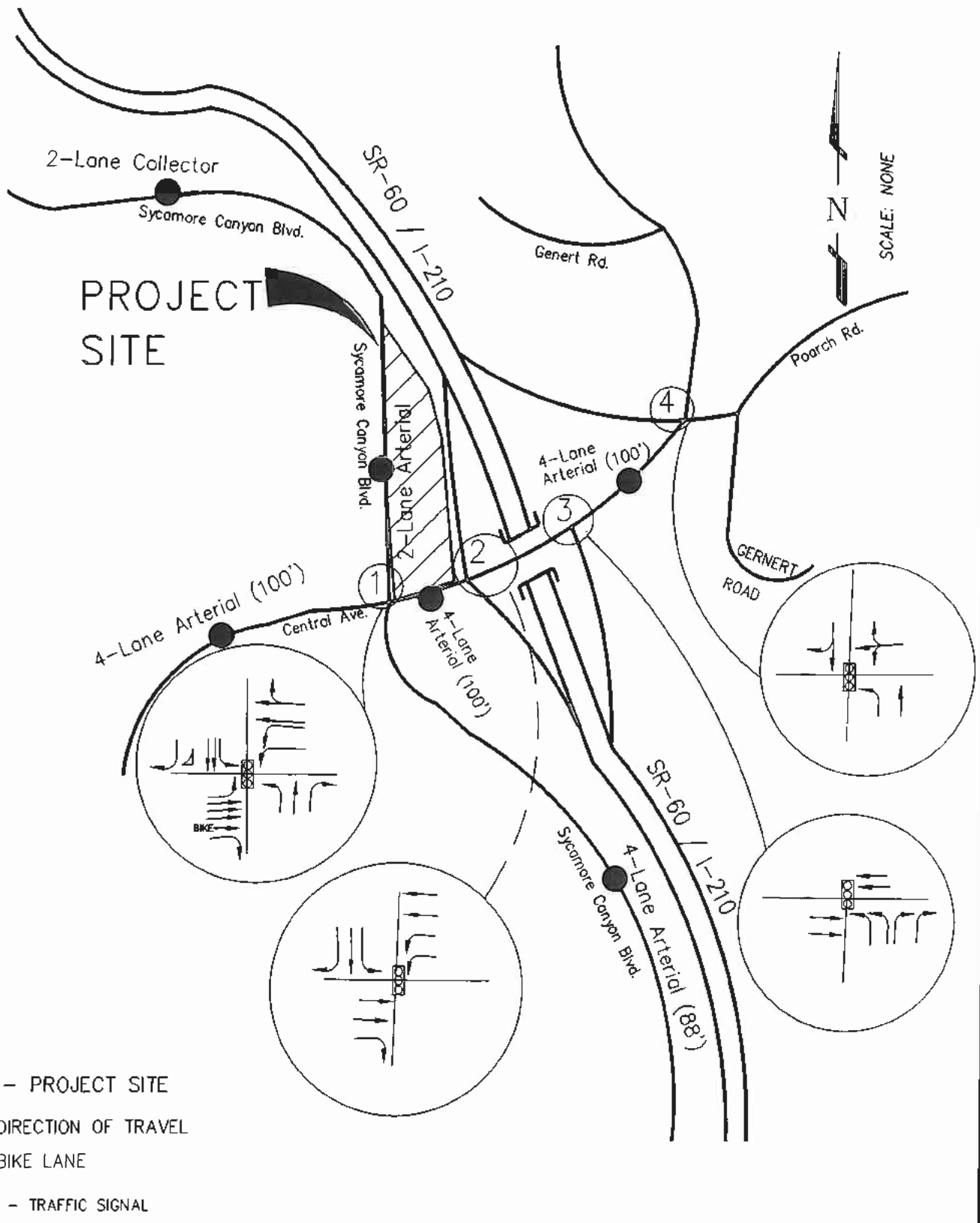
- PROJECT SITE



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FIGURE 1
VICINITY MAP



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FIGURE 3

EXISTING CONDITIONS AND
STUDY AREA INTERSECTION

Table 1 - Level of Service Definitions	
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 - 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

Level of Service Threshold

The intersections of Central Avenue/SR-60 Eastbound Ramp, Central Avenue/SR-60 Northbound Off Ramp and the Watkins Drive/SR-60 Eastbound On Ramp are under the jurisdiction of Caltrans. The remaining study intersections are solely under the jurisdiction of the City. Caltrans considers an acceptable level of service to be between C and D (delay of 45 seconds) at all intersections under its jurisdiction. The City uses LOS D as its minimum level of service for intersections and roadways of Collector or higher classification.

Therefore the study area intersections under the jurisdiction of the City of Riverside LOS D is the minimum standard. For intersections within the jurisdiction of Caltrans, the Caltrans LOS threshold (minimum intersection delay of 45 seconds) is used as a worst-case approach.

ROADWAY CAPACITY

Table 3 presents the City of Riverside Roadway Capacity Level of Service Criteria. The values presented in Table 3 will be used for analyzing the projects impacts.

Table 3 – City of Riverside Roadway Capacity ⁽¹⁾				
Roadway Classification	Number of Lanes	Two-Way Traffic Volume (ADT) ⁽²⁾		
		Service Level C	Service Level D	Service Level E
Local	2	2,500-2,799	2,800-3,099	3,100+
Collector (66' or 80')	2	9,900-11,199	11,200-12,499	12,500+
Arterial ⁽³⁾	2	14,400-16,199	16,200-17,999	18,000+
Arterial (88')	4	16,800-19,399	19,400-21,199	22,000+
Arterial (100')	4	26,200-29,599	29,600-32,999	33,000+
Arterial (120')	6	38,700-44,099	44,100-49,499	49,500+
Arterial (144')	8	50,600-57,799	57,800-64,499	65,000+
Notes: All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables Two-land roadways designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials.				

SECTION II - EXISTING CONDITIONS

TRAFFIC VOLUMES WITHOUT PROJECT SCENARIOS

EXISTING TRAFFIC VOLUMES

Existing traffic volumes are based on peak hour intersection turn movement counts collected by National Data and Surveying Services in October 2017. Appendix A contains traffic count sheets. Vehicle classification counts were conducted at the intersections of Central Avenue/SR-60 Eastbound Ramp, Central Avenue/SR-60 Northbound Off Ramp and the Watkins Drive/SR-60 Eastbound On Ramp. The percentage of trucks at the remaining study intersections without classification counts was determined from classification counts at nearby intersections. Detailed volume development worksheets are included in Appendix B. Figure 4 illustrates the Existing 2017 daily and peak hour traffic volumes at study intersections and roadway segments.

KEY ROADWAY SEGMENTS

The key roadway segments analyzed in the study area are identified below:

- Sycamore Canyon Boulevard West of Project;
- Sycamore Canyon Boulevard North of Central Avenue;
- Sycamore Canyon Boulevard South of Central Avenue;
- Central Avenue West of Sycamore Canyon Boulevard;
- Central Avenue East of Sycamore Canyon Boulevard;
- Central Avenue East of SR-60 Eastbound on/off Ramp; and
- Central Avenue East of SR-60 Westbound on/off Ramp.

ROADWAY SEGMENT DAILY TRAFFIC

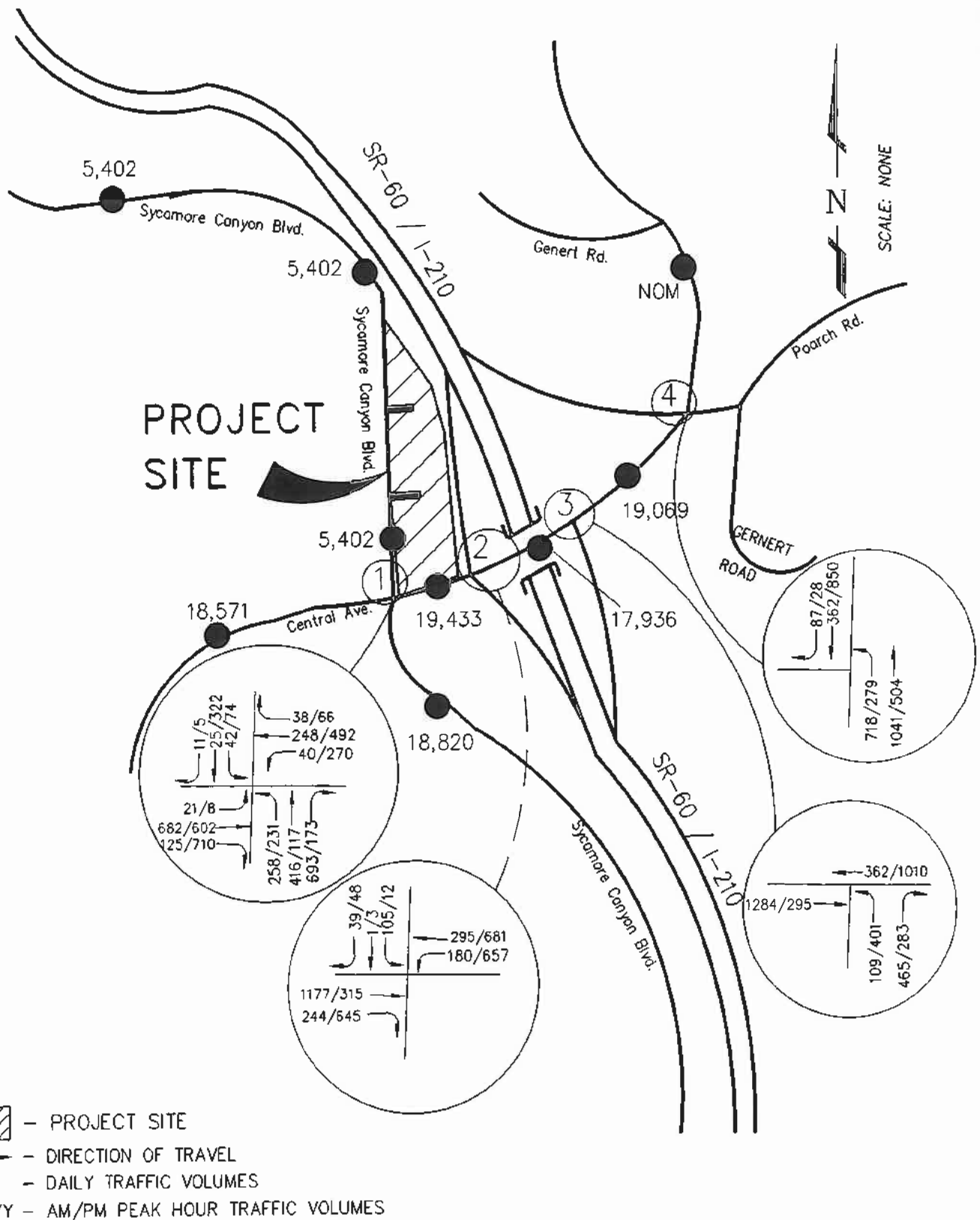
Twenty-four (24) hour count data were collected for all key roadway segments in October 2017. Count summary sheets can be found in Appendix A. The existing daily traffic volumes are illustrated in Figure 4.

INTERSECTION CONTROLS AND TRAFFIC COUNTS

The intersection configurations and traffic control for the key intersections were previously presented on Figure 3. The key intersections analyzed in the study area are identified below:

- Sycamore Canyon Boulevard at Central Avenue;
- Central Avenue at SR-60 Eastbound on/off Ramp;
- Central Avenue at SR-60 Westbound on/off Ramp;
- Central Avenue/Watkins at SR-60 Westbound on/off Ramp.

Morning and afternoon peak hour turn counts were collected at all key intersections, on a typical weekday (Tuesday, Wednesday, or Thursday). The existing peak hour traffic counts are depicted on Figure 4. A copy of the traffic count sheets are provided in Appendix A.



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FIGURE 4

EXISTING (2017)
TRAFFIC VOLUMES

EXISTING LEVEL OF SERVICE CONDITIONS

Existing – Roadway Segments

Table 4 summarizes the daily segment analysis for the existing conditions. As shown in Table 4, based on average daily conditions the following roadway segment currently operates at an unacceptable LOS “D” or better under existing conditions.

Table 4 – Existing Roadway Segment Level of Service					
Roadway	Roadway Classification	LOS E Capacity	Existing 2017		
			ADT	V/C	LOS
Central Avenue					
West of Sycamore Canyon Boulevard	4-Lane Arterial (100')	33,000	18,571	0.57	B
East of Sycamore Canyon Boulevard	4-Lane Arterial (100')	33,000	19,433	0.59	B
I-215 SB Ramp to I-215 NB Ramp	4-Lane Arterial (100')	33,000	17,936	0.55	B
Sycamore Canyon Boulevard					
North of Project	2-Lane Collector	12,500	5,402	0.43	B
North of Central Ave.	2-Lane Arterial	18,000	5,402	0.30	A
South of Central Ave.	4-Lane Arterial (88')	22,000	18,820	0.86	C
Watkins Drive					
Between I-215 NB Off Ramp and I-215 NB On Ramp	4-Lane Arterial (88')	22,000	19,069	0.87	D
Source; See City of Riverside Roadway Capacity					

Existing - Intersections

Table 5 illustrates the existing intersection levels of service summary under existing conditions. A copy of the Synchro worksheets for the existing conditions can be found in Appendix B.

As can be seen from Table 5, all key intersections currently operate at LOS “D” or better during both peak hours under existing conditions.

Table 5 - Existing Conditions Intersection LOS Summary				
Intersection	Traffic Control	Peak Hour	Existing Conditions	
			Delay (a)	LOS (b)
Sycamore Avenue at Central Avenue	Signal	AM	44.8	D
		PM	43.5	D
Central Avenue at SR-60 Eastbound on/off Ramp	Signal	AM	9.2	A
		PM	10.2	B
Central Avenue at SR-60 Westbound on/off Ramp	Signal	AM	16.0	B
		PM	22.2	C
Central Avenue /Watkins at SR-60 Westbound on/off Ramp	OWSC	AM	16.7	C
		PM	12.9	B
Delay is measured in seconds/vehicle; LOS=Level of Service; sig=signalized; OWSC=One Way Stop Controlled; (a) Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections, (b) LOS calculations are based on the methodology outlined in the 2010 Highway Capacity Manual (HCM) and performed using Synchro 8 software				

SECTION III - PROJECT RELATED CONDITIONS

PROJECT TRAFFIC

Project Trip Generation

The project site proposes the development of a Gasoline Station with 16 fueling stations, a 3,200 square foot C-Store and a Carwash. Also proposed on the site is a 3,800 square foot fast Food Restaurant with a drive thru. The trip generation for the project was developed using rates from the ITE Trip Generation (9th) Edition) Land Use (946) for the Service Station with C-Store and Carwash and Land Use (934) for the Fast Food Restaurant with drive thru window.

The Service Station and Restaurant uses will typically draw trips from the traffic passing the site on an adjacent street. These trips are not “new” trips made for the sole purpose of visiting the site, but are trips made as an intermediate stop en route to an ultimate destination. These trips are referred to as “pass-by” trips and only affect traffic at project driveways and on streets adjacent to the project. Pass- by trips were calculated using rates from the ITE *Trip Generation Handbook* (9th Edition).

Table 6 summarizes the AM and PM peak hour and daily project trip generation and shows that the project is expected to generate 4,332 gross daily trips, 363 AM peak hour trips, and 347 PM peak hour trips. After accounting for pass-by trips, the project would generate 3,248 net new trips, 373 in the AM peak hour, , and 260 net new trips in the PM peak hour.

Table 6 – PROJECT TRIP GENERATION									
Trip Generation Rates									
Land Use	ITE CODE	Weekday Daily	AM PEAK			PM PEAK			
			Rate	In:Out Ratio		RATE	In:Out Ratio		
Convenience Market w/Gas Pumps and Carwash	946	152.84 trips /fs	11.84	0.51:0.49		13.86	0.51:0.49		
Fast Food w/Drive Thru	934	496.12 trips/ksf	45.42	0.51:0.49		32.65	0.52:0.48		
TRIP GENERATION CALCULATIONS									
Land Use	ITE CODE	Amount	ADT	AM PEAK			PM PEAK		
				In	Out	Total	In	Out	Total
<i>Proposed Land Use</i>									
Convenience Market w/Gas Pumps and Carwash	946	16 fs	2,446	97	93	190	114	108	222
<i>Pass-by Trip Reduction (25%)</i>			-612	-24	-23	-47	-29	-27	-56
Subtotal			1,834	73	70	143	85	81	166
Fast Food w/Drive Thru	934	3,800 ksf	1,866	89	84	173	65	60	125
<i>Pass-by Trip Reduction (25%)</i>			-472	-22	-21	-43	-16	-15	-31
Subtotal			1,414	67	63	130	49	45	94
Project Driveway Trips			4,332	186	177	363	179	168	347
Project Cumulative Trips			3,248	140	133	373	134	126	260

fs: fueling station, ksf: 1,000 square feet

Source: The trip rates for the project's land uses are based on the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition*.

Project Trip Distribution

The distribution of project trips was developed in consultation with City staff by examining the regional roadway network and the location of the proposed project in relation to the surrounding areas. Figure 5 presents the projects trip distribution with the projects southerly access restricted to right in/out movement as requested by the City. Trip assignment for project trips is the product of the project trip generation assignment illustrated on Figure 6 presents the project traffic volumes with the projects southerly access on Sycamore Canyon Boulevard restricted to right in/out access.

Opening Day (2019) Traffic Volumes

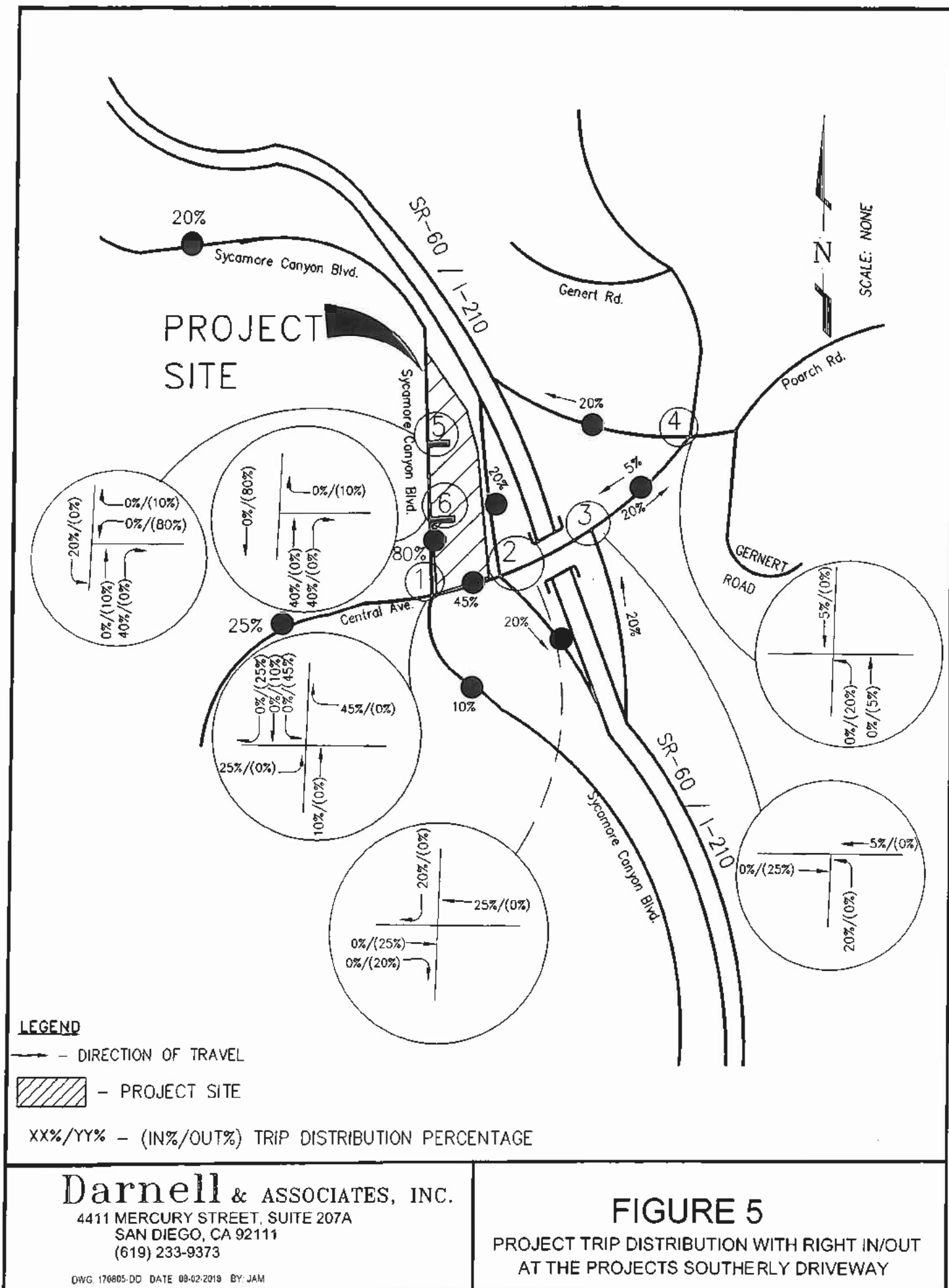
Opening Day (2019) traffic volumes were developed by applying an annual growth rate of 2.0 percent per year to the existing volumes. All assumptions, including the growth rate to be used for Opening Day analyses, are outlined in the City- approved scoping letter attached as Appendix A. Figure 7 illustrates the Opening Day 2019 peak hour volumes at study intersections under Opening Day 2019 project completion conditions

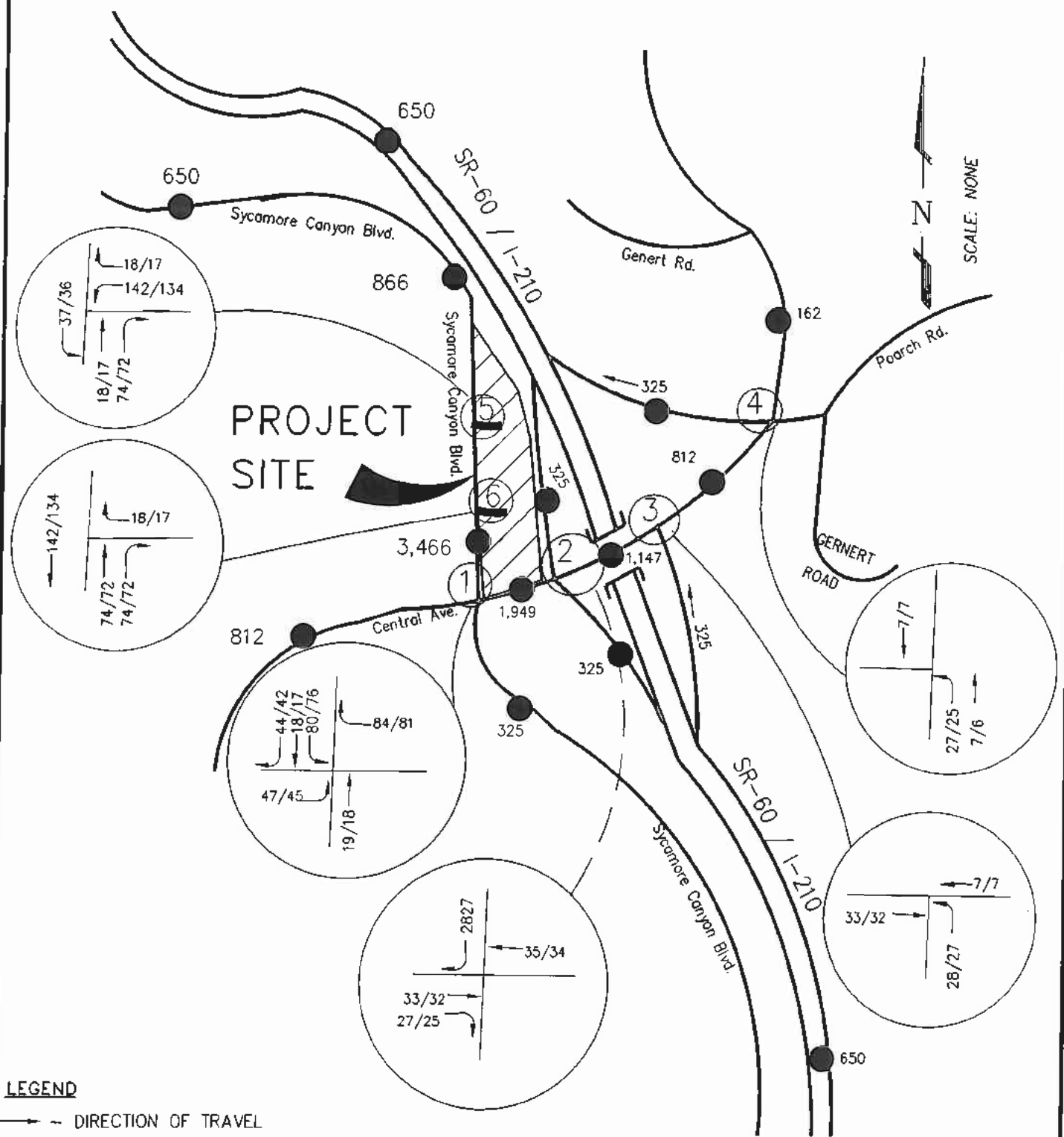
TRAFFIC VOLUMES WITH PROJECT SCENARIOS

Existing, Opening Day 2019 and Opening Day 2019 plus Project traffic volumes were developed by adding project traffic to the corresponding without project scenarios. Figure8 illustrates the Opening Day (2019) plus project traffic volumes with the projects southerly access restricted to right in/out access.

Cumulative Projects

Information concerning cumulative projects in the vicinity of the proposed project was obtained from City staff. Table 7 lists the cumulative projects that are within a 1.5 mile radius of the project site. Further investigation of the location of the projects found all projects except the project C-74 are located south on Sycamore Canyon Boulevard and Alessandro Boulevard. The location of the projects found their primary access routes would be in SR-60 and I-215. Access to SR-60 and I-215 is accommodated by the Box Springs/Fair Aisle Drive Interchange with SR-60. Due to the further investigation of the location of the cumulative projects listed on Table 7 it was concluded that the Opening Day 2019 traffic shown on Figure 7 would account for cumulative projects traffic and additional traffic analysis is not necessary.





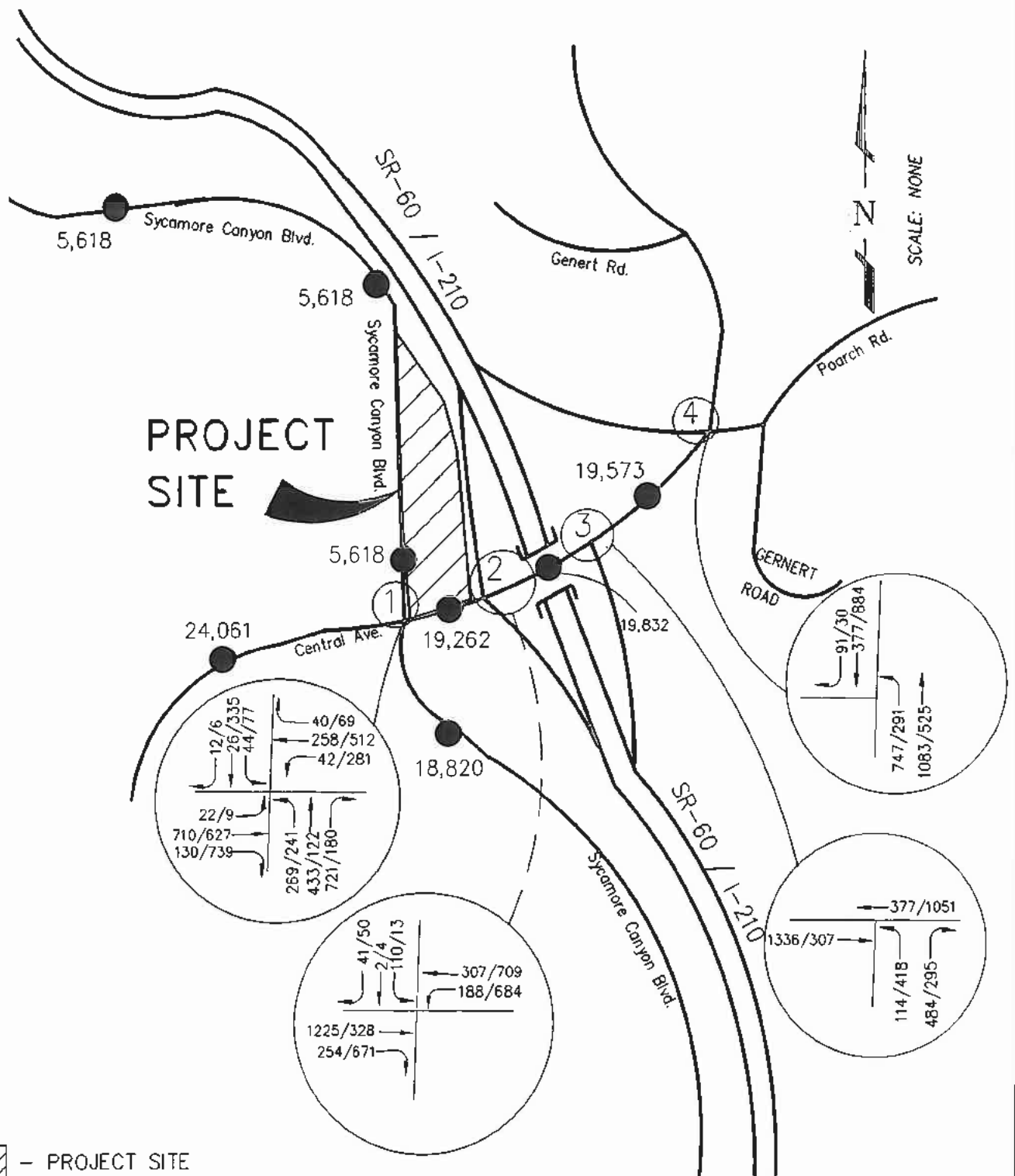
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FIGURE 6

PROJECT TRIP ASSIGNMENT WITH RIGHT IN/OUT
AT THE PROJECTS SOUTHERLY DRIVEWAY



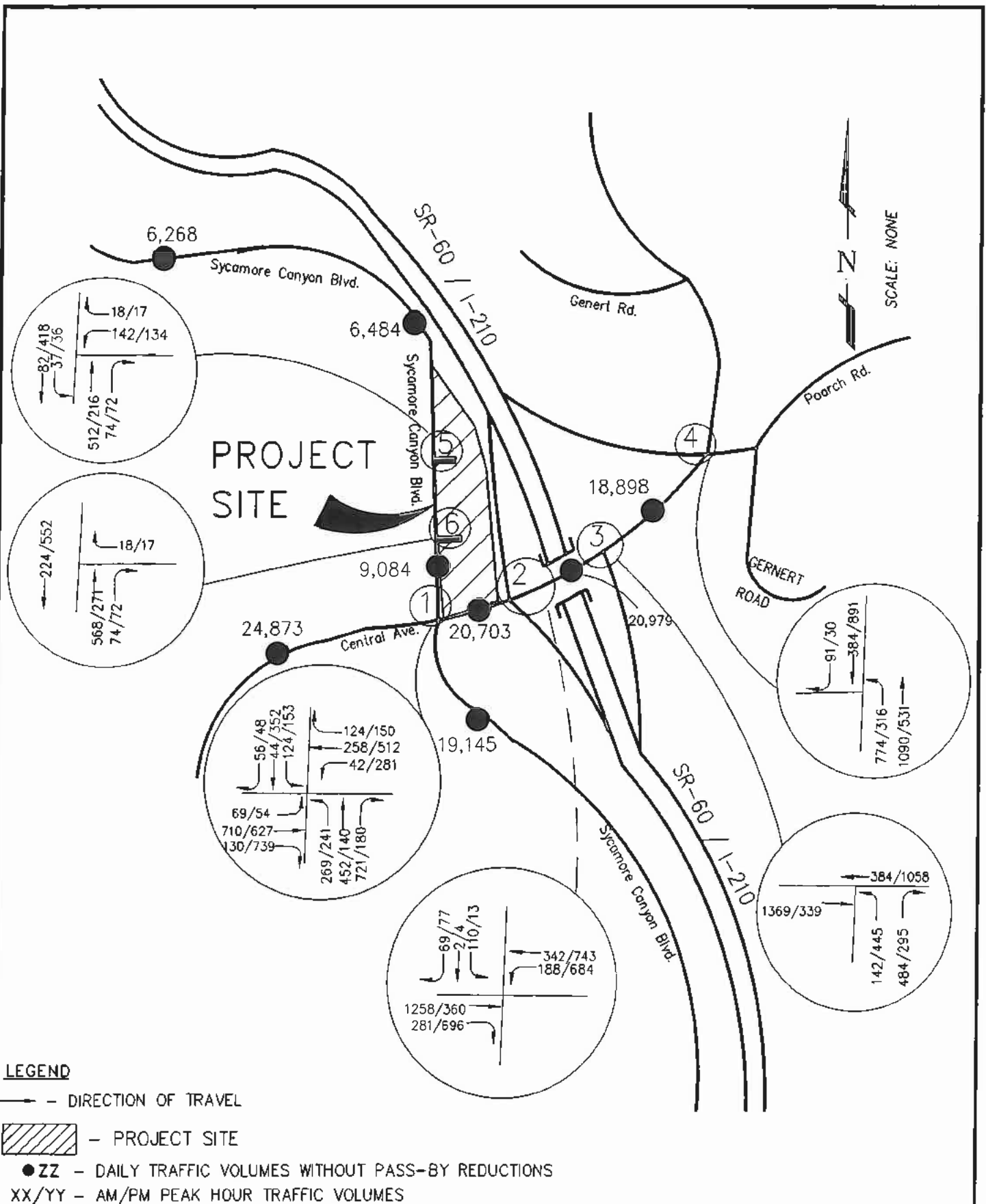
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FIGURE 7

OPENING DAY (2019) TRAFFIC VOLUMES



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FIGURE 8

OPENING DAY 2019 PLUS PROJECT TRAFFIC VOLUMES
WITH RIGHT IN/OUT AT PROJECTS SOUTHER DRIVEWAY

SECTION IV - PROJECT IMPACTS

OPENING DAY 2019 PLUS PROJECT LEVEL OF SERVICE CONDITIONS

This scenario analyzes the traffic impacts of the proposed project under Opening Day (2019) and Opening Day (2019) plus Project traffic volumes presented on Figures 7 and 8.

2019 Opening Day Plus Project Roadway Segments

Table 7 summarizes the daily roadway segments level of service for Opening Day 2019 and Opening Day 2019 plus Project conditions. As shown on Table 7, based on Opening Day 2019 conditions all of the roadway segments will operate at LOS D or better. Further review of Table 7 shows with the addition of project traffic all of the roadway segments will continue to operate at LOS D or better.

Table 7 – Opening Day 2019 Roadway Segment Level of Service									
Roadway	Roadway Classification	LOS E Capacity (a)	Opening Day 2019 ADT			Opening Day 2019 Plus Project			
			ADT	V/C	LOS	Project ADT	ADT	V/C	LOS
Central Avenue									
West of Sycamore Canyon Boulevard	4-Lane Arterial (100')	33,000	24,061	0.73	B	812	24,873	0.76	B
East of Sycamore Canyon Boulevard	4-Lane Arterial (100')	33,000	19,620	0.60	B	1,083	20,703	0.63	B
I-215 SB Ramp to I-215 NB Ramp	4-Lane Arterial (100')	33,000	19,832	0.60	B	1,147	20,979	0.64	B
Sycamore Canyon Boulevard									
North of Project	2-Lane Collector	12,500	5,618	0.45	B	866	6,484	0.51	B
North of Central Ave.	2-Lane Arterial	18,000	5,618	0.31	A	3,466	9,084	0.51	A
South of Central Ave.	4-Lane Arterial (88')	22,000	18,820	0.86	C	325	19,145	0.87	C
Watkins Drive									
Between I-215 NB Off Ramp and I-215 NB On Ramp	4-Lane Arterial (88')	22,000	19,573	0.89	D	812	19,898	0.90	D
Source; See City of Riverside Roadway Capacity shown in Table 3									

2019 Opening Day Plus Project Intersection

Table 2 summarizes the City of Riverside Level of Service thresholds. The Opening Day 2019 and Opening Day 2019 plus Project traffic volumes presented on Figures 7 and 8 were analyzed using Synchro 8 software to report the resulting levels of service for each intersection and condition. Table 8 presents the results of the analysis. Copies of the Synchro worksheets are presented in Appendix C. Review of Table 8 shows all of the intersections will operate at LOS D or better for Opening Day 2019 conditions and Opening Day 2019 plus Project Conditions.

Table 8 – Opening Day 2019 Intersection Level of Service

Intersection	Traffic Control	Peak Hour	Opening Day (2019)		Opening Day (2019) Plus Project		Opening Day (2019) Plus Project (RIRO at the Projects Southerly Driveway	
			Delay (a)	LOS (b)	Delay (a)	LOS (b)	Delay (a)	LOS (b)
Sycamore Canyon Rd & Central Ave	Signal	AM	48.8	D	52.7	D	41.3	D
		PM	49.9	D	53.0	D	34.2	C
SR-60 EB Ramps & Central Ave	Signal	AM	9.4	A	9.8	A	9.8	A
		PM	11.4	B	14.0	B	14.0	B
SR-60 WB Off-Ramp & Watkins Dr/Central Ave	Signal	AM	16.5	B	16.8	B	16.8	B
		PM	22.6	C	23.0	C	23.0	C
Watkins Dr & Poarch Rd/SR-60 WB On-Ramp	OWSC	AM	18.7	B	20.6	C	20.6	C
		PM	13.5	B	14.2	B	14.2	B
Sycamore Canyon Rd & North Proj Dwy	OWSC	AM	n/a		15.7	C	20.3	C
		PM			12.6	B	15.1	C
Sycamore Canyon Rd & South Proj Dwy (c)	OWSC	AM	n/a		17.1	C	13.1	B
		PM			13.6	B	10.2	B

Notes:

(a) Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.

(a) LOS calculations are based on the methodology outlined in the 2010 Highway Capacity Manual (HCM) and performed using Synchro 8.

(b) Drawing restricted to right in/out/ (RIRO= Right In/Right Out)

Further review of Table 8 shows the project driveways will each operate at LOS B under full access and the projects northerly access will operate at LOS C with the southerly access restricted to right in/out movement. Additional discussion of the project driveways is provided in Section V of this report.

Further review of the Sycamore Canyon Road/Central Avenue intersection found the Opening Day 2019 and Opening Day 2019 Plus Project traffic conditions found the Eastbound right turn lane to operate at LOS F in the AM Peak and the Northbound right turn lane to operate at LOS F in the PM Peak Hour period. The LOS F condition is due to the high right turning volumes on each approach. To mitigate the LOS E and LOS F condition City staff recommends that the traffic signal be modified to provide overlap phasing with the Northbound and Westbound left turn phasing at the intersection. With these improvements intersection peak hour level of service at each approach would improve. A copy of Synchro worksheets are presented in Appendix B.

In summary the project does not create any significant direct project impacts.

SECTION V - PROJECT ACCESS AND INTERNAL CIRCULATION

The site plan presented on Figure 2 shows the project's proposed access to the Sycamore Canyon Boulevard. The project proposes each driveway to function with full access movement at the projects northerly access and right in/out at the projects southerly access driveway. The City of Riverside Traffic Department has requested that we assess the corner sight distance looking north on Sycamore Canyon Boulevard at Southbound traffic.

The location of the driveways and existing striping is presented on Figure 9. Also presented on Figure 9 is the available corner sight distance looking north from the projects proposed northerly driveway. Review of Figure 9 identifies there is 415' feet of corner sight distance looking north from the projects northerly driveway and 415' feet of stopping sight distance for southbound Sycamore Canyon Boulevard traffic approaching the projects northerly driveway. Figure 9 also presents the existing striping on Sycamore Canyon Boulevard. Review of the existing striping shows the roadway is striped with a painted median in the vicinity of the projects northerly driveway.

To accommodate full access to the project and improve safety exiting the projects driveways, we have prepared a channelization concept to restripe Sycamore Canyon Boulevard to provide left turn access at the projects northerly driveway and channelization of Sycamore Avenue to install a 3 foot median to restrict the projects southerly driveway to right in/out movements. Figure 10 presents the recommended channelization. In addition the channelization plan restripes Sycamore Canyon Boulevard to provide a left turn lane for the projects northerly access.

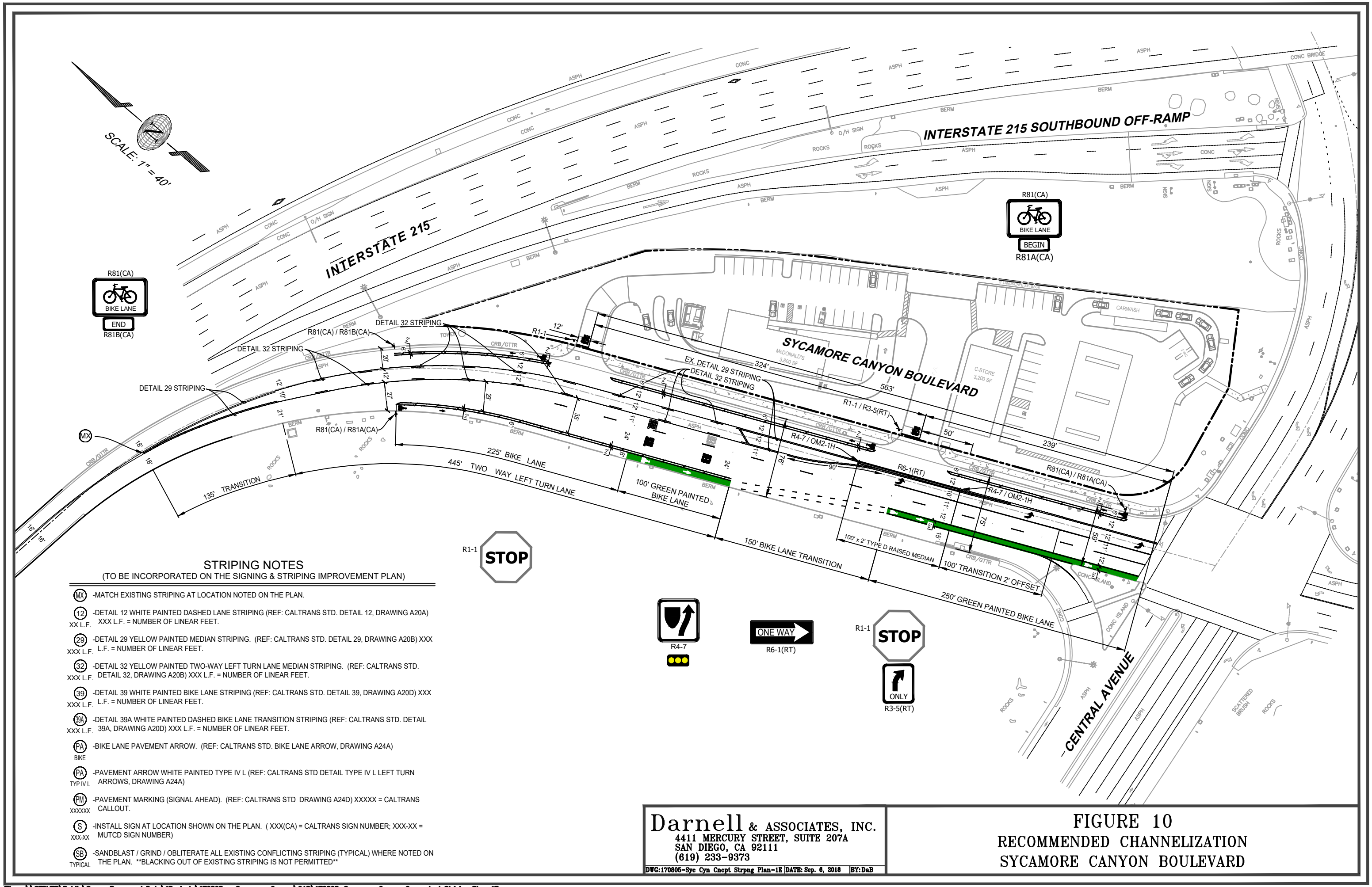
Further review of the project internal circulation found the circulation to be satisfactory, including the stacking for the carwash and fast food restaurant drive thru.



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DWG-170605-SYC CITY XSTRP & SIGHT DIST-1B DATE: May 31, 2018 BY: DaB

FIGURE 9
EXISTING STRIPING AND SIGHT DISTANCE



- STRIPING NOTES**
(TO BE INCORPORATED ON THE SIGNING & STRIPING IMPROVEMENT PLAN)
- (MX) -MATCH EXISTING STRIPING AT LOCATION NOTED ON THE PLAN.
 - (12) -DETAIL 12 WHITE PAINTED DASHED LANE STRIPING (REF: CALTRANS STD. DETAIL 12, DRAWING A20A) XXX L.F. = NUMBER OF LINEAR FEET.
 - (29) -DETAIL 29 YELLOW PAINTED MEDIAN STRIPING. (REF: CALTRANS STD. DETAIL 29, DRAWING A20B) XXX L.F. = NUMBER OF LINEAR FEET.
 - (32) -DETAIL 32 YELLOW PAINTED TWO-WAY LEFT TURN LANE MEDIAN STRIPING. (REF: CALTRANS STD. DETAIL 32, DRAWING A20B) XXX L.F. = NUMBER OF LINEAR FEET.
 - (39) -DETAIL 39 WHITE PAINTED BIKE LANE STRIPING (REF: CALTRANS STD. DETAIL 39, DRAWING A20D) XXX L.F. = NUMBER OF LINEAR FEET.
 - (39A) -DETAIL 39A WHITE PAINTED DASHED BIKE LANE TRANSITION STRIPING (REF: CALTRANS STD. DETAIL 39A, DRAWING A20D) XXX L.F. = NUMBER OF LINEAR FEET.
 - (PA) -BIKE LANE PAVEMENT ARROW. (REF: CALTRANS STD. BIKE LANE ARROW, DRAWING A24A) BIKE
 - (PA) -PAVEMENT ARROW WHITE PAINTED TYPE IV L (REF: CALTRANS STD DETAIL TYPE IV L LEFT TURN ARROWS, DRAWING A24A) TYP IV L
 - (PM) -PAVEMENT MARKING (SIGNAL AHEAD). (REF: CALTRANS STD. DRAWING A24D) XXXXX = CALTRANS CALLOUT.
 - (S) -INSTALL SIGN AT LOCATION SHOWN ON THE PLAN. (XXX(CA) = CALTRANS SIGN NUMBER; XXX-XX = MUTCD SIGN NUMBER)
 - (SB) -SANDBLAST / GRIND / OBLITERATE ALL EXISTING CONFLICTING STRIPING (TYPICAL) WHERE NOTED ON THE PLAN. **BLACKING OUT OF EXISTING STRIPING IS NOT PERMITTED** TYPICAL

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 (619) 233-9373
 DWG:170805-Syc Cyn Cncpt Strng Plan-1E | DATE: Sep. 6, 2018 | BY: DaB

FIGURE 10
RECOMMENDED CHANNELIZATION
SYCAMORE CANYON BOULEVARD

SECTION VI – SUMMARY OF FINDINGS AND CONCLUSSIONS

- The applicant proposes to develop the Sycamore Canyon Boulevard Commercial Development to provide a Service Station with a 3,200 square foot C-store with 16 Fueling positions and a carwash, and a 3,800 square foot Fast Food Restaurant.
- Development of the project is estimated to generate 4,332 daily, 363 AM peak hour and 347 PM peak hour driveway trips. With pass-by reductions the project will add 3,248 daily, 273 Am peak hour and 260 PM peak hour trips to the surrounding roadways and intersections.
- Analysis of the Year 2019 Opening Day conditions and with the addition of project traffic found each of the roadway segments and intersections analyzed to operate at an acceptable LOS D or better. Tables 8 and 9 shows the results of the analysis .
- Further analysis of a Sycamore Boulevard at Central Avenue intersection found LOS F conditions in the AM Peak Hour for the Northbound right turn and LOS F conditions in the PM Peak Hour for the Eastbound right turn movements. Installation of the overlap phasing of the signal modification will improve the LOS F condition and LOS F conditions to the Northbound right and Eastbound right lanes at the Sycamore Canyon Boulevard at Central Avenue intersection. Installation of the right turn overlaps phasing for the Eastbound right turn lane will improve LOS. Therefore the project does not create any significant direct impacts.
- To accommodate full access to the projects northerly driveway it is recommended that Sycamore Canyon Boulevard be restriped as shown on Figure 10.
- The projects southerly access will be restricted to right in/out movements. To restrict the projects southerly access the channelization plan shown on Figure 10 includes the installation a median barrier and installation of signage to restrict the driveway to right in/out movements.

APPENDIX A

- **Scoping Agreement**
- **AM/PM Peak Hour Traffic Counts**
- **24 Hour Machine Counts**

National Data & Surveying Services Intersection Turning Movement Count

Location: Sycamore Canyon Blvd & Central Ave
City: Moreno Valley
Control: Signalized

Project ID: 17-06160-001
Date: 10/19/2017

Total

NS/ EW Streets:	Sycamore Canyon Blvd				Sycamore Canyon Blvd				Central Ave				Central Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	3 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
7:00 AM	90	132	211	0	8	13	1	0	3	124	21	0	7	49	7	0	656
7:15 AM	77	126	187	0	10	4	3	0	3	154	28	0	9	62	12	0	675
7:30 AM	27	52	139	0	5	5	3	0	8	217	37	0	9	64	8	0	578
7:45 AM	64	106	156	0	15	3	4	0	7	187	39	0	15	73	11	0	690
8:00 AM	95	86	193	0	11	6	0	0	8	106	30	0	7	44	3	0	589
8:15 AM	83	94	206	0	12	12	3	0	6	115	40	0	15	51	5	0	642
8:30 AM	106	85	219	0	7	2	2	0	3	82	47	0	10	48	11	0	622
8:45 AM	79	89	160	0	13	9	1	0	1	90	30	0	13	53	7	0	545
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	621	770	1471	0	85	54	17	0	39	1075	272	0	85	444	64	0	4997
	21.70%	26.90%	51.40%	0.00%	54.49%	34.62%	10.90%	0.00%	2.81%	77.56%	19.62%	0.00%	14.33%	74.87%	10.79%	0.00%	
PEAK HR:	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL:	258	416	693	0	42	25	11	0	21	682	125	0	40	248	38	0	2599
PEAK HR FACTOR:	0.717	0.788	0.821	0.000	0.700	0.481	0.688	0.000	0.656	0.786	0.801	0.000	0.667	0.849	0.792	0.000	0.956
	0.789				0.886				0.790				0.823				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	3 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
4:00 PM	77	35	88	0	17	42	3	0	2	152	116	0	42	110	8	0	693
4:15 PM	73	42	94	0	14	59	1	0	1	153	146	0	35	87	19	0	724
4:30 PM	71	35	70	0	21	57	0	0	1	121	147	0	52	90	13	0	678
4:45 PM	58	30	59	0	24	65	4	0	0	164	135	0	49	96	13	0	697
5:00 PM	61	41	62	0	7	75	0	0	1	167	157	0	45	104	13	0	733
5:15 PM	60	29	50	0	21	72	0	0	1	177	169	0	51	112	14	0	756
5:30 PM	63	23	33	0	26	88	2	0	4	171	185	0	59	130	23	0	811
5:45 PM	47	24	28	0	20	87	3	0	2	87	195	0	115	146	16	0	770
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	510	259	484	0	150	545	13	0	12	1192	1254	0	449	875	119	0	5862
	40.70%	20.67%	38.63%	0.00%	21.19%	76.98%	1.84%	0.00%	0.49%	48.49%	51.02%	0.00%	31.12%	60.64%	8.25%	0.00%	
PEAK HR:	06:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:	231	117	173	0	74	322	5	0	8	602	710	0	270	492	66	0	3070
PEAK HR FACTOR:	0.917	0.713	0.698	0.000	0.712	0.915	0.417	0.000	0.500	0.850	0.910	0.000	0.587	0.842	0.717	0.000	0.946
	0.794				0.864				0.907				0.747				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR-60 EB Moreno Valley Fwy On/Off Ramp & Central Ave
City: Moreno Valley
Control: Signalized

Project ID: 17-06160-002
Date: 10/19/2017

Total

NS/EW Streets:	SR-60 EB Moreno Valley Fwy On/Off Ramp				SR-60 EB Moreno Valley Fwy On/Off Ramp				Central Ave				Central Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0.5 ST	1.5 SR	0 SU	0 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	8	0	14	0	0	289	51	0	32	51	0	0	445
7:15 AM	0	0	0	0	21	0	8	0	0	294	55	0	37	73	0	0	488
7:30 AM	0	0	0	0	55	0	7	0	0	292	69	0	54	78	0	0	555
7:45 AM	0	0	0	0	21	1	10	0	0	302	69	0	57	93	0	0	553
8:00 AM	0	0	0	0	9	3	16	0	0	264	48	0	32	40	0	0	412
8:15 AM	0	0	0	0	7	1	12	0	0	256	65	0	26	52	0	0	419
8:30 AM	0	0	0	0	3	0	11	0	0	265	46	0	23	60	0	0	412
8:45 AM	0	0	0	0	3	1	14	0	0	190	64	0	25	56	0	0	353
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	127	6	92	0	0	2156	467	0	286	503	0	0	3637
PEAK HR :	07:00 AM - 08:00 AM				56.44%	2.67%	40.89%	0.00%	0.00%	82.20%	17.80%	0.00%	36.25%	63.75%	0.00%	0.00%	
PEAK HR VOL :	0	0	0	0	105	1	39	0	0	1177	244	0	180	295	0	0	2041
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.477	0.250	0.696	0.000	0.000	0.974	0.884	0.000	0.789	0.793	0.000	0.000	0.919
							0.585				0.958				0.792		
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0.5 ST	1.5 SR	0 SU	0 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	3	1	12	0	0	132	129	0	136	141	0	0	554
4:15 PM	0	0	0	0	6	1	19	0	0	121	138	0	164	127	0	0	576
4:30 PM	0	0	0	0	6	0	12	0	0	95	118	0	154	138	0	0	523
4:45 PM	0	0	0	0	6	1	16	0	0	90	157	0	147	149	0	0	566
5:00 PM	0	0	0	0	2	0	12	0	0	36	146	0	162	148	0	0	555
5:15 PM	0	0	0	0	1	0	17	0	0	83	161	0	172	171	0	0	600
5:30 PM	0	0	0	0	3	2	8	0	0	56	181	0	176	213	0	0	639
5:45 PM	0	0	0	0	3	3	49	0	0	60	62	0	120	233	0	0	530
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	30	8	140	0	0	723	1092	0	1231	1320	0	0	4544
PEAK HR :	04:45 PM - 05:45 PM				16.85%	4.49%	78.65%	0.00%	0.00%	39.83%	60.17%	0.00%	48.26%	51.74%	0.00%	0.00%	
PEAK HR VOL :	0	0	0	0	12	3	48	0	0	315	645	0	657	681	0	0	2361
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.375	0.750	0.000	0.000	0.675	0.891	0.000	0.933	0.799	0.000	0.000	0.924
							0.685				0.972				0.860		

National Data & Surveying Services Intersection Turning Movement Count

Location: SR-60 WB Off Ramp N/O Moreno Valley Fwy & Watkins Dr
City: Moreno Valley
Control: Signalized

Project ID: 17-06160-003
Date: 10/19/2017

Total

NS/EW Streets:		SR-60 WB Off Ramp N/O Moreno Valley Fwy				SR-60 WB Off Ramp N/O Moreno Valley Fwy				Watkins Dr				Watkins Dr				TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM		2 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
	7:00 AM	25	0	120	0	0	0	0	0	0	304	0	0	0	52	0	0	501
	7:15 AM	33	0	137	0	0	0	0	0	0	313	0	0	0	79	0	0	562
	7:30 AM	21	0	104	0	0	0	0	0	0	348	0	0	0	110	0	0	583
	7:45 AM	30	0	104	0	0	0	0	0	0	319	0	0	0	121	0	0	574
	8:00 AM	25	0	75	0	0	0	0	0	0	283	0	0	0	51	0	0	434
	8:15 AM	37	0	95	0	0	0	0	0	0	262	0	0	0	41	0	0	435
	8:30 AM	42	0	98	0	0	0	0	0	0	262	0	0	0	39	0	0	441
	8:45 AM	37	0	89	0	0	0	0	0	0	209	0	0	0	44	0	0	379
TOTAL VOLUMES:		NL 250	NT 0	NR 822	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 2300	ER 0	EU 0	WL 0	WT 537	WR 0	WU 0	TOTAL 3909
APPROACH %'s:		23.32%	0.00%	76.68%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR:		07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL:		109	0	465	0	0	0	0	0	0	1294	0	0	0	362	0	0	2220
PEAK HR FACTOR:		0.826	0.000	0.849	0.000	0.000	0.000	0.000	0.000	0.000	0.522	0.000	0.000	0.000	0.748	0.000	0.000	0.952
		0.844								0.922				0.748				

PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		2 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
	4:00 PM	74	0	78	0	0	0	0	0	0	129	0	0	0	202	0	0	
	4:15 PM	80	0	75	0	0	0	0	0	0	135	0	0	0	222	0	0	512
	4:30 PM	70	0	87	0	0	0	0	0	0	101	0	0	0	213	0	0	471
	4:45 PM	85	0	90	0	0	0	0	0	0	93	0	0	0	208	0	0	476
	5:00 PM	81	0	62	0	0	0	0	0	0	91	0	0	0	236	0	0	470
	5:15 PM	89	0	67	0	0	0	0	0	0	84	0	0	0	246	0	0	486
	5:30 PM	125	0	73	0	0	0	0	0	0	57	0	0	0	269	0	0	524
	5:45 PM	106	0	81	0	0	0	0	0	0	63	0	0	0	259	0	0	509
TOTAL VOLUMES:		NL 710	NT 0	NR 613	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 753	ER 0	EU 0	WL 0	WT 1855	WR 0	WU 0	TOTAL 3931
APPROACH %'s:		53.67%	0.00%	46.33%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR:		05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL:		401	0	283	0	0	0	0	0	0	295	0	0	0	1010	0	0	1989
PEAK HR FACTOR:		0.882	0.000	0.873	0.000	0.000	0.000	0.000	0.000	0.000	0.818	0.000	0.000	0.000	0.939	0.000	0.000	0.949
		0.861								0.810				0.939				

National Data & Surveying Services Intersection Turning Movement Count

Location: Watkins Dr & SR-60 WB On Ramp/Poarch Rd
City: Moreno Valley
Control: 1-Way Stop(WB)

Project ID: 17-06160-004
Date: 10/19/2017

Total

NS/EW Streets:	Watkins Dr				Watkins Dr				SR-60 WB On Ramp/Poarch Rd				SR-60 WB On Ramp/Poarch Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	0.5 ST	0.5 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
7:00 AM	208	222	0	0	0	56	8	0	0	0	0	0	0	0	0	0	494
7:15 AM	173	277	0	0	0	77	12	0	0	0	0	0	0	0	0	0	539
7:30 AM	153	302	0	0	0	107	39	0	0	0	0	0	0	0	0	0	601
7:45 AM	184	240	0	0	0	122	28	0	0	0	0	0	0	0	0	0	574
8:00 AM	195	154	0	0	0	48	10	0	0	0	0	0	0	0	0	0	417
8:15 AM	183	178	0	0	0	41	5	0	0	0	0	0	0	0	0	0	407
8:30 AM	187	166	0	0	0	40	1	0	0	0	0	0	0	0	0	0	394
8:45 AM	154	146	0	0	0	42	5	0	0	0	0	0	0	0	0	0	347
TOTAL VOLUMES :	NL 1437	NT 1695	NR 0	NU 0	SL 0	ST 533	SR 108	SU 0	EL 0	ET 0	ER 0	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 3773
APPROACH %'s :	45.68%	54.12%	0.00%	0.00%	0.00%	83.15%	16.85%	0.00%									
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	718	1041	0	0	0	362	87	0	0	0	0	0	0	0	0	0	2208
PEAK HR FACTOR :	0.863	0.862	0.000	0.000	0.000	0.742	0.558	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.918
	0.966				0.748												
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	0.5 ST	0.5 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	92	112	0	0	0	206	5	0	0	0	0	0	0	0	0	0	415
4:15 PM	80	125	0	0	0	219	9	0	0	0	0	0	0	0	0	0	433
4:30 PM	59	131	0	0	0	215	9	0	0	0	0	0	0	0	0	0	414
4:45 PM	48	136	0	0	0	210	5	0	0	0	0	0	0	0	0	0	399
5:00 PM	52	97	0	0	0	229	6	0	0	0	0	0	0	0	0	0	384
5:15 PM	58	95	0	0	0	254	6	0	0	0	0	0	0	0	0	0	413
5:30 PM	36	95	0	0	0	271	6	0	0	0	0	0	0	0	0	0	408
5:45 PM	31	108	0	2	0	255	5	0	0	0	0	0	0	0	0	0	401
TOTAL VOLUMES :	NL 456	NT 899	NR 0	NU 2	SL 0	ST 1859	SR 51	SU 0	EL 0	ET 0	ER 0	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 3267
APPROACH %'s :	33.60%	66.25%	0.00%	0.15%	0.00%	97.33%	2.67%	0.00%									
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	279	504	0	0	0	850	28	0	0	0	0	0	0	0	0	0	1661
PEAK HR FACTOR :	0.758	0.926	0.000	0.000	0.000	0.970	0.778	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.959
	0.955				0.963												

VOLUME

Central Ave W/O Sycamore Canyon Blvd

Day: Wednesday
Date: 11/1/2017City: Riverside
Project #: CA17_6158_001

DAILY TOTALS						NB	SB	EB		WB		Total
						0	0	10,491		8,080		18,571
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			19	26	45	12:00			139	106	245	
00:15			21	31	52	12:15			153	103	256	
00:30			17	17	34	12:30			142	113	255	
00:45			23	80	20	12:45			120	554	201	
01:00			21	19	40	13:00			123	143	266	
01:15			11	16	27	13:15			138	134	272	
01:30			16	13	29	13:30			128	134	262	
01:45			7	55	10	13:45			160	549	107	
02:00			9	7	16	14:00			138	140	278	
02:15			9	6	15	14:15			151	133	284	
02:30			14	13	27	14:30			162	155	317	
02:45			4	36	11	14:45			170	621	118	
03:00			8	14	22	15:00			162	136	298	
03:15			8	10	18	15:15			195	134	329	
03:30			10	10	20	15:30			211	139	350	
03:45			7	33	15	15:45			264	832	162	
04:00			22	14	36	16:00			240	160	400	
04:15			19	16	35	16:15			275	180	455	
04:30			20	15	35	16:30			310	155	465	
04:45			17	78	27	16:45			303	1128	144	
05:00			23	22	45	17:00			318	165	483	
05:15			26	47	73	17:15			344	181	525	
05:30			42	63	105	17:30			323	160	483	
05:45			51	142	82	17:45			339	1324	136	
06:00			54	77	131	18:00			292	122	414	
06:15			63	97	160	18:15			265	115	380	
06:30			73	94	167	18:30			215	88	303	
06:45			126	316	128	18:45			216	988	83	
07:00			144	134	278	19:00			141	74	215	
07:15			214	111	325	19:15			115	72	187	
07:30			255	120	375	19:30			86	65	151	
07:45			191	804	157	19:45			83	425	59	
08:00			148	153	301	20:00			71	69	140	
08:15			156	137	293	20:15			84	94	178	
08:30			124	138	262	20:30			69	52	121	
08:45			115	543	139	20:45			70	294	65	
09:00			92	110	202	21:00			68	68	136	
09:15			85	110	195	21:15			67	66	133	
09:30			84	100	184	21:30			64	59	123	
09:45			86	347	102	21:45			51	250	57	
10:00			98	90	188	22:00			42	43	85	
10:15			84	83	167	22:15			32	47	79	
10:30			102	71	173	22:30			47	37	84	
10:45			110	394	92	22:45			34	155	36	
11:00			112	102	214	23:00			29	26	55	
11:15			119	75	194	23:15			24	35	59	
11:30			108	94	202	23:30			26	30	56	
11:45			106	445	117	23:45			19	98	24	
TOTALS			3273	3155	6428	TOTALS			7218	4925	12143	
SPUT %			50.9%	49.1%	34.6%	SPLIT %			59.4%	40.6%	65.4%	

DAILY TOTALS					NB	SB			EB	WB			Total	
					0	0			10,491	8,080			18,571	
AM Peak Hour			07:15	07:45	07:15				PM Peak Hour			17:00	15:45	17:00
AM Pk Volume			808	585	1349				PM Pk Volume			1324	657	1966
Pk Hr Factor			0.792	0.932	0.899				Pk Hr Factor			0.962	0.913	0.936
7 - 9 Volume			1347	1089	2436				4 - 6 Volume			2452	1281	3733
7 - 9 Peak Hour			07:15	07:45	07:15				4 - 6 Peak Hour			17:00	16:45	17:00
7 - 9 Pk Volume			808	585	1349				4 - 6 Pk Volume			1324	650	1966
Pk Hr Factor			0.792	0.932	0.899				Pk Hr Factor			0.962	0.898	0.936

VOLUME

Sycamore Canyon Blvd N/O Central Ave

Day: Thursday
Date: 10/19/2017

City: Riverside
Project #: CA17_6159_001

DAILY TOTALS					NB	SB	EB		WB		Total	
					3,149	2,253	0		0		5,402	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00	14	3	0	0	17		12:00	37	18	0	0	55
00:15	8	3	0	0	11		12:15	30	17	0	0	47
00:30	2	7	0	0	9		12:30	25	18	0	0	43
00:45	7	31	3	16	57	47	12:45	35	127	23	76	203
01:00	2	3	0	0	5		13:00	35	21	0	0	56
01:15	4	2	0	0	6		13:15	43	28	0	0	71
01:30	2	4	0	0	6		13:30	34	25	0	0	59
01:45	2	10	4	13	29	23	13:45	57	169	15	89	258
02:00	2	3	0	0	5		14:00	59	20	0	0	79
02:15	2	3	0	0	5		14:15	48	36	0	0	84
02:30	2	2	0	0	4		14:30	49	37	0	0	86
02:45	1	7	1	9	22	16	14:45	50	206	29	122	328
03:00	3	3	0	0	6		15:00	55	44	0	0	99
03:15	1	1	0	0	2		15:15	48	37	0	0	85
03:30	1	2	0	0	3		15:30	47	46	0	0	93
03:45	2	7	1	7	33	14	15:45	58	208	47	174	382
04:00	4	5	0	0	9		16:00	48	60	0	0	108
04:15	3	3	0	0	6		16:15	41	73	0	0	114
04:30	6	5	0	0	11		16:30	45	82	0	0	127
04:45	12	25	4	17	58	42	16:45	50	184	59	274	458
05:00	16	5	0	0	21		17:00	38	88	0	0	126
05:15	16	3	0	0	19		17:15	53	117	0	0	170
05:30	25	12	0	0	37		17:30	33	99	0	0	132
05:45	33	90	9	29	161	119	17:45	36	160	96	400	560
06:00	31	6	0	0	37		18:00	23	93	0	0	116
06:15	57	10	0	0	67		18:15	24	87	0	0	111
06:30	88	11	0	0	99		18:30	12	63	0	0	75
06:45	97	273	20	47	337	320	18:45	21	80	54	297	377
07:00	140	21	0	0	161		19:00	19	55	0	0	74
07:15	136	15	0	0	151		19:15	24	42	0	0	66
07:30	104	23	0	0	127		19:30	15	34	0	0	49
07:45	122	502	17	76	617	578	19:45	13	71	31	162	233
08:00	92	16	0	0	108		20:00	26	21	0	0	47
08:15	110	26	0	0	136		20:15	23	12	0	0	35
08:30	98	11	0	0	109		20:30	13	14	0	0	27
08:45	103	403	21	74	501	477	20:45	11	73	12	59	132
09:00	54	16	0	0	70		21:00	12	14	0	0	26
09:15	56	18	0	0	74		21:15	13	15	0	0	28
09:30	48	18	0	0	66		21:30	11	8	0	0	19
09:45	40	198	14	66	258	264	21:45	14	50	12	49	99
10:00	27	13	0	0	40		22:00	8	5	0	0	13
10:15	29	22	0	0	51		22:15	4	9	0	0	13
10:30	29	15	0	0	44		22:30	9	3	0	0	12
10:45	34	119	18	68	239	187	22:45	7	28	7	24	52
11:00	31	25	0	0	56		23:00	11	6	0	0	17
11:15	16	18	0	0	34		23:15	5	2	0	0	7
11:30	27	19	0	0	46		23:30	10	8	0	0	18
11:45	24	98	22	84	228	182	23:45	4	30	5	21	51
TOTALS	1763	506			2269		TOTALS	1386	1747			3133
SPLIT %	77.7%	22.3%			42.0%		SPLIT %	44.2%	55.8%			58.0%

DAILY TOTALS					NB	SB	EB	WB	Total
					3,149	2,253	0	0	5,402
AM Peak Hour	07:00	11:00			07:00				17:00
AM Pk Volume	502	84			578				560
Pk Hr Factor	0.896	0.840			0.898				0.824
7 - 9 Volume	905	150			1055				1018
7 - 9 Peak Hour	07:00	07:30			07:00				17:00
7 - 9 Pk Volume	502	82			578				560
Pk Hr Factor	0.896	0.788			0.898				0.824
PM Peak Hour					13:45	17:15			
PM Pk Volume					213	405			
Pk Hr Factor					0.903	0.865			
4 - 6 Volume					344	674			
4 - 6 Peak Hour					16:30	17:00			
4 - 6 Pk Volume					186	400			
Pk Hr Factor					0.877	0.855			

VOLUME

Central Ave Bet. Sycamore Canyon Blvd & SR-60 EB On/Off Ramp

Day: Thursday
Date: 10/19/2017City: Riverside
Project #: CA17_6158_002

DAILY TOTALS					NB	SB	EB				WB	Total	
					0	0	12,242				7,191	19,433	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			18	41	59		12:00			128	88	216	
00:15			22	41	63		12:15			125	87	212	
00:30			27	31	58		12:30			149	103	252	
00:45			25	92	27	140	12:45			141	543	172	450
01:00			27	26	53		13:00			147	130	277	
01:15			19	31	50		13:15			141	95	236	
01:30			16	17	33		13:30			179	111	290	
01:45			9	71	15	89	13:45			186	653	92	428
02:00			12	16	28		14:00			172	129	301	
02:15			12	13	25		14:15			184	102	286	
02:30			15	23	38		14:30			195	125	320	
02:45			5	44	13	65	14:45			204	755	100	456
03:00			9	17	26		15:00			212	119	331	
03:15			9	9	18		15:15			221	120	341	
03:30			16	10	26		15:30			253	127	380	
03:45			8	42	21	57	15:45			263	949	117	483
04:00			20	10	30		16:00			243	154	397	
04:15			26	14	40		16:15			250	152	402	
04:30			28	10	38		16:30			261	128	389	
04:45			25	99	27	61	16:45			220	974	158	592
05:00			31	21	52		17:00			244	157	401	
05:15			77	29	106		17:15			260	201	461	
05:30			172	20	192		17:30			218	191	409	
05:45			236	516	28	98	17:45			213	935	178	727
06:00			266	37	303		18:00			195	151	346	
06:15			320	37	357		18:15			187	146	333	
06:30			272	43	315		18:30			149	95	244	
06:45			297	1155	65	182	18:45			156	687	99	491
07:00			329	54	383		19:00			90	97	187	
07:15			324	79	403		19:15			90	80	170	
07:30			337	92	429		19:30			48	76	124	
07:45			327	1317	105	330	19:45			57	285	74	327
08:00			267	78	345		20:00			66	81	147	
08:15			314	64	378		20:15			59	105	164	
08:30			267	68	335		20:30			49	64	113	
08:45			240	1088	83	293	20:45			53	227	79	329
09:00			142	68	210		21:00			48	89	137	
09:15			131	65	196		21:15			53	78	131	
09:30			106	80	186		21:30			43	71	114	
09:45			121	500	87	300	21:45			40	184	81	319
10:00			115	55	170		22:00			36	69	105	
10:15			98	74	172		22:15			26	58	84	
10:30			120	65	185		22:30			36	46	82	
10:45			122	455	78	272	22:45			33	131	54	227
11:00			113	85	198		23:00			38	34	72	
11:15			92	70	162		23:15			33	41	74	
11:30			106	96	202		23:30			23	33	56	
11:45			119	430	89	340	23:45			16	110	27	135
TOTALS			5809	2227	8036		TOTALS			6433	4964	11397	
SPLIT %			72.3%	27.7%	41.4%		SPLIT %			56.4%	43.6%	58.6%	

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	12,242				7,191	19,433
AM Peak Hour			07:00	11:45	07:00		PM Peak Hour			15:45	17:00	17:00
AM Pk Volume			1317	367	1647		PM Pk Volume			1017	727	1662
Pk Hr Factor			0.977	0.891	0.953		Pk Hr Factor			0.967	0.904	0.901
7 - 9 Volume			2405	623	3028		4 - 6 Volume			1909	1319	3228
7 - 9 Peak Hour			07:00	07:15	07:00		4 - 6 Peak Hour			16:30	17:00	17:00
7 - 9 Pk Volume			1317	354	1647		4 - 6 Pk Volume			985	727	1662
Pk Hr Factor			0.977	0.843	0.953		Pk Hr Factor			0.943	0.904	0.901

VOLUME

Central Ave Bet. SR-60 EB On/Off Ramp & SR-60 WB Off Ramp

Day: Thursday
Date: 10/19/2017City: Riverside
Project #: CA17_6158_003

DAILY TOTALS					NB	SB	EB		WB		Total	
					0	0	8,334	9,602			17,936	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00			8	35	43		12:00			80	118	198
00:15			13	30	43		12:15			76	98	174
00:30			13	22	35		12:30			110	107	217
00:45			10	44	24	111	12:45			92	358	450
01:00			8	16	24		13:00			89	153	242
01:15			10	10	20		13:15			96	125	221
01:30			6	10	16		13:30			105	129	234
01:45			3	27	17	53	13:45			138	428	566
02:00			5	7	12		14:00			125	186	311
02:15			4	2	6		14:15			122	140	262
02:30			6	5	11		14:30			120	162	282
02:45			5	20	9	23	14:45			136	503	639
03:00			8	10	18		15:00			128	147	275
03:15			6	7	13		15:15			124	171	295
03:30			7	5	12		15:30			139	190	329
03:45			6	27	15	37	15:45			131	522	653
04:00			13	11	24		16:00			105	262	367
04:15			15	9	24		16:15			110	295	405
04:30			24	22	46		16:30			95	268	363
04:45			51	103	22	64	16:45			105	415	520
05:00			45	28	73		17:00			85	320	405
05:15			100	23	123		17:15			82	365	447
05:30			227	16	243		17:30			80	377	457
05:45			230	602	40	107	17:45			76	323	400
06:00			223	25	248		18:00			45	301	346
06:15			233	32	265		18:15			52	252	304
06:30			281	45	326		18:30			44	236	280
06:45			295	1032	89	191	18:45			59	200	259
07:00			284	78	362		19:00			41	170	211
07:15			310	104	414		19:15			42	134	176
07:30			347	130	477		19:30			24	130	154
07:45			311	1252	145	457	19:45			26	133	159
08:00			291	72	363		20:00			32	96	128
08:15			259	74	333		20:15			33	76	109
08:30			254	75	329		20:30			37	81	118
08:45			215	1019	75	296	20:45			19	121	140
09:00			181	71	252		21:00			23	72	95
09:15			144	68	212		21:15			23	56	79
09:30			101	94	195		21:30			24	71	95
09:45			83	509	77	310	21:45			29	99	128
10:00			47	80	127		22:00			22	44	66
10:15			66	88	154		22:15			17	40	57
10:30			60	97	157		22:30			19	38	57
10:45			49	222	80	345	22:45			23	81	104
11:00			64	97	161		23:00			14	28	42
11:15			57	77	134		23:15			12	32	44
11:30			50	86	136		23:30			13	32	45
11:45			73	244	87	347	23:45			11	50	61
TOTALS			5101	2341	7442		TOTALS			3233	7261	10494
SPLIT %			68.5%	31.5%	41.5%		SPLIT %			30.8%	69.2%	58.5%

DAILY TOTALS				NB	SB	EB	WB	Total
				0	0	8,334	9,602	17,936
AM Peak Hour		07:15	07:00	07:15	PM Peak Hour		14:45	17:00
AM Pk Volume		1259	457	1710	PM Pk Volume		527	1406
Pk Hr Factor		0.907	0.788	0.896	Pk Hr Factor		0.948	0.932
7 - 9 Volume	0	0	2271	753	3024	4 - 6 Volume	0	0
7 - 9 Peak Hour		07:15	07:00	07:15	4 - 6 Peak Hour		16:00	17:00
7 - 9 Pk Volume	0	0	1259	457	1710	4 - 6 Pk Volume	0	0
Pk Hr Factor	0.907	0.907	0.907	0.907	0.896	Pk Hr Factor	0.943	0.932

VOLUME

Watkins Dr Bet. SR-60 WB Off Ramp & SR-60 WB On Ramp

Day: Thursday
Date: 10/19/2017City: Riverside
Project #: CA17_6158_004

DAILY TOTALS					NB	SB	EB	WB	Total		
					12,749	6,320	0	0	19,069		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	18	19			37	12:00	130	72			202
00:15	17	23			40	12:15	129	45			174
00:30	15	18			33	12:30	160	52			212
00:45	19	69	20	80	39	12:45	168	587	35	204	203
01:00	14	9			23	13:00	117	89			206
01:15	14	8			22	13:15	175	75			250
01:30	11	7			18	13:30	178	75			253
01:45	5	44	7	31	12	13:45	214	684	66	305	280
02:00	10	3			13	14:00	195	138			333
02:15	6	2			8	14:15	185	91			276
02:30	10	3			13	14:30	200	112			312
02:45	7	33	6	14	13	14:45	202	782	102	443	304
03:00	12	6			18	15:00	187	107			294
03:15	9	4			13	15:15	186	124			310
03:30	7	1			8	15:30	210	135			345
03:45	14	42	5	16	19	15:45	202	785	177	543	379
04:00	18	2			20	16:00	172	178			350
04:15	24	3			27	16:15	196	216			412
04:30	83	4			87	16:30	197	197			394
04:45	102	227	8	17	110	16:45	181	746	209	800	390
05:00	86	10			96	17:00	142	239			381
05:15	166	6			172	17:15	165	263			428
05:30	298	3			301	17:30	132	264			396
05:45	335	885	16	35	351	17:45	145	584	248	1014	393
06:00	257	13			270	18:00	111	202			313
06:15	335	15			350	18:15	92	207			299
06:30	342	25			367	18:30	77	185			262
06:45	392	1326	69	122	461	18:45	91	371	135	729	226
07:00	420	57			477	19:00	54	124			178
07:15	449	76			525	19:15	69	92			161
07:30	430	111			541	19:30	53	90			143
07:45	394	1693	122	366	516	19:45	68	244	53	359	121
08:00	365	49			414	20:00	54	52			106
08:15	371	41			412	20:15	65	52			117
08:30	355	40			395	20:30	68	45			113
08:45	319	1410	43	173	362	20:45	44	231	34	183	78
09:00	219	37			256	21:00	38	36			74
09:15	208	29			237	21:15	45	34			79
09:30	170	55			225	21:30	45	38			83
09:45	138	735	41	162	179	21:45	54	182	40	148	94
10:00	97	52			149	22:00	44	26			70
10:15	104	52			156	22:15	30	26			56
10:30	113	42			155	22:30	36	26			62
10:45	105	419	33	179	138	22:45	34	144	28	106	62
11:00	100	48			148	23:00	24	20			44
11:15	102	40			142	23:15	22	25			47
11:30	105	51			156	23:30	26	25			51
11:45	128	435	58	197	186	23:45	19	91	24	94	43
TOTALS	7318	1392			8710	TOTALS	5431	4928			10359
SPLIT %	84.0%	16.0%			45.7%	SPLIT %	52.4%	47.6%			54.3%

DAILY TOTALS					NB	SB	EB	WB	Total
					12,749	6,320	0	0	19,069
AM Peak Hour	07:00	07:00		07:00	PM Peak Hour	13:45	17:00		17:00
AM Pk Volume	1693	366		2059	PM Pk Volume	794	1014		1598
Pk Hr Factor	0.943	0.750		0.951	Pk Hr Factor	0.928	0.960		0.933
7 - 9 Volume	3103	539	0	3642	4 - 6 Volume	1330	1814	0	3144
7 - 9 Peak Hour	07:00	07:00		07:00	4 - 6 Peak Hour	16:00	17:00		17:00
7 - 9 Pk Volume	1693	366	0	2059	4 - 6 Pk Volume	746	1014	0	1598
Pk Hr Factor	0.943	0.750	0.000	0.951	Pk Hr Factor	0.947	0.960	0.000	0.933

VOLUME

Sycamore Canyon Blvd S/O Central Ave

Day: Thursday
Date: 10/19/2017City: Riverside
Project #: CA17_6158_005

DAILY TOTALS					NB	SB	EB		WB		Total
					11,326	7,494	0		0		18,820
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	11	15			26	12:00	126	67			193
00:15	9	15			24	12:15	92	67			159
00:30	12	17			29	12:30	94	71			165
00:45	8	40	18	65	26	12:45	91	403	71	276	679
01:00	10	14			24	13:00	118	82			200
01:15	9	6			15	13:15	135	85			220
01:30	8	8			16	13:30	170	90			260
01:45	5	32	8	36	13	13:45	175	598	92	349	947
02:00	3	6			9	14:00	174	93			267
02:15	5	3			8	14:15	185	90			275
02:30	2	3			5	14:30	172	140			312
02:45	4	14	1	13	5	14:45	229	760	114	437	1197
03:00	3	4			7	15:00	202	127			329
03:15	3	6			9	15:15	199	153			352
03:30	5	3			8	15:30	219	162			381
03:45	6	17	8	21	14	15:45	231	851	193	635	1486
04:00	8	6			14	16:00	186	198			384
04:15	15	6			21	16:15	176	246			422
04:30	35	16			51	16:30	177	246			423
04:45	70	128	17	45	87	16:45	152	691	262	952	1643
05:00	65	15			80	17:00	145	268			413
05:15	155	14			169	17:15	145	320			465
05:30	290	15			305	17:30	117	326			443
05:45	289	799	32	76	321	17:45	93	500	327	1241	1741
06:00	284	22			306	18:00	66	298			364
06:15	359	24			383	18:15	60	257			317
06:30	419	22			441	18:30	48	238			286
06:45	406	1468	38	106	444	18:45	47	221	171	964	1185
07:00	414	41			455	19:00	42	172			214
07:15	398	42			440	19:15	46	128			174
07:30	239	53			292	19:30	31	114			145
07:45	348	1399	57	193	405	19:45	23	142	92	506	648
08:00	389	41			430	20:00	34	72			106
08:15	396	70			466	20:15	38	61			99
08:30	412	59			471	20:30	26	52			78
08:45	315	1512	56	226	371	20:45	31	129	47	232	361
09:00	243	42			285	21:00	19	49			68
09:15	227	53			280	21:15	22	49			71
09:30	156	64			220	21:30	23	39			62
09:45	129	755	66	225	195	21:45	20	84	43	180	264
10:00	92	67			159	22:00	14	43			57
10:15	100	75			175	22:15	22	27			49
10:30	96	57			153	22:30	13	24			37
10:45	84	372	65	264	149	22:45	18	67	25	119	186
11:00	82	63			145	23:00	9	23			32
11:15	54	53			107	23:15	3	24			27
11:30	64	61			125	23:30	12	20			32
11:45	111	311	65	242	176	23:45	9	33	24	91	124
TOTALS	6847	1512			8359	TOTALS	4479	5982			10461
SPLIT %	81.9%	18.1%			44.4%	SPLIT %	42.8%	57.2%			55.6%

DAILY TOTALS					NB	SB	EB	WB	Total
					11,326	7,494	0	0	18,820

AM Peak Hour	06:30	09:30		06:30	PM Peak Hour	15:00	17:15		17:00
AM Pk Volume	1637	272		1780	PM Pk Volume	851	1271		1741
Pk Hr Factor	0.977	0.907		0.978	Pk Hr Factor	0.921	0.972		0.936
7 - 9 Volume	2911	419		3330	4 - 6 Volume	1191	2193		3384
7 - 9 Peak Hour	07:45	07:45		07:45	4 - 6 Peak Hour	16:00	17:00		17:00
7 - 9 Pk Volume	1545	227		1772	4 - 6 Pk Volume	691	1241		1741
Pk Hr Factor	0.938	0.811		0.941	Pk Hr Factor	0.929	0.949		0.936



Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Riverside Public Works Traffic Engineering Division requirements for traffic impact analysis of the following project. The analysis must follow the City Traffic Impact Analysis Preparation Guide dated January 2018.

Case No. P-17-0511 Sycamore Canyon Commercial Development
Related Cases - _____
SP No. _____
EIR No. _____
GPA No. _____
CZ No. _____

Project Name: Sycamore Canyon Commercial Development
Project Location: Northeast corner of Sycamore Canyon at Central Avenue
Project Description: 3,200 Sq. Ft. Convenience Store with 16 Fueling Stations & Car Wash and a 3,800 Sq. Ft. Fast Food With Drive Thru.

	<u>Consultant</u>	<u>Developer</u>
Name:	<u>Darnell & Associates</u>	<u>KA Shores Group LLC</u>
Address:	<u>4413 Mercury St. #207A</u> <u>San Diego, CA. 92111</u>	<u>5820 Oberlin Drive, Ste. 201</u> <u>San Diego CA. 92121</u>
Telephone:	<u>(619) 233-9373</u>	_____

A. Trip Generation Source: ITE Trip Generation Manual, most recent edition

Existing Land Use	<u>Commercial</u>	Proposed Land Use	<u>Commercial</u>
Existing Zoning	<u>Not Designated</u>	Proposed Zoning	<u>C6 Commercial</u>
Total Daily Trips	<u>10,568 ADT</u>		

	<u>In</u>	<u>Out</u>	<u>Total</u>
AM Trips	<u>227</u>	<u>217</u>	<u>439</u>
PM Trips	<u>218</u>	<u>213</u>	<u>431</u>

Internal Trip ☐ Yes ☒ No (0% % Trip Discount)
Allowance
Pass-By Trip Allowance ☒ Yes ☐ No (25% % Trip Discount)
(Attach additional sheet if this is a multi-use site with a breakdown of trips generated)

B. Trip Geographic Distribution: N 40% S 30% E 5% W 25%
(See attached exhibit for detailed assignment)

C. Background Traffic

Project Completion Year: 2019 Annual Ambient Growth Rate: 2%
Other area projects to be included: (See Table 2)

Please contact Planning Division or use the most recently provided data
Model/Forecast methodology if required City of Riverside GP 2025 Model

D. Build-out Studies: Does this project require a Build-out Study per TIA Guidelines Section 7.2?

☐ Yes ☐ No

E. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)

- | | |
|---|----------|
| 1. <u>Sycamore Canyon Blvd. at Central Ave.</u> | 6. _____ |
| 2. <u>Central Ave. at SR-60 EB on/off ramp.</u> | 6. _____ |
| 3. <u>Central Ave. at SR-60 WB on/off ramp.</u> | 7. _____ |
| 4. <u>Central Ave./Watkins at SR-60 WB</u> | 8. _____ |
| <u>on/off ramp.</u> | |

F. Study Roadway Segments (For Build-out Studies):

- | | |
|--|--|
| 1. <u>Sycamore Canyon Blvd. W/O Project</u> | 5. <u>Central Ave. E/O Sycamore Canyon Blvd.</u> |
| 2. <u>Sycamore Canyon Blvd. N/O Central Ave.</u> | 6. <u>Central Ave. E/O SR-60 EB on/off ramp.</u> |
| 3. <u>Sycamore Canyon Blvd. S/O Central Ave.</u> | 7. <u>Central Ave. E/O SR-60 WB on/off ramp.</u> |
| 4. <u>Central Ave. W/O Sycamore Canyon Blvd.</u> | 8. _____ |

G. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or one-mile radius of boundaries? ☒ Yes ☐ No

If so, name of Jurisdiction: Caltrans District 8 and County of Riverside

H. Site Plan (please attach a legible 11X17 copy)

I. Specific issues to be addressed in the Study (In addition to the standard analysis described in the Guidelines) (To be filled out by Public Works Traffic Department)

Analysis of Projects Northerly Access on the Projects southerly access on Sycamore Canyon Blvd.

Level of Service, Stopping Sight Distance and Channelization requirements. Analysis of Sycamore

Canyon Blvd. as right in/out and as full access to determine the recommended access movement.

Recommended by:

Bill E. Darnell
Consultant's Representative
Bill E. Darnell

October 27, 2017

Date

Scoping Agreement Submitted on

Date

Scoping Agreement Resubmitted on

Date

Approved Scoping Agreement:

[Signature]
City of Riverside
Traffic Engineering Division

10/30/17

Date

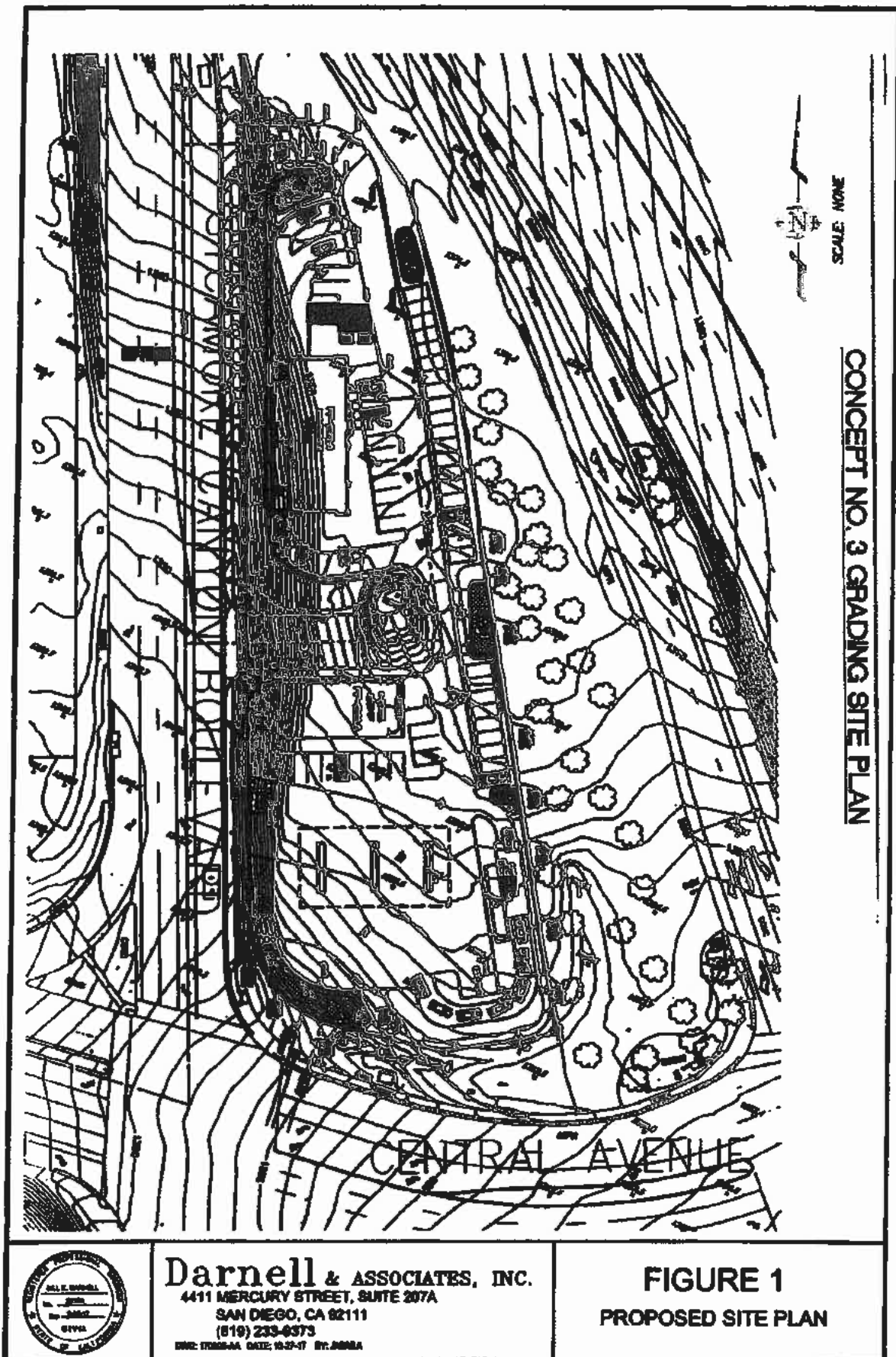
cc: Planning Division

13

Table 1 – PROJECT TRIP GENERATION									
TRIP GENERATION RATES									
Land Use	ITE Code	Weekday Daily	AM PEAK			PM PEAK			
			Rate	In:Out Ratio	Rate	In:Out Ratio			
Convenience Market w/Gas Pumps	853	542.60 trips / ft	16.57	0.50 : 0.50	19.07	0.50 : 0.50			
Fast Food w/Drive Thru	934	496.12 trips / ksf	45.42	0.51 : 0.49	32.65	0.52 : 0.48			
TRIP GENERATION CALCULATIONS									
Land Use	ITE Code	Amount	ADT	AM PEAK			PM PEAK		
				In	Out	Total	In	Out	Total
Proposed Uses									
Convenience Market w/Gas Pumps	853	16 ft	8,682	133	133	266	153	153	306
Less Pass-by (25%)			-2,171	-33	-33	-66	-38	-38	-76
Subtotal			6,511	100	100	200	115	115	230
Fast Food w/Drive Thru	934	3,800 ksf	1,886	89	84	173	65	60	125
Less Pass-by (25%)			-472	-22	-21	-43	-16	-15	-31
Subtotal			1,414	67	63	130	49	45	94
Project Traffic (Driveway)			10,568	222	217	439	218	213	431
Project Traffic (Cumulative)			7,925	167	163	330	164	160	324
Notes									
ft: fueling station, ksf: 1,000 square feet. The trip rates for the project's land uses are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition.									

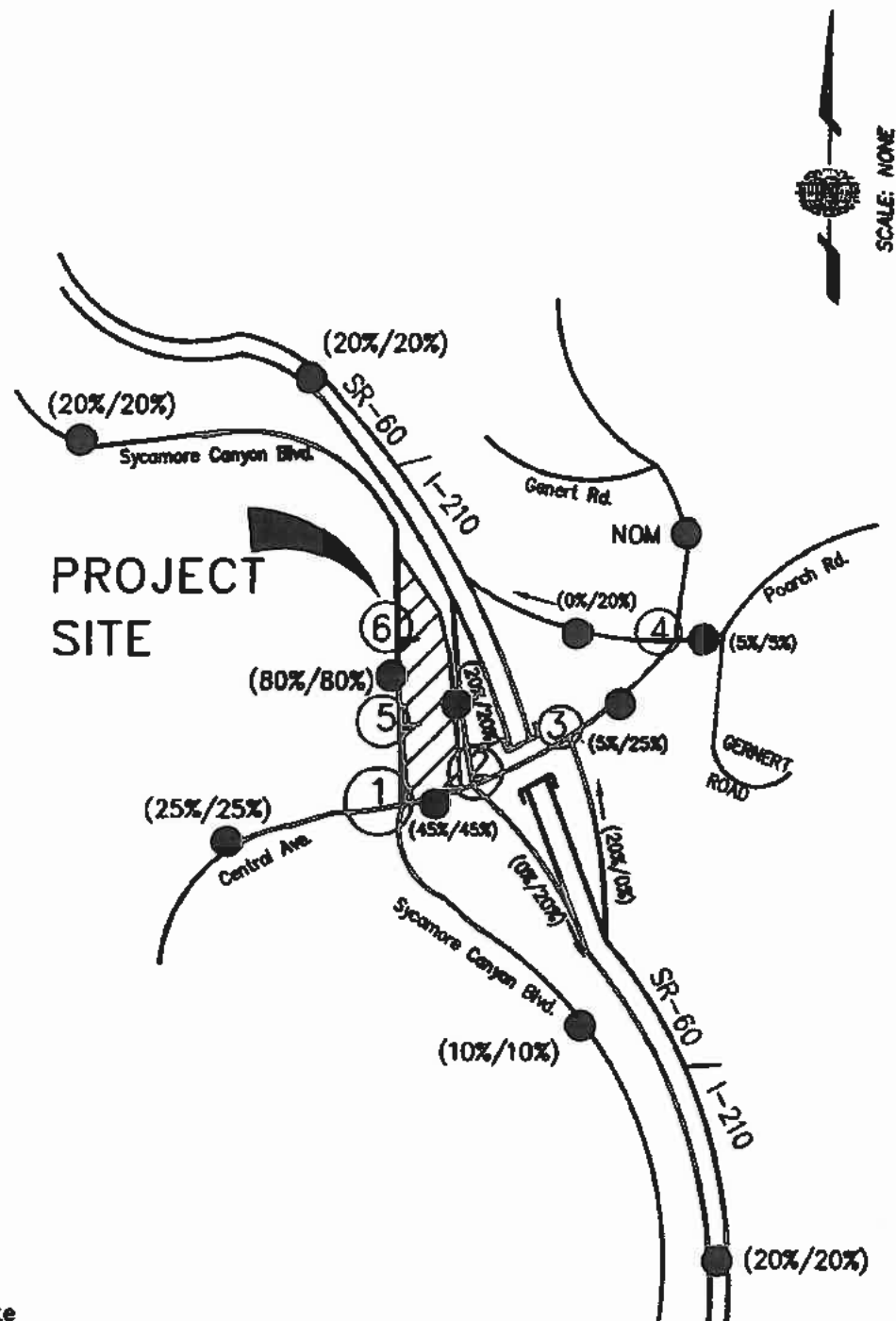
Table 2 – Cumulative Projects within 1.5 mile Radius of the Proposed Project Sites

Map ID #	Case Number	Location	Project Description	Acres	Buildings Total Square Feet	Permitting Status	Approved Date
D10	P13-0923 P13-1054 P13-0943 P14-0045	1940-1940 Symmons Canyon Blvd	27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 157th, 158th, 159th, 160th, 161st, 162nd, 163rd, 164th, 165th, 166th, 167th, 168th, 169th, 170th, 171st, 172nd, 173rd, 174th, 175th, 176th, 177th, 178th, 179th, 180th, 181st, 182nd, 183rd, 184th, 185th, 186th, 187th, 188th, 189th, 190th, 191st, 192nd, 193rd, 194th, 195th, 196th, 197th, 198th, 199th, 200th, 201st, 202nd, 203rd, 204th, 205th, 206th, 207th, 208th, 209th, 210th, 211st, 212nd, 213rd, 214th, 215th, 216th, 217th, 218th, 219th, 220th, 221st, 222nd, 223rd, 224th, 225th, 226th, 227th, 228th, 229th, 230th, 231st, 232nd, 233rd, 234th, 235th, 236th, 237th, 238th, 239th, 240th, 241st, 242nd, 243rd, 244th, 245th, 246th, 247th, 248th, 249th, 250th, 251st, 252nd, 253rd, 254th, 255th, 256th, 257th, 258th, 259th, 260th, 261st, 262nd, 263rd, 264th, 265th, 266th, 267th, 268th, 269th, 270th, 271st, 272nd, 273rd, 274th, 275th, 276th, 277th, 278th, 279th, 280th, 281st, 282nd, 283rd, 284th, 285th, 286th, 287th, 288th, 289th, 290th, 291st, 292nd, 293rd, 294th, 295th, 296th, 297th, 298th, 299th, 300th, 301st, 302nd, 303rd, 304th, 305th, 306th, 307th, 308th, 309th, 310th, 311st, 312nd, 313rd, 314th, 315th, 316th, 317th, 318th, 319th, 320th, 321st, 322nd, 323rd, 324th, 325th, 326th, 327th, 328th, 329th, 330th, 331st, 332nd, 333rd, 334th, 335th, 336th, 337th, 338th, 339th, 340th, 341st, 342nd, 343rd, 344th, 345th, 346th, 347th, 348th, 349th, 350th, 351st, 352nd, 353rd, 354th, 355th, 356th, 357th, 358th, 359th, 360th, 361st, 362nd, 363rd, 364th, 365th, 366th, 367th, 368th, 369th, 370th, 371st, 372nd, 373rd, 374th, 375th, 376th, 377th, 378th, 379th, 380th, 381st, 382nd, 383rd, 384th, 385th, 386th, 387th, 388th, 389th, 390th, 391st, 392nd, 393rd, 394th, 395th, 396th, 397th, 398th, 399th, 400th, 401st, 402nd, 403rd, 404th, 405th, 406th, 407th, 408th, 409th, 410th, 411st, 412nd, 413rd, 414th, 415th, 416th, 417th, 418th, 419th, 420th, 421st, 422nd, 423rd, 424th, 425th, 426th, 427th, 428th, 429th, 430th, 431st, 432nd, 433rd, 434th, 435th, 436th, 437th, 438th, 439th, 440th, 441st, 442nd, 443rd, 444th, 445th, 446th, 447th, 448th, 449th, 450th, 451st, 452nd, 453rd, 454th, 455th, 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599th, 600th, 601st, 602nd, 603rd, 604th, 605th, 606th, 607th, 608th, 609th, 610th, 611st, 612nd, 613rd, 614th, 615th, 616th, 617th, 618th, 619th, 620th, 621st, 622nd, 623rd, 624th, 625th, 626th, 627th, 628th, 629th, 630th, 631st, 632nd, 633rd, 634th, 635th, 636th, 637th, 638th, 639th, 640th, 641st, 642nd, 643rd, 644th, 645th, 646th, 647th, 648th, 649th, 650th, 651st, 652nd, 653rd, 654th, 655th, 656th, 657th, 658th, 659th, 660th, 661st, 662nd, 663rd, 664th, 665th, 666th, 667th, 668th, 669th, 670th, 671st, 672nd, 673rd, 674th, 675th, 676th, 677th, 678th, 679th, 680th, 681st, 682nd, 683rd, 684th, 685th, 686th, 687th, 688th, 689th, 690th, 691st, 692nd, 693rd, 694th, 695th, 696th, 697th, 698th, 699th, 700th, 701st, 702nd, 703rd, 704th, 705th, 706th, 707th, 708th, 709th, 710th, 711st, 712nd, 713rd, 714th, 715th, 716th, 717th, 718th, 719th, 720th, 721st, 722nd, 723rd, 724th, 725th, 726th, 727th, 728th, 729th, 730th, 731st, 732nd, 733rd, 734th, 735th, 736th, 737th, 738th, 739th, 740th, 741st, 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1899th, 1900th, 1901st, 1902nd, 1903rd, 1904th, 1905th, 1906th, 1907th, 1908th, 1909th, 1910th, 1911st, 1912nd, 1913rd, 1914th, 1915th, 1916th, 1917th, 1918th, 1919th, 1920th, 1921st, 1922nd, 1923rd, 1924th, 1925th, 1926th				



Darnell & ASSOCIATES, INC.
 4411 MERCURY STREET, SUITE 207A
 SAN DIEGO, CA 92111
 (619) 233-6373
 DATE: 10/25/17 BY: DARN

FIGURE 1
PROPOSED SITE PLAN



LEGEND



- Project Site



- INTERSECTION IN%/OUT% (SEE FIGURES 3 AND 4)

XXX/YYY - (IN%/OUT%) Project Trip Distribution Percentage



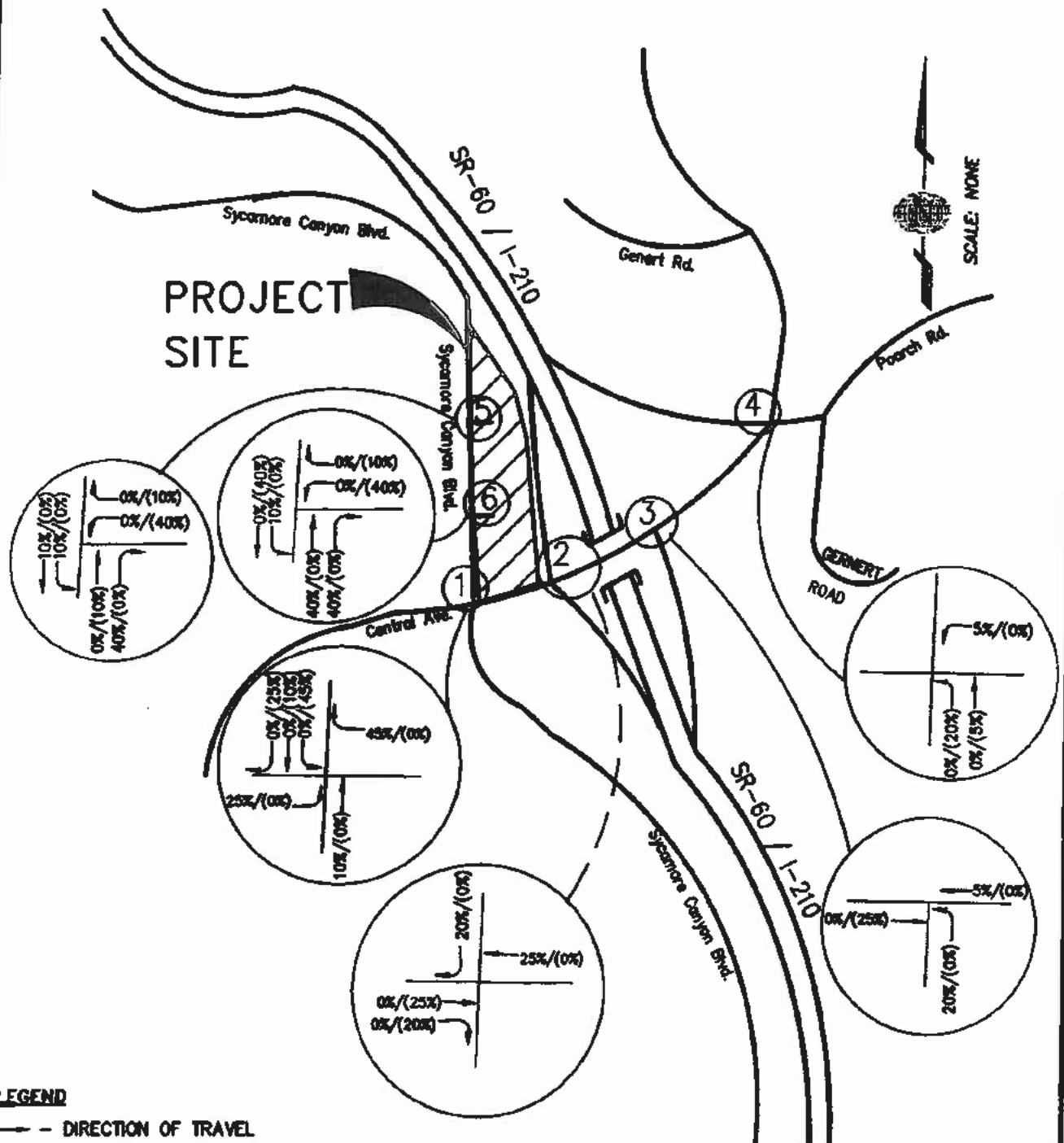
Darnell & ASSOCIATES

4411 MERCURY STREET, SUITE 207A
SAN DIEGO, CA 92111
(619) 233-0373

DRG TRIP-4A DATE 10-23-07 BY: JMM/A

FIGURE 2

PROJECT TRIP DISTRIBUTION



Darnell & ASSOCIATES, INC.

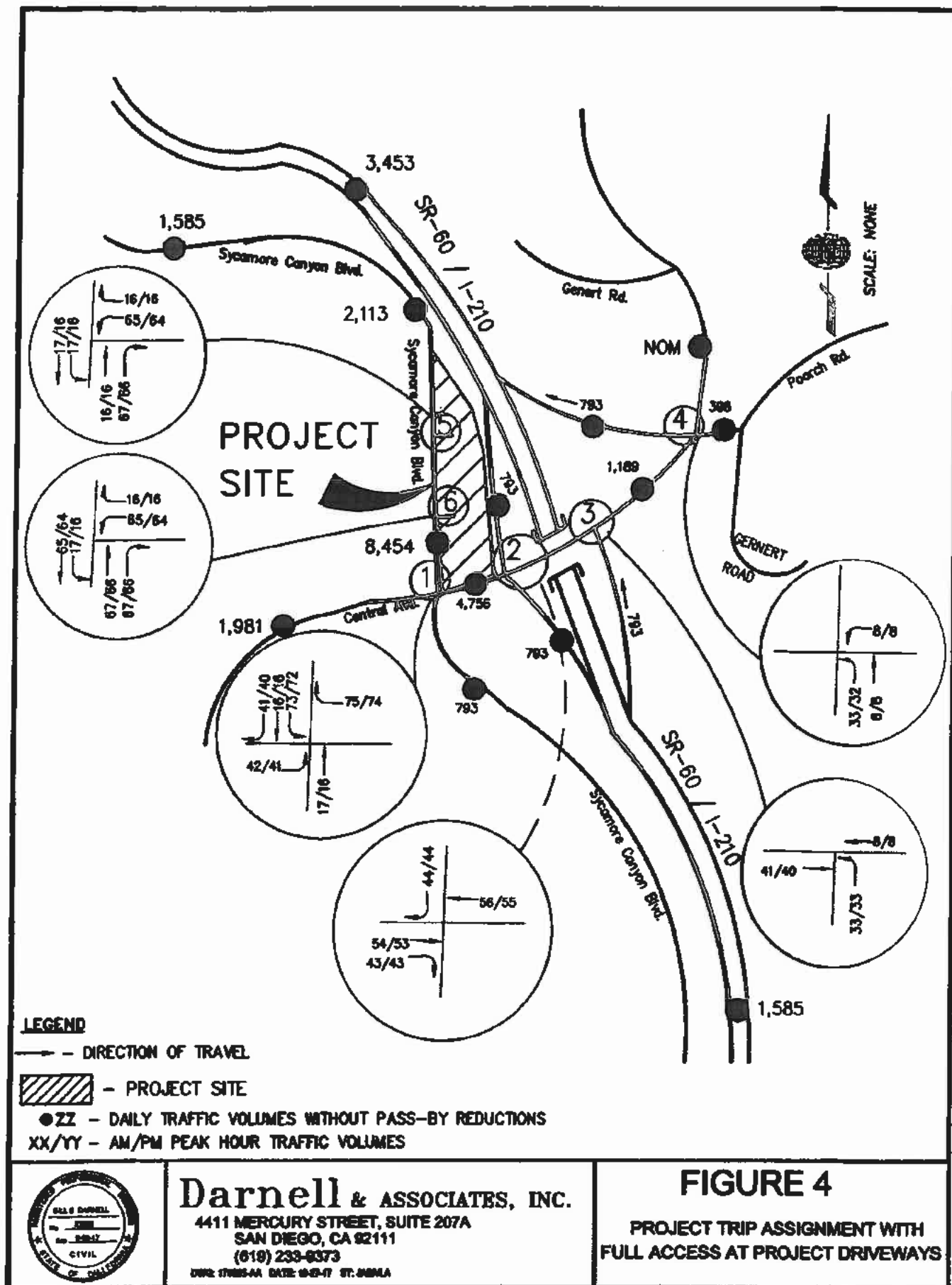
4411 MERCURY STREET, SUITE 207A
SAN DIEGO, CA 92111
(619) 233-8373

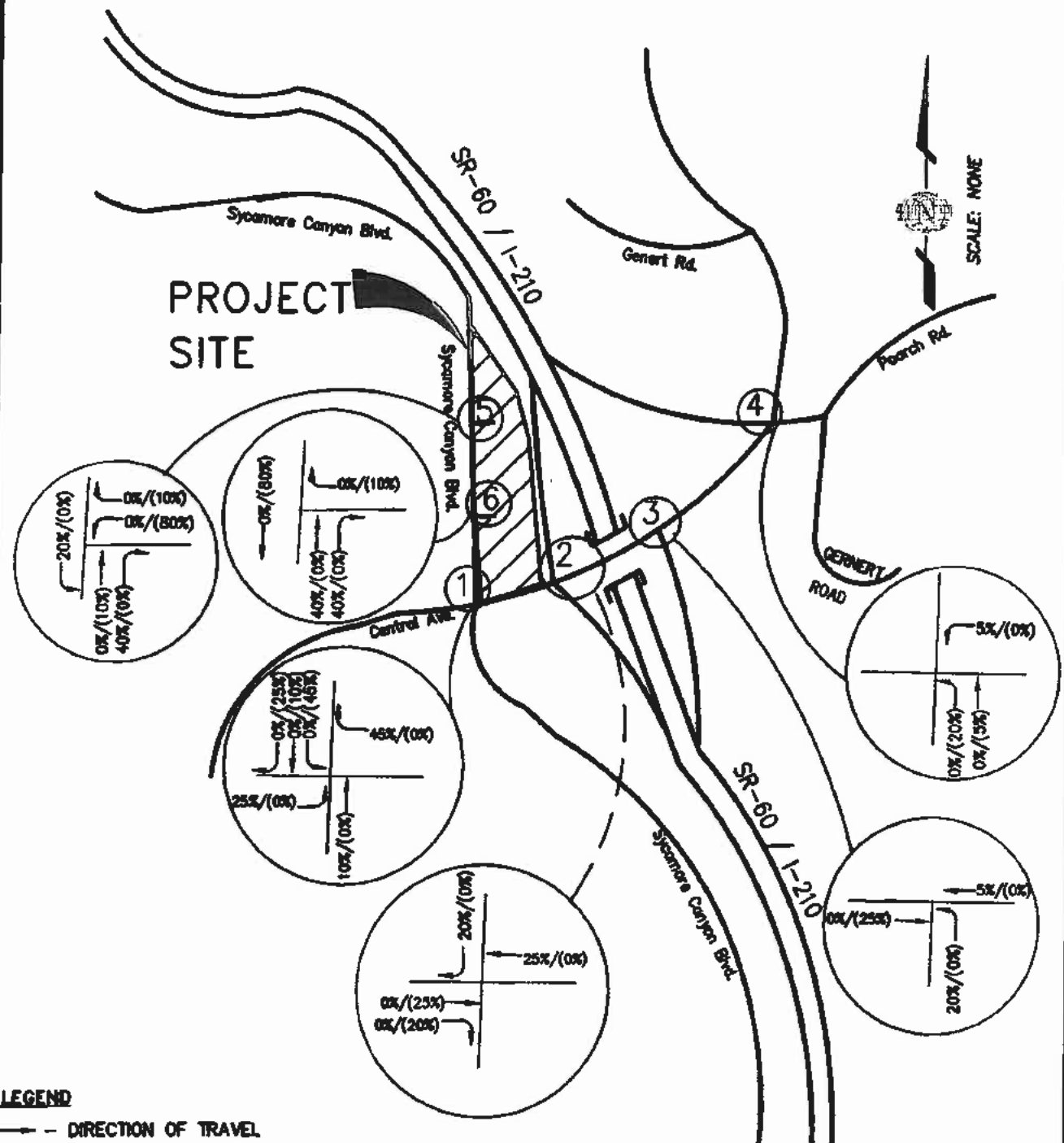
DIR: 17000-A DATE: 12-27-87 BY: JH/MLA

FIGURE 3

INTERSECTION

PROJECT TRIP DISTRIBUTION WITH
FULL ACCESS AT PROJECT DRIVEWAYS





LEGEND

→ - DIRECTION OF TRAVEL

▨ - PROJECT SITE

XX%/YY% - (IN%/OUT%) TRIP DISTRIBUTION PERCENTAGE



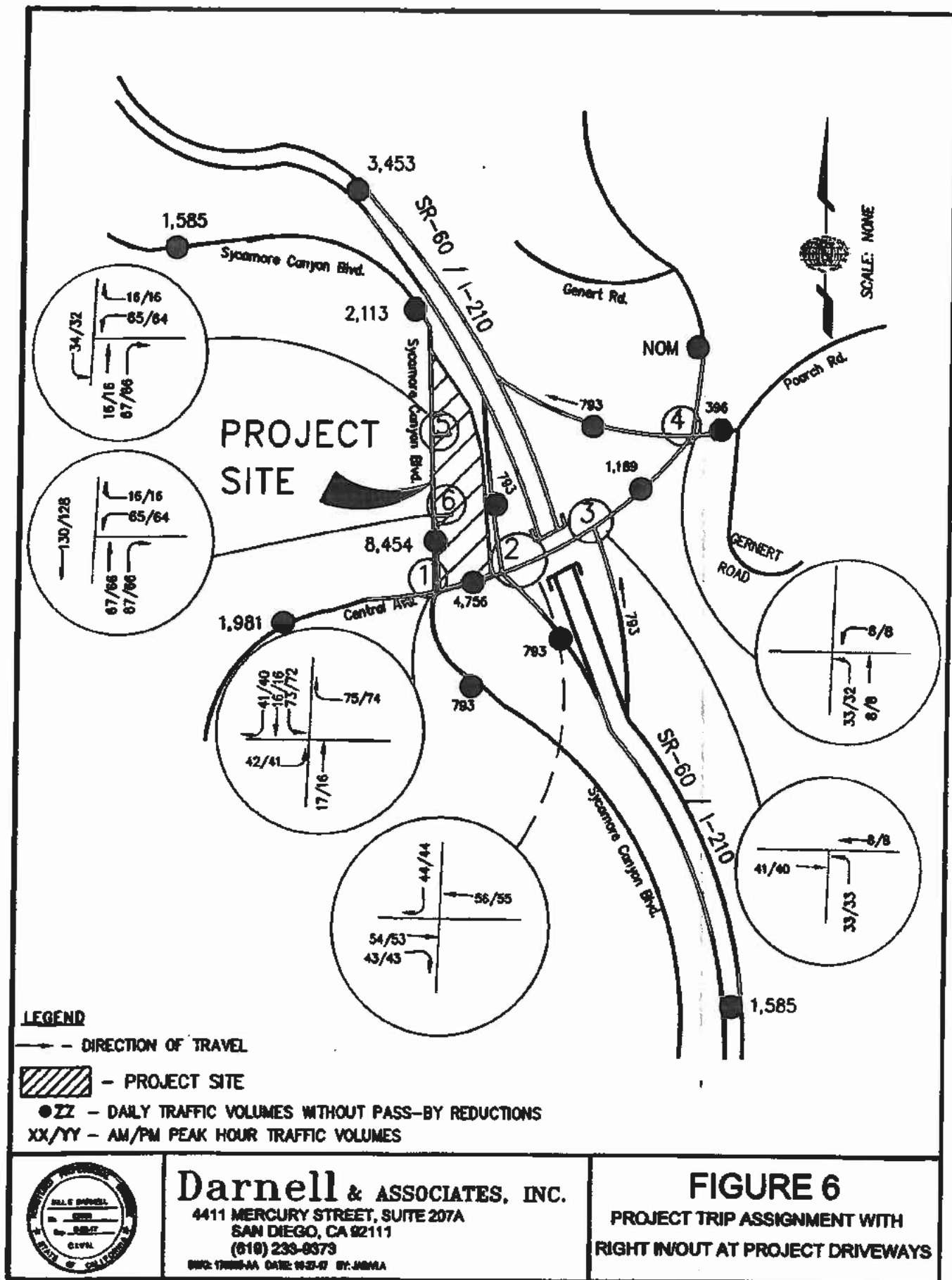
Darnell & ASSOCIATES, INC.

4411 MERCURY STREET, SUITE 207A
SAN DIEGO, CA 92111
(619) 233-8873

DRW: TROM-AA DATE: 10-27-17 BY: JEM/AA

FIGURE 5

INTERSECTION
PROJECT TRIP DISTRIBUTION WITH
RIGHT IN/OUT AT PROJECT DRIVEWAYS



APPENDIX B

➤ Existing Conditions Synchro Worksheets

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Existing
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	682	125	40	248	38	258	416	693	42	25	11
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	710	130	42	258	40	269	433	722	44	26	11
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	1737	541	95	1021	156	691	742	630	56	142	64
Arrive On Green	0.04	0.34	0.34	0.01	0.11	0.11	0.39	0.40	0.40	0.03	0.04	0.04
Sat Flow, veh/h	1774	5085	1583	3442	3078	471	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	22	710	130	42	147	151	269	433	722	44	26	11
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1780	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	1.2	10.6	5.9	1.2	7.6	7.7	10.9	18.1	31.2	2.5	0.7	0.7
Cycle Q Clear(g_c), s	1.2	10.6	5.9	1.2	7.6	7.7	10.9	18.1	31.2	2.5	0.7	0.7
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	1737	541	95	587	590	691	742	630	56	142	64
V/C Ratio(X)	0.33	0.41	0.24	0.44	0.25	0.26	0.39	0.58	1.15	0.78	0.18	0.17
Avail Cap(c_a), veh/h	107	1737	541	173	587	590	691	1535	1305	160	2027	907
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	25.1	23.5	48.5	33.0	33.1	21.9	23.5	18.6	47.9	46.2	46.2
Incr Delay (d2), s/veh	2.8	0.7	1.0	3.2	1.0	1.0	0.4	0.7	71.5	20.8	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.1	2.7	0.6	3.9	4.0	5.4	9.4	26.0	1.5	0.4	0.3
LnGrp Delay(d),s/veh	49.5	25.8	24.5	51.7	34.0	34.1	22.2	24.2	90.1	68.6	46.8	47.4
LnGrp LOS	D	C	C	D	C	C	C	C	F	E	D	D
Approach Vol, veh/h		862			340			1424			81	
Approach Delay, s/veh		26.2			36.2			57.2			58.7	
Approach LOS		C			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	58.2	39.0	43.8	9.0	59.2	38.0	8.1	44.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	34.0	34.0	57.0	6.0	33.0	9.0	82.0				
Max Q Clear Time (g_c+I1), s	3.2	12.6	12.9	2.7	3.2	9.7	4.5	33.2				
Green Ext Time (p_c), s	0.0	4.9	6.5	0.2	0.0	1.5	0.0	6.4				
Intersection Summary												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Existing
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↔	↑↑					↔	↑	↑
Volume (veh/h)	0	1177	244	180	295	0	0	0	0	105	1	39
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1279	265	196	321	0				114	1	42
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2351	1052	502	2997	0				142	149	127
Arrive On Green	0.00	1.00	1.00	0.29	1.00	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	1279	265	196	321	0				114	1	42
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	6.2	0.0	0.0				8.7	0.1	3.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.2	0.0	0.0				8.7	0.1	3.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2351	1052	502	2997	0				142	149	127
V/C Ratio(X)	0.00	0.54	0.25	0.39	0.11	0.00				0.80	0.01	0.33
Avail Cap(c_a), veh/h	0	2351	1052	502	2997	0				311	326	277
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.74	0.74	0.99	0.99	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.6	0.0	0.0				61.9	58.0	59.5
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.5	0.1	0.0				9.9	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.1	3.0	0.0	0.0				4.6	0.0	1.6
LnGrp Delay(d),s/veh	0.0	0.7	0.4	44.1	0.1	0.0				71.9	58.0	61.0
LnGrp LOS		A	A	D	A					E	E	E
Approach Vol, veh/h		1544			517						157	
Approach Delay, s/veh		0.6			16.8						68.9	
Approach LOS		A			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	38.0	96.0		16.0		134.0						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	20.0	91.0		24.0		116.0						
Max Q Clear Time (g_c+I1), s	8.2	2.0		10.7		2.0						
Green Ext Time (p_c), s	2.2	17.0		0.3		3.1						
Intersection Summary												
HCM 2010 Ctrl Delay			9.2									
HCM 2010 LOS			A									

Sycamore Canyon Commercial Development
3: SR-60 WB Off-Ramp & Central Ave

Existing
Timing Plan: AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↘↗	↗		
Volume (veh/h)	1284	0	0	362	109	465		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	1352	0	0	381	115	489		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2094	0	0	2094	1140	525		
Arrive On Green	1.00	0.00	0.00	0.59	0.33	0.33		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	1352	0	0	381	115	489		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	0.0	0.0	0.0	6.4	3.0	38.9		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.4	3.0	38.9		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2094	0	0	2094	1140	525		
V/C Ratio(X)	0.65	0.00	0.00	0.18	0.10	0.93		
Avail Cap(c_a), veh/h	2094	0	0	2094	1666	767		
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.82	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.1	30.1	42.1		
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.2	0.0	14.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	3.2	1.4	19.0		
LnGrp Delay(d),s/veh	1.3	0.0	0.0	12.3	30.1	56.0		
LnGrp LOS	A			B	C	E		
Approach Vol, veh/h	1352			381	604			
Approach Delay, s/veh	1.3			12.3	51.1			
Approach LOS	A			B	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		101.9				101.9		48.1
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		77.0				77.0		63.0
Max Q Clear Time (g_c+I1), s		2.0				8.4		40.9
Green Ext Time (p_c), s		23.2				22.8		2.2
Intersection Summary								
HCM 2010 Ctrl Delay			16.0					
HCM 2010 LOS			B					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Existing
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	718	1041	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	780	1132	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	3133	3180	566	488	0	0
Stage 1	2692	2692	-	-	-	-
Stage 2	441	488	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	10	10	468	1075	-	-
Stage 1	37	45	-	-	-	-
Stage 2	648	549	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	3	0	468	1075	-	-
Mov Cap-2 Maneuver	3	0	-	-	-	-
Stage 1	10	0	-	-	-	-
Stage 2	648	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	6.8
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1075	-	-	-	613	-	-
HCM Lane V/C Ratio	0.726	-	-	-	-	-	-
HCM Control Delay (s)	16.7	-	-	0	0	-	-
HCM Lane LOS	C	-	-	A	A	-	-
HCM 95th %tile Q(veh)	6.7	-	-	-	0	-	-

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Existing
Timing Plan: AM Peak

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	362	87
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	393	95

Major/Minor	Major2		
Conflicting Flow All	1132	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	613	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	613	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Existing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	602	710	270	492	66	231	117	173	74	322	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	8	634	747	284	518	69	243	123	182	78	339	5
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	2232	695	359	1682	223	275	261	222	251	447	200
Arrive On Green	0.01	0.44	0.44	0.10	0.54	0.54	0.16	0.14	0.14	0.14	0.13	0.13
Sat Flow, veh/h	1774	5085	1583	3442	3142	417	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	8	634	747	284	291	296	243	123	182	78	339	5
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1789	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	0.5	9.1	28.4	9.2	10.4	10.5	15.3	6.9	12.7	4.5	10.5	0.3
Cycle Q Clear(g_c), s	0.5	9.1	28.4	9.2	10.4	10.5	15.3	6.9	12.7	4.5	10.5	0.3
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	14	2232	695	359	947	958	275	261	222	251	447	200
V/C Ratio(X)	0.57	0.28	1.08	0.79	0.31	0.31	0.88	0.47	0.82	0.31	0.76	0.03
Avail Cap(c_a), veh/h	62	2232	695	453	947	958	389	850	723	251	1242	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.3	20.5	10.3	49.8	14.7	14.7	47.1	45.1	47.6	43.9	48.1	34.6
Incr Delay (d2), s/veh	32.2	0.3	56.1	7.1	0.8	0.8	15.7	1.3	7.4	0.7	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.3	23.0	4.7	5.3	5.4	8.7	3.6	6.0	2.3	5.3	0.1
LnGrp Delay(d),s/veh	88.6	20.8	66.4	56.9	15.5	15.6	62.8	46.4	55.0	44.6	50.8	34.7
LnGrp LOS	F	C	F	E	B	B	E	D	E	D	D	C
Approach Vol, veh/h	1389				871				548			
Approach Delay, s/veh	45.7				29.0				56.5			
Approach LOS	D				C				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	53.0	55.0	22.7	19.4	42.0	66.0	21.1	20.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	25.0	40.0	4.0	61.0	13.0	52.0				
Max Q Clear Time (g_c+1), s	11.2	30.4	17.3	12.5	2.5	12.5	6.5	14.7				
Green Ext Time (p_c), s	0.4	7.2	0.4	1.8	0.2	3.5	1.2	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay	43.5											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Existing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	315	645	657	681	0	0	0	0	12	3	48
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	342	701	714	740	0				13	3	52
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1657	741	998	2901	0				103	108	92
Arrive On Green	0.00	0.78	0.78	0.58	1.00	0.00				0.06	0.06	0.06
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	342	701	714	740	0				13	3	52
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	2.0	30.2	12.2	0.0	0.0				0.6	0.1	2.6
Cycle Q Clear(g_c), s	0.0	2.0	30.2	12.2	0.0	0.0				0.6	0.1	2.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1657	741	998	2901	0				103	108	92
V/C Ratio(X)	0.00	0.21	0.95	0.72	0.26	0.00				0.13	0.03	0.57
Avail Cap(c_a), veh/h	0	3166	1416	1856	5291	0				391	411	349
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.96	0.96	0.86	0.86	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	8.0	14.7	0.0	0.0				36.5	36.3	37.4
Incr Delay (d2), s/veh	0.0	0.1	6.8	0.8	0.0	0.0				0.5	0.1	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	13.5	5.7	0.0	0.0				0.3	0.1	1.3
LnGrp Delay(d),s/veh	0.0	5.0	14.8	15.6	0.0	0.0				37.0	36.4	42.9
LnGrp LOS		A	B	B	A					D	D	D
Approach Vol, veh/h		1043			1454						68	
Approach Delay, s/veh		11.6			7.7						41.5	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	28.7	111.6		9.7		140.3						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	44.0	73.0		18.0		122.0						
Max Q Clear Time (g_c+I), s	14.2	32.2		4.6		2.0						
Green Ext Time (p_c), s	9.5	6.0		0.1		10.8						
Intersection Summary												
HCM 2010 Ctrl Delay			10.2									
HCM 2010 LOS			B									

Sycamore Canyon Commercial Development
3: SR-60 WB Off-Ramp & Central Ave

Existing
Timing Plan: PM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	295	0	0	1010	401	283		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	311	0	0	1063	422	298		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2492	0	0	2492	750	345		
Arrive On Green	0.70	0.00	0.00	0.70	0.22	0.22		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	311	0	0	1063	422	298		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	3.6	0.0	0.0	16.2	14.0	23.2		
Cycle Q Clear(g_c), s	3.6	0.0	0.0	16.2	14.0	23.2		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2492	0	0	2492	750	345		
V/C Ratio(X)	0.12	0.00	0.00	0.43	0.56	0.86		
Avail Cap(c_a), veh/h	2492	0	0	2492	1346	619		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.97	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	6.1	0.0	0.0	8.0	44.6	48.2		
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.7	6.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	8.0	6.7	10.7		
LnGrp Delay(d),s/veh	6.2	0.0	0.0	8.5	45.2	54.7		
LnGrp LOS	A			A	D	D		
Approach Vol, veh/h	311			1063	720			
Approach Delay, s/veh	6.2			8.5	49.1			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		117.2				117.2		32.8
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		90.0				90.0		50.0
Max Q Clear Time (g_c+I1), s		5.6				18.2		25.2
Green Ext Time (p_c), s		15.1				14.9		2.7
Intersection Summary								
HCM 2010 Ctrl Delay			22.2					
HCM 2010 LOS			C					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Existing
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	279	504	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	291	525	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	2006	2021	263	915	0	0
Stage 1	1106	1106	-	-	-	-
Stage 2	900	915	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	58	58	736	745	-	-
Stage 1	279	285	-	-	-	-
Stage 2	396	351	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	35	0	736	745	-	-
Mov Cap-2 Maneuver	35	0	-	-	-	-
Stage 1	170	0	-	-	-	-
Stage 2	396	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	4.6
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	745	-	-	-	1038	-	-
HCM Lane V/C Ratio	0.39	-	-	-	-	-	-
HCM Control Delay (s)	12.9	-	-	0	0	-	-
HCM Lane LOS	B	-	-	A	A	-	-
HCM 95th %tile Q(veh)	1.9	-	-	-	0	-	-

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Existing
Timing Plan: PM Peak

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	850	28
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	96	96	96
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	885	29

Major/Minor	Major2		
Conflicting Flow All	525	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	1038	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1038	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

APPENDIX C

- **Opening Day 2019 Synchro Worksheets**
- **Opening Day 2019 plus Project Synchro Worksheets**

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Day 2019
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	710	130	42	258	40	269	433	721	44	26	12
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	23	740	135	44	269	42	280	451	751	46	27	12
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	1714	534	97	1006	155	704	752	639	59	140	63
Arrive On Green	0.04	0.34	0.34	0.01	0.11	0.11	0.40	0.40	0.40	0.03	0.04	0.04
Sat Flow, veh/h	1774	5085	1583	3442	3074	474	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	23	740	135	44	153	158	280	451	751	46	27	12
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1779	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	1.3	11.4	6.2	1.3	8.0	8.2	11.4	19.2	32.0	2.6	0.7	0.7
Cycle Q Clear(g_c), s	1.3	11.4	6.2	1.3	8.0	8.2	11.4	19.2	32.0	2.6	0.7	0.7
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	1714	534	97	579	582	704	752	639	59	140	63
V/C Ratio(X)	0.34	0.43	0.25	0.46	0.27	0.27	0.40	0.60	1.18	0.78	0.19	0.19
Avail Cap(c_a), veh/h	106	1714	534	171	579	582	704	1514	1287	158	2000	895
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	25.9	24.2	49.2	33.9	33.9	21.8	23.7	18.6	48.4	46.9	46.9
Incr Delay (d2), s/veh	3.0	0.8	1.1	3.3	1.1	1.1	0.4	0.8	85.1	19.7	0.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.5	2.9	0.7	4.1	4.2	5.7	10.1	29.0	1.6	0.4	0.3
LnGrp Delay(d),s/veh	50.2	26.7	25.4	52.5	35.0	35.1	22.1	24.5	103.7	68.2	47.5	48.3
LnGrp LOS	D	C	C	D	C	D	C	C	F	E	D	D
Approach Vol, veh/h	898				355				1482			
Approach Delay, s/veh	27.1				37.2				64.2			
Approach LOS	C				D				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	57.0	39.0	45.0	9.0	58.0	38.0	8.3	45.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	34.0	34.0	57.0	6.0	33.0	9.0	82.0				
Max Q Clear Time (g_c+I1), s	3.3	13.4	13.4	2.7	3.3	10.2	4.6	34.0				
Green Ext Time (p_c), s	0.0	5.1	6.8	0.2	0.0	1.5	0.0	6.7				
Intersection Summary												
HCM 2010 Ctrl Delay	48.8											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Opening Day 2019
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	1225	254	188	307	0	0	0	0	110	2	41
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1332	276	204	334	0				120	2	45
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2342	1048	501	2986	0				148	156	132
Arrive On Green	0.00	1.00	1.00	0.29	1.00	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	1332	276	204	334	0				120	2	45
Grp Sat Flow(s), veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	6.6	0.0	0.0				9.1	0.1	3.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.6	0.0	0.0				9.1	0.1	3.7
Prop in Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2342	1048	501	2986	0				148	156	132
V/C Ratio(X)	0.00	0.57	0.26	0.41	0.11	0.00				0.81	0.01	0.34
Avail Cap(c_a), veh/h	0	2342	1048	501	2986	0				310	325	276
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.71	0.71	0.99	0.99	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.0	0.0	0.0				61.9	57.8	59.4
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.5	0.1	0.0				10.0	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.1	3.1	0.0	0.0				4.9	0.1	1.7
LnGrp Delay(d),s/veh	0.0	0.7	0.4	44.5	0.1	0.0				71.9	57.8	60.9
LnGrp LOS		A	A	D	A					E	E	E
Approach Vol, veh/h		1608			538						167	
Approach Delay, s/veh		0.7			16.9						68.8	
Approach LOS		A			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	37.5	96.0		16.5		133.5						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	20.0	91.0		24.0		116.0						
Max Q Clear Time (g_c+I1), s	8.6	2.0		11.1		2.0						
Green Ext Time (p_c), s	2.2	18.4		0.4		3.2						
Intersection Summary												
HCM 2010 Ctrl Delay			9.4									
HCM 2010 LOS			A									

Sycamore Canyon Commercial Development
3: SR-60 WB Off-Ramp & Central Ave

Opening Day 2019
Timing Plan: AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	1336	0	0	377	114	484		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	1406	0	0	397	120	509		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2056	0	0	2056	1182	544		
Arrive On Green	1.00	0.00	0.00	0.58	0.34	0.34		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	1406	0	0	397	120	509		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	0.0	0.0	0.0	7.0	3.1	41.2		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.0	3.1	41.2		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2056	0	0	2056	1182	544		
V/C Ratio(X)	0.68	0.00	0.00	0.19	0.10	0.94		
Avail Cap(c_a), veh/h	2056	0	0	2056	1636	753		
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.79	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	13.1	29.6	42.1		
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.2	0.0	15.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	3.5	1.5	20.3		
LnGrp Delay(d),s/veh	1.5	0.0	0.0	13.3	29.6	57.6		
LnGrp LOS	A			B	C	E		
Approach Vol, veh/h	1406			397	629			
Approach Delay, s/veh	1.5			13.3	52.2			
Approach LOS	A			B	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		99.5				99.5		50.5
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		77.0				77.0		63.0
Max Q Clear Time (g_c+I1), s		2.0				9.0		43.2
Green Ext Time (p_c), s		25.1				24.5		2.3
Intersection Summary								
HCM 2010 Ctrl Delay			16.5					
HCM 2010 LOS			B					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	747	1083	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	812	1177	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	3260	3310	589	509	0	0
Stage 1	2801	2801	-	-	-	-
Stage 2	459	509	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	8	8	452	1056	-	-
Stage 1	32	40	-	-	-	-
Stage 2	635	537	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	2	0	452	1056	-	-
Mov Cap-2 Maneuver	2	0	-	-	-	-
Stage 1	7	0	-	-	-	-
Stage 2	635	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	7.6
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1056	-	-	-	589	-	-
HCM Lane V/C Ratio	0.769	-	-	-	-	-	-
HCM Control Delay (s)	18.7	-	-	0	0	-	-
HCM Lane LOS	C	-	-	A	A	-	-
HCM 95th %tile Q(veh)	7.9	-	-	-	0	-	-

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019
Timing Plan: AM Peak

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	377	91
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	410	99

Major/Minor	Major2		
Conflicting Flow All	1177	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	589	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	589	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Day 2019
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	627	739	281	512	69	241	122	180	77	335	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	9	660	778	296	539	73	254	128	189	81	353	6
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	2196	684	359	1652	223	285	269	228	260	461	206
Arrive On Green	0.01	0.43	0.43	0.10	0.53	0.53	0.16	0.14	0.14	0.15	0.13	0.13
Sat Flow, veh/h	1774	5085	1583	3442	3134	423	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	9	660	778	296	304	308	254	128	189	81	353	6
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1788	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	0.6	9.8	28.2	9.8	11.3	11.4	16.2	7.3	13.4	4.7	11.2	0.3
Cycle Q Clear(g_c), s	0.6	9.8	28.2	9.8	11.3	11.4	16.2	7.3	13.4	4.7	11.2	0.3
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	17	2196	684	359	932	942	285	269	228	260	461	206
V/C Ratio(X)	0.54	0.30	1.14	0.82	0.33	0.33	0.89	0.48	0.83	0.31	0.77	0.03
Avail Cap(c_a), veh/h	61	2196	684	446	932	942	383	837	711	260	1223	547
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	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	21.5	10.5	50.8	15.6	15.7	47.6	45.5	48.1	44.2	48.7	34.8
Incr Delay (d2), s/veh	24.8	0.4	79.0	9.6	0.9	0.9	17.8	1.3	7.5	0.7	2.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.7	27.4	5.1	5.7	5.9	9.4	3.9	6.4	2.4	5.6	0.2
LnGrp Delay(d),s/veh	81.9	21.8	89.5	60.4	16.5	16.6	65.3	46.8	55.6	44.8	51.4	34.9
LnGrp LOS	F	C	F	E	B	B	E	D	E	D	D	C
Approach Vol, veh/h	1447			908			571			440		
Approach Delay, s/veh	58.6			30.9			58.0			49.9		
Approach LOS	E			C			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.3	55.0	23.6	20.1	40.3	66.0	22.0	21.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	25.0	40.0	4.0	61.0	13.0	52.0				
Max Q Clear Time (g_c+H1), s	11.8	30.2	18.2	13.2	2.6	13.4	6.7	15.4				
Green Ext Time (p_c), s	0.3	7.6	0.4	1.9	0.2	3.7	1.2	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay	49.9											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Opening Day 2019
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	328	671	684	709	0	0	0	0	13	4	50
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	357	729	743	771	0				14	4	54
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1706	763	1004	2938	0				101	106	90
Arrive On Green	0.00	0.81	0.81	0.58	1.00	0.00				0.06	0.06	0.06
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	357	729	743	771	0				14	4	54
Grp Sat Flow(s), veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	2.1	34.5	14.0	0.0	0.0				0.7	0.2	3.0
Cycle Q Clear(g_c), s	0.0	2.1	34.5	14.0	0.0	0.0				0.7	0.2	3.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1706	763	1004	2938	0				101	106	90
V/C Ratio(X)	0.00	0.21	0.96	0.74	0.26	0.00				0.14	0.04	0.60
Avail Cap(c_a), veh/h	0	2912	1303	1707	4866	0				360	378	321
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.95	0.95	0.85	0.85	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.7	7.8	16.0	0.0	0.0				39.8	39.5	40.8
Incr Delay (d2), s/veh	0.0	0.1	9.9	0.9	0.0	0.0				0.6	0.1	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
%ile BackOfQ(50%), veh/ln	0.0	1.0	16.1	6.7	0.0	0.0				0.3	0.1	1.4
LnGrp Delay(d), s/veh	0.0	4.7	17.8	16.9	0.0	0.0				40.4	39.7	47.0
LnGrp LOS		A	B	B	A					D	D	D
Approach Vol, veh/h		1086			1514						72	
Approach Delay, s/veh		13.5			8.3						45.3	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	30.9	109.0		10.1		139.9						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	44.0	73.0		18.0		122.0						
Max Q Clear Time (g_c+I1), s	16.0	36.5		5.0		2.0						
Green Ext Time (p_c), s	9.8	6.3		0.1		11.6						
Intersection Summary												
HCM 2010 Ctrl Delay			11.4									
HCM 2010 LOS			B									

Sycamore Canyon Commercial Development
3: SR-60 WB Off-Ramp & Central Ave

Opening Day 2019
Timing Plan: PM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	307	0	0	1051	418	295		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	323	0	0	1106	440	311		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2465	0	0	2465	778	358		
Arrive On Green	0.70	0.00	0.00	0.70	0.23	0.23		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	323	0	0	1106	440	311		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	3.9	0.0	0.0	17.8	14.7	24.4		
Cycle Q Clear(g_c), s	3.9	0.0	0.0	17.8	14.7	24.4		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2465	0	0	2465	778	358		
V/C Ratio(X)	0.13	0.00	0.00	0.45	0.57	0.87		
Avail Cap(c_a), veh/h	2465	0	0	2465	1332	613		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.98	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	6.5	0.0	0.0	8.7	44.4	48.2		
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.6	0.6	6.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	8.8	7.0	11.4		
LnGrp Delay(d),s/veh	6.7	0.0	0.0	9.2	45.0	55.0		
LnGrp LOS	A			A	D	D		
Approach Vol, veh/h	323			1106	751			
Approach Delay, s/veh	6.7			9.2	49.1			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		115.8				115.8		34.2
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		90.0				90.0		50.0
Max Q Clear Time (g_c+I1), s		5.9				19.8		26.4
Green Ext Time (p_c), s		16.2				15.9		2.8
Intersection Summary								
HCM 2010 Ctrl Delay			22.6					
HCM 2010 LOS			C					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	291	525	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	303	547	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	2089	2105	273	952	0	0
Stage 1	1153	1153	-	-	-	-
Stage 2	936	952	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	51	51	725	722	-	-
Stage 1	264	271	-	-	-	-
Stage 2	381	337	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	30	0	725	722	-	-
Mov Cap-2 Maneuver	30	0	-	-	-	-
Stage 1	153	0	-	-	-	-
Stage 2	381	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	4.8
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	722	-	-	-	1018	-	-
HCM Lane V/C Ratio	0.42	-	-	-	-	-	-
HCM Control Delay (s)	13.5	-	-	0	0	-	-
HCM Lane LOS	B	-	-	A	A	-	-
HCM 95th %tile Q(veh)	2.1	-	-	-	0	-	-

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019
Timing Plan: PM Peak

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	884	30
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	96	96	96
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	921	31

Major/Minor	Major2		
Conflicting Flow All	547	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	1018	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1018	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Day 2019 w/Proj
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	69	710	130	42	258	124	269	452	721	124	44	56
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	72	740	135	44	269	129	280	471	751	129	46	58
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1528	476	90	604	282	789	769	654	157	202	90
Arrive On Green	0.07	0.30	0.30	0.01	0.09	0.09	0.44	0.41	0.41	0.09	0.06	0.06
Sat Flow, veh/h	1774	5085	1583	3442	2345	1094	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	72	740	135	44	201	197	280	471	751	129	46	58
Grp Sat Flow(s), veh/h/ln	1774	1695	1583	1721	1770	1670	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	4.6	13.9	7.6	1.5	12.6	13.1	12.1	23.1	38.9	8.3	1.4	4.2
Cycle Q Clear(g_c), s	4.6	13.9	7.6	1.5	12.6	13.1	12.1	23.1	38.9	8.3	1.4	4.2
Prop In Lane	1.00		1.00	1.00		0.66	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	1528	476	90	456	430	789	769	654	157	202	90
V/C Ratio(X)	0.59	0.48	0.28	0.49	0.44	0.46	0.36	0.61	1.15	0.82	0.23	0.64
Avail Cap(c_a), veh/h	152	1528	476	148	456	430	789	1168	993	259	1702	761
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	33.3	31.1	57.0	45.3	45.5	21.3	26.9	22.4	52.2	52.4	53.7
Incr Delay (d2), s/veh	4.4	1.1	1.5	4.1	3.0	3.4	0.3	0.8	78.1	10.1	0.6	7.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.4	6.7	3.5	0.8	6.6	6.5	6.0	12.1	31.1	4.5	0.7	2.0
LnGrp Delay(d), s/veh	57.0	34.4	32.6	61.0	48.4	49.0	21.6	27.6	100.5	62.2	53.0	61.1
LnGrp LOS	E	C	C	E	D	D	C	C	F	E	D	E
Approach Vol, veh/h	947			442			1502			233		
Approach Delay, s/veh	35.9			49.9			62.9			60.1		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.6	40.0	56.8	11.7	46.6	35.0	15.3	53.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	35.0	34.0	56.0	10.0	30.0	17.0	73.0				
Max Q Clear Time (g_c+I1), s	3.5	15.9	14.1	6.2	6.6	15.1	10.3	40.9				
Green Ext Time (p_c), s	0.0	5.5	7.5	0.5	0.1	2.1	0.2	7.2				
Intersection Summary												
HCM 2010 Ctrl Delay	52.7											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Opening Day 2019 w/Proj
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖↗	↑↑					↖	↑	↗
Volume (veh/h)	0	1258	281	188	342	0	0	0	0	110	2	69
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1367	305	204	372	0				120	2	75
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2367	1059	475	2984	0				149	157	133
Arrive On Green	0.00	1.00	1.00	0.28	1.00	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	1367	305	204	372	0				120	2	75
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	6.7	0.0	0.0				9.1	0.1	6.3
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.7	0.0	0.0				9.1	0.1	6.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2367	1059	475	2984	0				149	157	133
V/C Ratio(X)	0.00	0.58	0.29	0.43	0.12	0.00				0.80	0.01	0.56
Avail Cap(c_a), veh/h	0	2367	1059	475	2984	0				309	325	276
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.64	0.64	0.99	0.99	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	45.3	0.0	0.0				61.9	57.8	60.6
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.6	0.1	0.0				9.6	0.0	3.7
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	0.0	0.2	0.1	3.2	0.0	0.0				4.9	0.1	2.9
LnGrp Delay(d),s/veh	0.0	0.7	0.4	45.9	0.1	0.0				71.5	57.8	64.3
LnGrp LOS		A	A	D	A					E	E	E
Approach Vol, veh/h	1672					576				197		
Approach Delay, s/veh	0.6					16.3				68.6		
Approach LOS	A					B				E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	36.4	97.0	16.6		133.4							
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0							
Max Green Setting (Gmax), s	19.0	92.0	24.0		116.0							
Max Q Clear Time (g_c+I1), s	8.7	2.0	11.1		2.0							
Green Ext Time (p_c), s	2.3	19.7	0.4		3.5							
Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	1369	0	0	384	142	484		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	1441	0	0	404	149	509		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2059	0	0	2059	1183	544		
Arrive On Green	1.00	0.00	0.00	0.58	0.34	0.34		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	1441	0	0	404	149	509		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	0.0	0.0	0.0	7.2	4.0	41.7		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.2	4.0	41.7		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2059	0	0	2059	1183	544		
V/C Ratio(X)	0.70	0.00	0.00	0.20	0.13	0.94		
Avail Cap(c_a), veh/h	2059	0	0	2059	1592	732		
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(f)	0.79	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	13.2	30.2	42.6		
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	16.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	3.6	1.9	20.7		
LnGrp Delay(d),s/veh	1.6	0.0	0.0	13.4	30.2	58.7		
LnGrp LOS	A			B	C	E		
Approach Vol, veh/h	1441			404	658			
Approach Delay, s/veh	1.6			13.4	52.2			
Approach LOS	A			B	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		98.9				98.9		51.1
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		78.0				78.0		62.0
Max Q Clear Time (g_c+I1), s		2.0				9.2		43.7
Green Ext Time (p_c), s		26.4				25.7		2.4
Intersection Summary								
HCM 2010 Ctrl Delay			16.8					
HCM 2010 LOS			B					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

OpeningDay 2019 w/Proj
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	774	1090	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	841	1185	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	3334	3383	592	516	0	0
Stage 1	2867	2867	-	-	-	-
Stage 2	467	516	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	7	7	450	1050	-	-
Stage 1	29	37	-	-	-	-
Stage 2	630	533	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	1	0	450	1050	-	-
Mov Cap-2 Maneuver	1	0	-	-	-	-
Stage 1	6	0	-	-	-	-
Stage 2	630	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	8.6
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1050	-	-	-	585	-	-
HCM Lane V/C Ratio	0.801	-	-	-	-	-	-
HCM Control Delay (s)	20.6	-	-	0	0	-	-
HCM Lane LOS	C	-	-	A	A	-	-
HCM 95th %tile Q(veh)	9	-	-	-	0	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	384	91
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	417	99

Major/Minor	Major2		
Conflicting Flow All	1185	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	585	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	585	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development
5: Sycamore Canyon Blvd & North Proj Dwy

Opening Day 2019 w/Proj
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	71	18	512	74	19	101
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	20	557	80	21	110

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	682	597	0	0	637	0
Stage 1	597	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.12	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.218	-
Pot Cap-1 Maneuver	430	502	-	-	947	-
Stage 1	532	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	420	502	-	-	947	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	434	947	-
HCM Lane V/C Ratio	-	-	0.223	0.022	-
HCM Control Delay (s)	-	-	15.7	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Day 2019 w/Proj
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	627	739	281	512	150	241	140	180	153	352	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	660	778	296	539	158	254	147	189	161	371	51
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2147	669	359	1256	367	285	271	230	282	509	228
Arrive On Green	0.06	0.42	0.42	0.10	0.46	0.46	0.16	0.15	0.15	0.16	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	2704	789	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	57	660	778	296	352	345	254	147	189	161	371	51
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1723	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	3.7	10.2	28.8	10.0	15.7	15.9	16.6	8.7	13.7	9.9	11.9	2.8
Cycle Q Clear(g_c), s	3.7	10.2	28.8	10.0	15.7	15.9	16.6	8.7	13.7	9.9	11.9	2.8
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2147	669	359	822	801	285	271	230	282	509	228
V/C Ratio(X)	0.52	0.31	1.16	0.82	0.43	0.43	0.89	0.54	0.82	0.57	0.73	0.22
Avail Cap(c_a), veh/h	150	2147	669	436	822	801	375	676	575	330	1196	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	22.7	11.3	52.0	21.2	21.2	48.7	47.0	49.1	46.0	48.5	30.8
Incr Delay (d2), s/veh	3.7	0.4	89.4	10.0	1.6	1.6	18.7	1.7	7.2	1.8	2.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.8	29.1	5.2	8.1	7.9	9.6	4.6	6.5	5.0	6.0	1.4
LnGrp Delay(d),s/veh	57.5	23.1	100.7	61.9	22.8	22.9	67.4	48.7	56.3	47.8	50.5	31.3
LnGrp LOS	E	C	F	E	C	C	E	D	E	D	D	C
Approach Vol, veh/h	1495				993			590			583	
Approach Delay, s/veh	64.8				34.5			59.2			48.1	
Approach LOS	E				C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.0	55.0	24.0	22.0	44.0	60.0	23.8	22.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	25.0	40.0	10.0	55.0	22.0	43.0				
Max Q Clear Time (g_c+I1), s	12.0	30.8	18.6	13.9	5.7	17.9	11.9	15.7				
Green Ext Time (p_c), s	0.4	8.1	0.4	3.2	0.5	5.0	2.2	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay	53.0											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
2: SR-60 EB Ramps & Central Ave

Opening Day 2019 w/Proj
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	360	696	684	743	0	0	0	0	13	4	77
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	391	757	743	808	0				14	4	84
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1754	785	971	2928	0				130	137	116
Arrive On Green	0.00	0.83	0.83	0.56	1.00	0.00				0.07	0.07	0.07
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	391	757	743	808	0				14	4	84
Grp Sat Flow(s), veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	2.4	41.2	16.7	0.0	0.0				0.7	0.2	5.2
Cycle Q Clear(g_c), s	0.0	2.4	41.2	16.7	0.0	0.0				0.7	0.2	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1754	785	971	2928	0				130	137	116
V/C Ratio(X)	0.00	0.22	0.96	0.77	0.28	0.00				0.11	0.03	0.72
Avail Cap(c_a), veh/h	0	2601	1164	1470	4288	0				317	333	283
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.94	0.84	0.84	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.6	7.9	19.4	0.0	0.0				43.6	43.3	45.6
Incr Delay (d2), s/veh	0.0	0.1	14.1	1.1	0.0	0.0				0.4	0.1	8.1
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	0.0	1.1	19.8	7.9	0.0	0.0				0.4	0.1	2.6
LnGrp Delay(d),s/veh	0.0	4.6	22.1	20.5	0.0	0.0				43.9	43.4	53.8
LnGrp LOS		A	C	C	A					D	D	D
Approach Vol, veh/h		1148			1551						102	
Approach Delay, s/veh		16.1			9.9						52.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	33.4	104.2		12.4		137.6						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	43.0	74.0		18.0		122.0						
Max Q Clear Time (g_c+I1), s	18.7	43.2		7.2		2.0						
Green Ext Time (p_c), s	9.7	6.7		0.2		12.2						
Intersection Summary												
HCM 2010 Ctrl Delay			14.0									
HCM 2010 LOS			B									

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	339	0	0	1058	445	295		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	357	0	0	1114	468	311		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2467	0	0	2467	779	358		
Arrive On Green	0.70	0.00	0.00	0.70	0.23	0.23		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	357	0	0	1114	468	311		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	4.4	0.0	0.0	18.2	15.9	24.7		
Cycle Q Clear(g_c), s	4.4	0.0	0.0	18.2	15.9	24.7		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2467	0	0	2467	779	358		
V/C Ratio(X)	0.14	0.00	0.00	0.45	0.60	0.87		
Avail Cap(c_a), veh/h	2467	0	0	2467	1292	594		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.97	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	6.7	0.0	0.0	8.7	45.2	48.6		
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.6	0.7	7.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	9.0	7.6	11.5		
LnGrp Delay(d),s/veh	6.8	0.0	0.0	9.3	46.0	56.0		
LnGrp LOS	A			A	D	E		
Approach Vol, veh/h	357			1114	779			
Approach Delay, s/veh	6.8			9.3	50.0			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		115.4				115.4		34.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		91.0				91.0		49.0
Max Q Clear Time (g_c+I1), s		6.4				20.2		26.7
Green Ext Time (p_c), s		17.0				16.7		2.9
Intersection Summary								
HCM 2010 Ctrl Delay			23.0					
HCM 2010 LOS			C					

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019 w/Proj
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	316	531	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	329	553	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	2155	2170	277	959	0	0
Stage 1	1211	1211	-	-	-	-
Stage 2	944	959	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	46	46	721	717	-	-
Stage 1	246	254	-	-	-	-
Stage 2	377	334	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	25	0	721	717	-	-
Mov Cap-2 Maneuver	25	0	-	-	-	-
Stage 1	133	0	-	-	-	-
Stage 2	377	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	5.3
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	717	-	-	-	1013	-	-
HCM Lane V/C Ratio	0.459	-	-	-	-	-	-
HCM Control Delay (s)	14.2	-	-	0	0	-	-
HCM Lane LOS	B	-	-	A	A	-	-
HCM 95th %tile Q(veh)	2.4	-	-	-	0	-	-

Sycamore Canyon Commercial Development
4: Watkins Dr & SR-60 EB On-Ramp

Opening Day 2019 w/Proj
Timing Plan: PM Peak

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	891	30
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	96	96	96
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	928	31

Major/Minor	Major2		
Conflicting Flow All	553	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	1013	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development
5: Sycamore Canyon Blvd & North Proj Dwy

Opening Day 2019 w/Proj
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	67	17	216	72	18	436
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	18	235	78	20	474

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	503	274	0
Stage 1	274	-	-
Stage 2	229	-	-
Critical Hdwy	6.08	6.23	4.12
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	6.03	-	-
Follow-up Hdwy	3.669	3.319	2.218
Pot Cap-1 Maneuver	536	764	1247
Stage 1	744	-	-
Stage 2	750	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	527	764	1247
Mov Cap-2 Maneuver	527	-	-
Stage 1	744	-	-
Stage 2	738	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	562	1247	-
HCM Lane V/C Ratio	-	-	0.162	0.016	-
HCM Control Delay (s)	-	-	12.6	7.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 1: Sycamore Canyon Blvd & Central Ave

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	69	710	130	42	258	124	269	452	721	124	44	56
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	72	740	135	44	269	129	280	471	751	129	46	58
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1528	476	90	604	282	789	769	654	157	202	90
Arrive On Green	0.07	0.30	0.30	0.01	0.09	0.09	0.44	0.41	0.41	0.09	0.06	0.06
Sat Flow, veh/h	1774	5085	1583	3442	2345	1094	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	72	740	135	44	201	197	280	471	751	129	46	58
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1670	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	4.6	13.9	7.6	1.5	12.6	13.1	12.1	23.1	38.9	8.3	1.4	4.2
Cycle Q Clear(g_c), s	4.6	13.9	7.6	1.5	12.6	13.1	12.1	23.1	38.9	8.3	1.4	4.2
Prop In Lane	1.00		1.00	1.00		0.66	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	1528	476	90	456	430	789	769	654	157	202	90
V/C Ratio(X)	0.59	0.48	0.28	0.49	0.44	0.46	0.36	0.61	1.15	0.82	0.23	0.64
Avail Cap(c_a), veh/h	152	1528	476	148	456	430	789	1168	993	259	1702	761
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	33.3	31.1	57.0	45.3	45.5	21.3	26.9	22.4	52.2	52.4	53.7
Incr Delay (d2), s/veh	4.4	1.1	1.5	4.1	3.0	3.4	0.3	0.8	78.1	10.1	0.6	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.7	3.5	0.8	6.6	6.5	6.0	12.1	31.1	4.5	0.7	2.0
LnGrp Delay(d),s/veh	57.0	34.4	32.6	61.0	48.4	49.0	21.6	27.6	100.5	62.2	53.0	61.1
LnGrp LOS	E	C	C	E	D	D	C	C	F	E	D	E
Approach Vol, veh/h	947			442			1502			233		
Approach Delay, s/veh	35.9			49.9			62.9			60.1		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.6	40.0	56.8	11.7	46.6	35.0	15.3	53.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	35.0	34.0	56.0	10.0	30.0	17.0	73.0				
Max Q Clear Time (g_c+I1), s	3.5	15.9	14.1	6.2	6.6	15.1	10.3	40.9				
Green Ext Time (p_c), s	0.0	5.5	7.5	0.5	0.1	2.1	0.2	7.2				
Intersection Summary												
HCM 2010 Ctrl Delay	52.7											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 2: SR-60 EB Ramps & Central Ave

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	1258	281	188	342	0	0	0	0	110	2	69
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1367	305	204	372	0				120	2	75
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2367	1059	475	2984	0				149	157	133
Arrive On Green	0.00	1.00	1.00	0.28	1.00	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	1367	305	204	372	0				120	2	75
Grp Sat Flow(s), veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	6.7	0.0	0.0				9.1	0.1	6.3
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.7	0.0	0.0				9.1	0.1	6.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2367	1059	475	2984	0				149	157	133
V/C Ratio(X)	0.00	0.58	0.29	0.43	0.12	0.00				0.80	0.01	0.56
Avail Cap(c_a), veh/h	0	2367	1059	475	2984	0				309	325	276
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.64	0.64	0.99	0.99	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	45.3	0.0	0.0				61.9	57.8	60.6
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.6	0.1	0.0				9.6	0.0	3.7
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	0.0	0.2	0.1	3.2	0.0	0.0				4.9	0.1	2.9
LnGrp Delay(d),s/veh	0.0	0.7	0.4	45.9	0.1	0.0				71.5	57.8	64.3
LnGrp LOS		A	A	D	A					E	E	E
Approach Vol, veh/h	1672				576						197	
Approach Delay, s/veh	0.6				16.3						68.6	
Approach LOS	A				B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.4	97.0		16.6		133.4						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	19.0	92.0		24.0		116.0						
Max Q Clear Time (g_c+I1), s	8.7	2.0		11.1		2.0						
Green Ext Time (p_c), s	2.3	19.7		0.4		3.5						
Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 3: SR-60 WB Off-Ramp & Central Ave

Timing Plan: AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	1369	0	0	384	142	484		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	1441	0	0	404	149	509		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2059	0	0	2059	1183	544		
Arrive On Green	1.00	0.00	0.00	0.58	0.34	0.34		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	1441	0	0	404	149	509		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	0.0	0.0	0.0	7.2	4.0	41.7		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.2	4.0	41.7		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2059	0	0	2059	1183	544		
V/C Ratio(X)	0.70	0.00	0.00	0.20	0.13	0.94		
Avail Cap(c_a), veh/h	2059	0	0	2059	1592	732		
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.79	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	13.2	30.2	42.6		
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.2	0.0	16.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	3.6	1.9	20.7		
LnGrp Delay(d),s/veh	1.6	0.0	0.0	13.4	30.2	58.7		
LnGrp LOS	A			B	C	E		
Approach Vol, veh/h	1441			404	658			
Approach Delay, s/veh	1.6			13.4	52.2			
Approach LOS	A			B	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		98.9				98.9		51.1
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		78.0				78.0		62.0
Max Q Clear Time (g_c+l1), s		2.0				9.2		43.7
Green Ext Time (p_c), s		26.4				25.7		2.4
Intersection Summary								
HCM 2010 Ctrl Delay			16.8					
HCM 2010 LOS			B					

Intersection

Int Delay, s/veh 6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	774	1090	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	841	1185	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	3334	3383	592	516	0	0
Stage 1	2867	2867	-	-	-	-
Stage 2	467	516	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	7	7	450	1050	-	-
Stage 1	29	37	-	-	-	-
Stage 2	630	533	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	1	0	450	1050	-	-
Mov Cap-2 Maneuver	1	0	-	-	-	-
Stage 1	6	0	-	-	-	-
Stage 2	630	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	8.6
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1050	-	-	-	585	-	-
HCM Lane V/C Ratio	0.801	-	-	-	-	-	-
HCM Control Delay (s)	20.6	-	-	0	0	-	-
HCM Lane LOS	C	-	-	A	A	-	-
HCM 95th %tile Q(veh)	9	-	-	-	0	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	384	91
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	417	99

Major/Minor	Major2		
Conflicting Flow All	1185	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	585	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	585	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	142	18	512	74	37	82
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	20	557	80	40	89

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	713	597	0
Stage 1	597	-	-
Stage 2	116	-	-
Critical Hdwy	6.08	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	6.03	-	-
Follow-up Hdwy	3.669	3.319	-
Pot Cap-1 Maneuver	414	502	-
Stage 1	532	-	-
Stage 2	857	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	397	502	-
Mov Cap-2 Maneuver	397	-	-
Stage 1	532	-	-
Stage 2	821	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	947	-
HCM Lane V/C Ratio	-	-	0.427	0.042	-
HCM Control Delay (s)	-	-	20.3	9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	18	568	74	0	224
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	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	617	80	0	243

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	755	658	698
Stage 1	658	-	-
Stage 2	97	-	-
Critical Hdwy	6.08	6.23	4.12
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	6.03	-	-
Follow-up Hdwy	3.669	3.319	2.218
Pot Cap-1 Maneuver	393	463	898
Stage 1	499	-	-
Stage 2	876	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	393	463	898
Mov Cap-2 Maneuver	393	-	-
Stage 1	499	-	-
Stage 2	876	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	463	898	-
HCM Lane V/C Ratio	-	-	0.042	-	-
HCM Control Delay (s)	-	-	13.1	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 1: Sycamore Canyon Blvd & Central Ave

Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	627	739	281	512	150	241	140	180	153	352	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	660	778	296	539	158	254	147	189	161	371	51
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2147	669	359	1256	367	285	271	230	282	509	228
Arrive On Green	0.06	0.42	0.42	0.10	0.46	0.46	0.16	0.15	0.15	0.16	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	2704	789	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	57	660	778	296	352	345	254	147	189	161	371	51
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1723	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	3.7	10.2	28.8	10.0	15.7	15.9	16.6	8.7	13.7	9.9	11.9	2.8
Cycle Q Clear(g_c), s	3.7	10.2	28.8	10.0	15.7	15.9	16.6	8.7	13.7	9.9	11.9	2.8
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2147	669	359	822	801	285	271	230	282	509	228
V/C Ratio(X)	0.52	0.31	1.16	0.82	0.43	0.43	0.89	0.54	0.82	0.57	0.73	0.22
Avail Cap(c_a), veh/h	150	2147	669	436	822	801	375	676	575	330	1196	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	22.7	11.3	52.0	21.2	21.2	48.7	47.0	49.1	46.0	48.5	30.8
Incr Delay (d2), s/veh	3.7	0.4	89.4	10.0	1.6	1.6	18.7	1.7	7.2	1.8	2.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.8	29.1	5.2	8.1	7.9	9.6	4.6	6.5	5.0	6.0	1.4
LnGrp Delay(d),s/veh	57.5	23.1	100.7	61.9	22.8	22.9	67.4	48.7	56.3	47.8	50.5	31.3
LnGrp LOS	E	C	F	E	C	C	E	D	E	D	D	C
Approach Vol, veh/h	1495				993			590			583	
Approach Delay, s/veh	64.8				34.5			59.2			48.1	
Approach LOS	E				C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.0	55.0	24.0	22.0	44.0	60.0	23.8	22.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	25.0	40.0	10.0	55.0	22.0	43.0				
Max Q Clear Time (g_c+I1), s	12.0	30.8	18.6	13.9	5.7	17.9	11.9	15.7				
Green Ext Time (p_c), s	0.4	8.1	0.4	3.2	0.5	5.0	2.2	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay	53.0											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 2: SR-60 EB Ramps & Central Ave

Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Volume (veh/h)	0	360	696	684	743	0	0	0	0	13	4	77
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	391	757	743	808	0				14	4	84
Adj No. of Lanes	0	2	1	2	2	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1754	785	971	2928	0				130	137	116
Arrive On Green	0.00	0.83	0.83	0.56	1.00	0.00				0.07	0.07	0.07
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	1863	1583
Grp Volume(v), veh/h	0	391	757	743	808	0				14	4	84
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	1863	1583
Q Serve(g_s), s	0.0	2.4	41.2	16.7	0.0	0.0				0.7	0.2	5.2
Cycle Q Clear(g_c), s	0.0	2.4	41.2	16.7	0.0	0.0				0.7	0.2	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1754	785	971	2928	0				130	137	116
V/C Ratio(X)	0.00	0.22	0.96	0.77	0.28	0.00				0.11	0.03	0.72
Avail Cap(c_a), veh/h	0	2601	1164	1470	4288	0				317	333	283
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.94	0.94	0.84	0.84	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.6	7.9	19.4	0.0	0.0				43.6	43.3	45.6
Incr Delay (d2), s/veh	0.0	0.1	14.1	1.1	0.0	0.0				0.4	0.1	8.1
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	0.0	1.1	19.8	7.9	0.0	0.0				0.4	0.1	2.6
LnGrp Delay(d),s/veh	0.0	4.6	22.1	20.5	0.0	0.0				43.9	43.4	53.8
LnGrp LOS		A	C	C	A					D	D	D
Approach Vol, veh/h		1148			1551						102	
Approach Delay, s/veh		16.1			9.9						52.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	33.4	104.2		12.4		137.6						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	43.0	74.0		18.0		122.0						
Max Q Clear Time (g_c+l1), s	18.7	43.2		7.2		2.0						
Green Ext Time (p_c), s	9.7	6.7		0.2		12.2						
Intersection Summary												
HCM 2010 Ctrl Delay			14.0									
HCM 2010 LOS			B									

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖↗	↗		
Volume (veh/h)	339	0	0	1058	445	295		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	357	0	0	1114	468	311		
Adj No. of Lanes	2	0	0	2	2	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2467	0	0	2467	779	358		
Arrive On Green	0.70	0.00	0.00	0.70	0.23	0.23		
Sat Flow, veh/h	3725	0	0	3725	3442	1583		
Grp Volume(v), veh/h	357	0	0	1114	468	311		
Grp Sat Flow(s),veh/h/ln	1770	0	0	1770	1721	1583		
Q Serve(g_s), s	4.4	0.0	0.0	18.2	15.9	24.7		
Cycle Q Clear(g_c), s	4.4	0.0	0.0	18.2	15.9	24.7		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2467	0	0	2467	779	358		
V/C Ratio(X)	0.14	0.00	0.00	0.45	0.60	0.87		
Avail Cap(c_a), veh/h	2467	0	0	2467	1292	594		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.97	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	6.7	0.0	0.0	8.7	45.2	48.6		
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.6	0.7	7.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	9.0	7.6	11.5		
LnGrp Delay(d),s/veh	6.8	0.0	0.0	9.3	46.0	56.0		
LnGrp LOS	A			A	D	E		
Approach Vol, veh/h	357			1114	779			
Approach Delay, s/veh	6.8			9.3	50.0			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		115.4				115.4		34.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		91.0				91.0		49.0
Max Q Clear Time (g_c+I1), s		6.4				20.2		26.7
Green Ext Time (p_c), s		17.0				16.7		2.9
Intersection Summary								
HCM 2010 Ctrl Delay			23.0					
HCM 2010 LOS			C					

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	0	316	531	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	275	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	329	553	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	2155	2170	277	959	0	0
Stage 1	1211	1211	-	-	-	-
Stage 2	944	959	-	-	-	-
Critical Hdwy	6.63	6.53	6.93	4.12	-	-
Critical Hdwy Stg 1	5.83	5.53	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	2.218	-	-
Pot Cap-1 Maneuver	46	46	721	717	-	-
Stage 1	246	254	-	-	-	-
Stage 2	377	334	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	25	0	721	717	-	-
Mov Cap-2 Maneuver	25	0	-	-	-	-
Stage 1	133	0	-	-	-	-
Stage 2	377	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	0	5.3
HCM LOS	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	717	-	-	-	1013	-	-
HCM Lane V/C Ratio	0.459	-	-	-	-	-	-
HCM Control Delay (s)	14.2	-	-	0	0	-	-
HCM Lane LOS	B	-	-	A	A	-	-
HCM 95th %tile Q(veh)	2.4	-	-	-	0	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	0	891	30
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	96	96	96
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	928	31

Major/Minor	Major2		
Conflicting Flow All	553	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	1013	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 5: Sycamore Canyon Blvd & North Proj Dwy
 Timing Plan: PM Peak

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	134	17	216	72	36	418
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	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	146	18	235	78	39	454

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	534	274	0
Stage 1	274	-	-
Stage 2	260	-	-
Critical Hdwy	6.08	6.23	4.12
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	6.03	-	-
Follow-up Hdwy	3.669	3.319	2.218
Pot Cap-1 Maneuver	516	764	1247
Stage 1	744	-	-
Stage 2	723	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	500	764	1247
Mov Cap-2 Maneuver	500	-	-
Stage 1	744	-	-
Stage 2	700	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	520	1247	-
HCM Lane V/C Ratio	-	-	0.316	0.031	-
HCM Control Delay (s)	-	-	15.1	8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-

Sycamore Canyon Commercial Development Opening Day 2019 w/Proj (RIRO at South Proj Dwy)
 6: Sycamore Canyon Blvd & South Proj Dwy

Timing Plan: PM Peak

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	17	271	72	0	552
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	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	295	78	0	600

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	574	334	0
Stage 1	334	-	-
Stage 2	240	-	-
Critical Hdwy	6.08	6.23	4.12
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	6.03	-	-
Follow-up Hdwy	3.669	3.319	2.218
Pot Cap-1 Maneuver	492	707	1185
Stage 1	699	-	-
Stage 2	740	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	492	707	1185
Mov Cap-2 Maneuver	492	-	-
Stage 1	699	-	-
Stage 2	740	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	707	1185	-
HCM Lane V/C Ratio	-	-	0.026	-	-
HCM Control Delay (s)	-	-	10.2	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Year 2019 w/Proj (Overlap Phases)
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	69	710	130	42	258	124	269	452	721	124	44	56
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	72	740	135	44	269	129	280	471	751	129	46	58
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	1442	1198	87	570	266	839	822	738	156	198	89
Arrive On Green	0.07	0.28	0.28	0.02	0.16	0.16	0.47	0.44	0.44	0.09	0.06	0.06
Sat Flow, veh/h	1774	5085	1583	3442	2345	1094	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	72	740	135	44	201	197	280	471	751	129	46	58
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1670	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	4.9	15.1	0.0	1.6	12.7	13.2	12.2	23.3	45.7	8.8	1.5	4.4
Cycle Q Clear(g_c), s	4.9	15.1	0.0	1.6	12.7	13.2	12.2	23.3	45.7	8.8	1.5	4.4
Prop In Lane	1.00		1.00	1.00		0.66	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	1442	1198	87	430	406	839	822	738	156	198	89
V/C Ratio(X)	0.62	0.51	0.11	0.51	0.47	0.49	0.33	0.57	1.02	0.83	0.23	0.65
Avail Cap(c_a), veh/h	144	1442	1198	139	430	406	839	1102	977	244	1606	719
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	37.1	4.0	59.9	44.4	44.6	20.3	25.8	22.8	55.4	55.7	57.1
Incr Delay (d2), s/veh	5.2	1.3	0.2	4.5	3.6	4.1	0.2	0.6	30.8	12.4	0.6	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	7.2	1.3	0.8	6.7	6.6	6.0	12.2	26.1	4.9	0.8	2.1
LnGrp Delay(d),s/veh	61.4	38.4	4.2	64.4	48.0	48.7	20.6	26.4	53.6	67.8	56.3	65.0
LnGrp LOS	E	D	A	E	D	D	C	C	F	E	E	E
Approach Vol, veh/h	947				442				1502			
Approach Delay, s/veh	35.2				49.9				38.9			
Approach LOS	D				D				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.7	40.0	63.4	11.9	39.7	35.0	15.8	59.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	35.0	34.0	56.0	10.0	30.0	17.0	73.0				
Max Q Clear Time (g_c+I1), s	3.6	17.1	14.2	6.4	6.9	15.2	10.8	47.7				
Green Ext Time (p_c), s	0.0	5.4	7.5	0.5	0.1	2.1	0.1	6.7				
Intersection Summary												
HCM 2010 Ctrl Delay	41.3											
HCM 2010 LOS	D											

Sycamore Canyon Commercial Development
1: Sycamore Canyon Blvd & Central Ave

Opening Year 2019 w/Proj (Overlap Phases)
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	627	739	281	512	150	241	140	180	153	352	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	660	778	296	539	158	254	147	189	161	371	51
Adj No. of Lanes	1	3	1	2	2	0	1	1	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2157	926	360	1261	368	285	198	334	347	499	223
Arrive On Green	0.06	0.42	0.42	0.10	0.47	0.47	0.16	0.11	0.11	0.20	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	2704	789	1774	1863	1583	1774	3539	1583
Grp Volume(v), veh/h	57	660	778	296	352	345	254	147	189	161	371	51
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1723	1774	1863	1583	1774	1770	1583
Q Serve(g_s), s	3.7	10.1	20.9	9.9	15.6	15.7	16.5	9.0	0.3	9.5	11.9	2.8
Cycle Q Clear(g_c), s	3.7	10.1	20.9	9.9	15.6	15.7	16.5	9.0	0.3	9.5	11.9	2.8
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2157	926	360	826	804	285	198	334	347	499	223
V/C Ratio(X)	0.52	0.31	0.84	0.82	0.43	0.43	0.89	0.74	0.57	0.46	0.74	0.23
Avail Cap(c_a), veh/h	150	2157	926	438	826	804	376	679	743	347	1201	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	22.5	6.4	51.7	20.9	21.0	48.5	51.1	41.7	42.0	48.6	30.9
Incr Delay (d2), s/veh	3.7	0.4	9.1	9.8	1.6	1.6	18.5	5.4	1.5	1.0	2.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.8	11.1	5.2	8.0	7.8	9.6	5.0	5.6	4.7	6.0	1.4
LnGrp Delay(d),s/veh	57.3	22.8	15.5	61.5	22.5	22.6	67.0	56.5	43.2	42.9	50.8	31.4
LnGrp LOS	E	C	B	E	C	C	E	E	D	D	D	C
Approach Vol, veh/h	1495			993			590			583		
Approach Delay, s/veh	20.3			34.2			56.7			46.9		
Approach LOS	C			C			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.4	55.0	23.9	21.6	44.4	60.0	28.0	17.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	25.0	40.0	10.0	55.0	22.0	43.0				
Max Q Clear Time (g_c+I1), s	11.9	22.9	18.5	13.9	5.7	17.7	11.5	11.0				
Green Ext Time (p_c), s	0.4	9.3	0.4	2.8	0.5	5.0	2.3	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay	34.2											
HCM 2010 LOS	C											