

Central Avenue Gas Station Traffic Impact Analysis

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EXECUTIVE SUMMARY

Purpose of the Report

The purpose of this traffic impact analysis (TIA) report is to identify and document potential traffic deficiencies related to the proposed Central Avenue Gas Station in the County of Riverside. This technical report will also recommend transportation improvements to address potential project deficiencies to local and regional transportation facilities.

Project Overview

The project is proposed to be developed on a vacant site located at the west side of State Highway 74 (SH-74)/Central Avenue and Ardenwood Way intersection. Access to the project site will be provided via a newly constructed driveway and cul-de-sac on the western leg of the SH-74/Central Avenue and Ardenwood Way signalized intersection.

The land use proposed as part of the project is a gas station with 6 fuel dispensers (12 vehicle fueling positions) and 3,516 square feet of convenience store.

The project trip generation was calculated using the ITE Trip Generation Manual (10th Edition). It is estimated that the project will generate 1,217 total daily trips, 128 AM peak hour trips and 122 PM peak hour trips. Project trip distribution and assignment were developed, in coordination with County of Riverside staff and City of Lake Elsinore, based on the land use characteristics of the proposed project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the project site, and approved projects located in the vicinity of the project site. Project scenarios and study area were then established in coordination with County and City staff to determine the potential project deficiencies on the transportation network. Refer to **Appendix A** for approved scoping agreement.

Project Scenarios:

- Existing Conditions (2020)
- Existing Plus Project (EP) Conditions
- Existing Plus Ambient Plus Project (EAP) Conditions
- Existing Plus Ambient Plus Cumulative Plus Project (EACP) Conditions

Study Area Intersections:

1. SH-74/Central Avenue and Conard Avenue
2. SH-74/Central Avenue and Allan Street
3. SH-74/Central Avenue and Ardenwood Way (Project Access)
4. SH-74/Central Avenue and Rosetta Canyon Drive

Analysis Results and Recommendations

Existing Conditions (2020) Scenario

All study area intersections operate at acceptable level of service (LOS) under Existing Conditions 2020 and Existing Plus Project Conditions. Therefore, no improvements are required by this project.



Existing Plus Ambient Plus Project Scenario

All study area intersections operate at acceptable LOS under Existing Plus Ambient Plus Project Conditions except for the intersection of SH-74/Central Avenue and Allan Street. The project will construct a raised median in the north-south direction along SH-74/Central Avenue to restrict access to right in/right out only at the intersection of SH-74/Central Avenue and Allan Street. This improvement will mitigate the deficiency at this location.

Existing Plus Ambient Plus Cumulative Plus Project Scenario

All study area intersections operate at acceptable LOS under Existing Plus Ambient Plus Cumulative Plus Project Conditions except at the intersection of SH-74/Central Avenue and Allan Street. The project will be conditioned to construct a raised median along SH-74/Central Avenue to restrict access to right in/right out vehicular movements at the intersection of SH-74/Central Avenue and Allan Street. With the construction of Central Avenue Commercial project driveway, the intersection of SH-74/Central Avenue and Allan Street is expected to operate at an acceptable level of service throughout the day except during the AM peak hour, where the operation of the driveway is expected to operate at LOS E.

Additionally, the project will be conditioned to widen SH-74/Central Avenue to its ultimate classification, per the City of Lake Elsinore General Plan, along the property frontage to an 8-lane augmented urban arterial including the implementation of a signal modification at the intersection of SH-74/Central Avenue and Ardenwood Way. Improvement plans including ultimate roadway alignment, striping and signage will be submitted to the City of Lake Elsinore for staff review and approval. All proposed improvements shall be constructed per City Standards satisfactory to the City Engineer.



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1.0 PROJECT INTRODUCTION

This traffic impact analysis (TIA) report has been prepared for Central Avenue Gas Station project. The project is proposed to be developed on a vacant site located at the west side of State Highway 74 (SH-74)/Central Avenue and Ardenwood Way intersection.

PROJECT DESCRIPTION

The land use proposed as part of the project is a gas station with six (6) fueling dispensers (12 vehicle fueling positions) and 3,516 square feet of convenience store.

Figure 1-1 shows the project site plan.

STUDY AREA

The study area for this project was developed consistent with the Riverside County TIA Preparation Guide, including all intersections of “Collector” or higher classification streets with “Collector” or higher classification streets, at which the proposed project will add 50 or more peak hour trips. IEG prepared a project traffic study scoping agreement defining the study area, which was reviewed and approved by Riverside County and City of Lake Elsinore staff prior to the preparation of this technical report. Refer to **Appendix A** for approved scoping agreement.

Figure 1-2 presents the study area that includes the following key intersection locations:

1. SH-74/Central Avenue and Conard Avenue
2. SH-74/Central Avenue and Allan Street
3. SH-74/Central Avenue and Ardenwood Way (Project Access)
4. SH-74/Central Avenue and Rosetta Canyon Drive

Turning movement counts were conducted for one weekday during the morning and evening peak hours on October 22, 2020. Due to the COVID-19 pandemic, traffic patterns are currently disrupted and not typical. Therefore, IEG, in coordination with City of Lake Elsinore staff used the Central Plaza Traffic Impact Study (February 2017) and the Dexter/Central Chick-fil-A Traffic Impact Analysis (July 2018) to calculate an adjustment factor based on the AM and PM peak hour relationship between different intersection count dates. The adjustment factor was applied to the October 22, 2020 turning movement counts to develop Existing Conditions 2020 baseline volumes. The turning movement counts, adjustment factor calculation, and adjusted volumes are provided in **Appendix B**. These baseline volumes will be utilized in Synchro 10 software to determine LOS at all study intersections. The Existing Plus Ambient without Project Conditions traffic volumes will be developed by adding a 2% annual growth for two years to the Existing Year 2020 adjusted baseline volumes.

PROJECT TRIP GENERATION

The trip generation is a measure or forecast of the number of trips that begin or end at the project site. These trips will result in some traffic increases on the streets where they occur. The rates used in this analysis were determined using *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) that is widely used in Southern California. Project ITE average trip generation rates are presented in **Table 1-1**.

Table 1-1
Project Trip Generation Rate

Land Use	Units ¹	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Super Convenience Market/Gas Station	VFP	934	14.04	14.04	28.08	11.48	11.48	22.96	231

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)

¹ VFP = Vehicle Fueling Positions

Tables 1-2 summarizes the calculated trip generation based on the vehicle fueling positions associated with the proposed Project. As shown on Table 1-2, the proposed development is anticipated to generate approximately 1,217 total daily trips, 128 AM peak hour trips and 122 PM peak hour trips.

Table 1-2
Project Trip Generation

Land Use	Intensity	Units ¹	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Super Convenience Market/Gas Station	12	VFP	168	168	337	138	138	276	2,766
Pass-by Reduction (62% AM Peak Hour, 56% PM Peak Hour Only) ²			104	104	209	77	77	154	1,549
Total			64	64	128	61	61	122	1,217

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)

¹ VFP = Vehicle Fueling Positions

² Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017)

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will affect. Once the proposed development's trips have been estimated, they are assigned to the study area network. For this development, the project trip distribution and assignment were developed, in coordination with County and City staff, based on the land use characteristics of the proposed project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the project site, and approved projects located in the vicinity of the project site. **Figures 1-1 through 1-3** show project site plan, study area/trip distribution and intersection turning movement volumes.

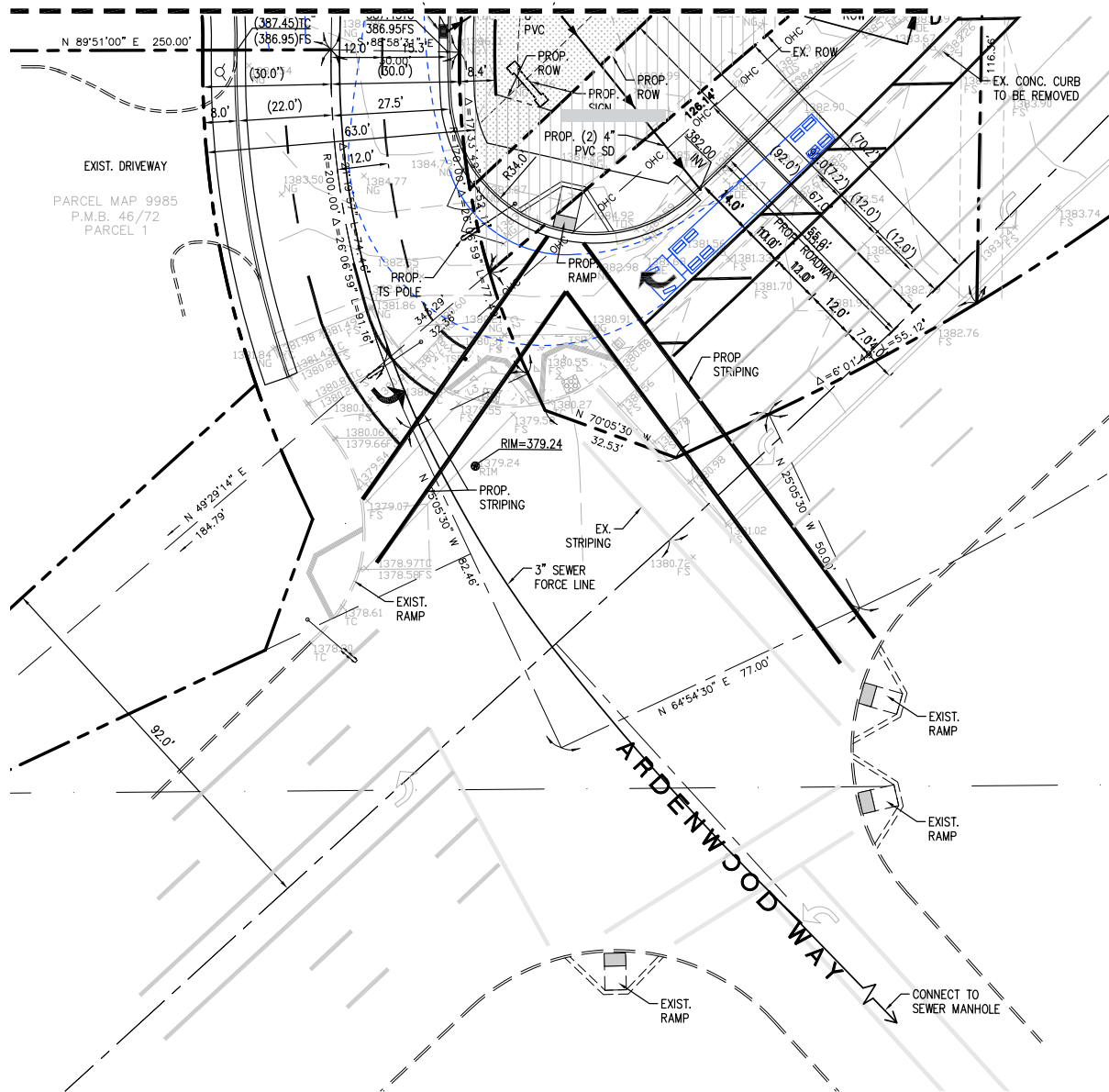
PROJECT ACCESS AND ON-SITE TRUCK CIRCULATION

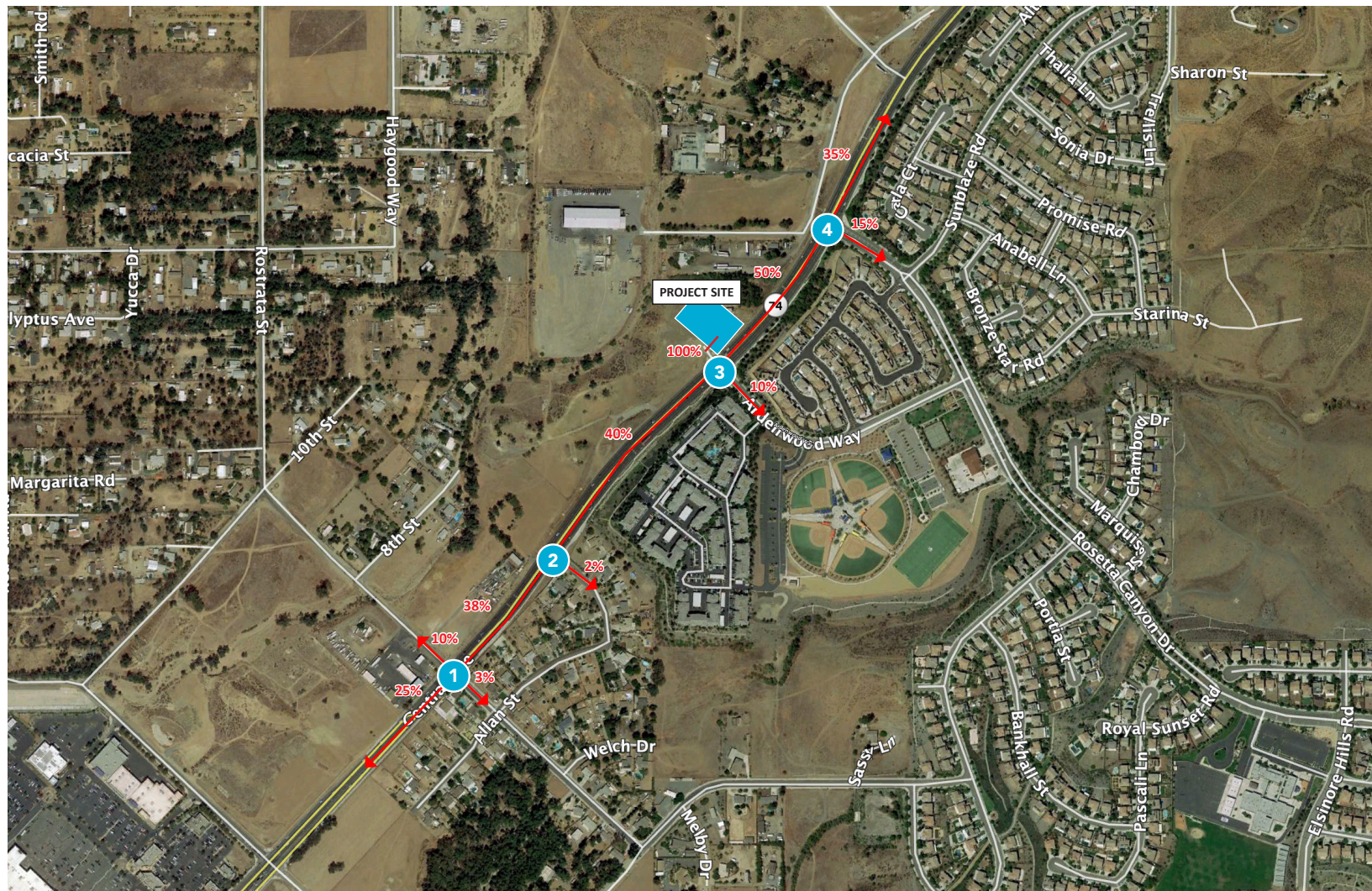
Access to the project site will be provided via a newly constructed driveway and cul-de-sac on the northwestern leg of the SH-74/Central Avenue and Ardenwood Way signalized intersection. The on-site/internal truck circulation is adequate per the provided truck turning template shown on **Figure 1-1**.

PARKING

The proposed development will be required to provide on-site parking spaces consistent with County of Riverside parking requirements.





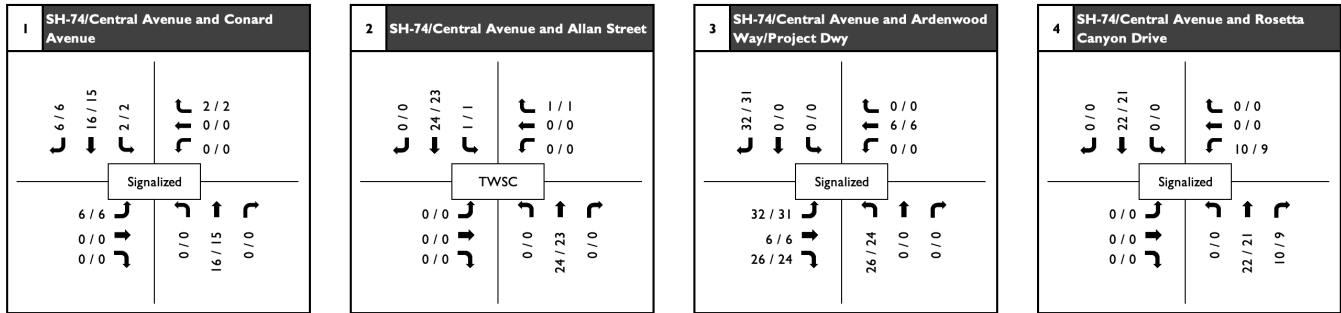


LEGEND

Intersection



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LEGEND

(AM/PM) Peak Hour Volumes



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TRANSPORTATION PLANNING AND ENGINEERING

2.0 METHODOLOGIES

This section documents the methodologies and assumptions used to conduct the circulation impact analysis for the proposed project. This section contains the following background information:

- Study scenarios
- Study time periods
- Analysis methodologies

Refer to **Appendix A** for approved scoping agreement.

STUDY SCENARIOS

This report presents an analysis of the intersections which were selected for the following anticipated timeframe scenarios:

- Existing Conditions (2020)
- Existing Plus Project (EP) Conditions
- Existing Plus Ambient Plus Project (EAP) Conditions
- Existing Plus Ambient Plus Cumulative Plus Project (EACP) Conditions

STUDY TIME PERIODS

The County of Riverside selected the following peak hours for analysis:

- Weekday AM (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM (peak hour between 4:00 PM and 6:00 PM)

ANALYSIS METHODOLOGIES

Street system operating conditions are typically described in terms of “level of service.” Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). **Table 2-1** describes generalized definitions of auto LOS A through F.

Table 2-1
Vehicular Level of Service Definitions

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual, Transportation Research Board (2010)

Intersection Capacity Analysis

The analysis of peak hour intersection performance was conducted using the Synchro 10 software program, which uses methodologies defined in the Highway Capacity Manual (HCM) 6th Edition to calculate LOS. Level of service (LOS) for intersections is determined by control delay. Control delay is defined as the total elapsed time from when a vehicle stops at the end of a queue to the time the vehicle departs from the stop line. The total elapsed time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

Signalized Intersections

The HCM analysis methodology for evaluating signalized intersections is based on the “operational analysis” procedure. This technique uses 1,900 passenger cars per hour of green per lane (pcphpl) as the maximum saturation flow of a single lane at an intersection. Average control delay is calculated by taking a volume-weighted average of all the delays for all vehicles entering the intersection. **Table 2-2** summarizes the level of service criteria for signalized intersections.



Table 2-2
Signalized Intersection Level of Service HCM Operational Analysis Method

Average Control Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤ 10.0	<i>LOS A</i> occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	<i>LOS B</i> occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with <i>LOS A</i> .
20.1 – 35.0	<i>LOS C</i> occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	<i>LOS D</i> occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	<i>LOS E</i> occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
> 80.0	<i>LOS F</i> occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, Transportation Research Board (2010)

All-way Stop-controlled (AWSC) Intersections

The HCM analysis methodology for evaluating all-way Stop-controlled intersections is based on the degree of conflict for each independent approach created by the opposing approach and each conflicting approach. Level of Service for AWSC intersections is also based on the average control delay. However, AWSC intersections have different threshold values than those applied to signalized intersections. This is based on the rationale that drivers expect AWSC intersections to carry lower traffic volumes than at signalized intersections. Therefore, a higher level of delay is acceptable at a signalized intersection for the same LOS.

Two-way Stop-controlled (TWSC) Intersections

The HCM analysis methodology for evaluating two-way Stop-controlled (TWSC) intersections is based on gap acceptance and conflicting traffic for vehicles stopped on the minor-street approaches. The critical gap (minimum gap that would be acceptable) is defined as the minimum time interval in the major-street traffic stream that allows intersection entry for one minor-street vehicle. Average control delay and LOS for the “worst approach” are reported. Level of service is not defined for the intersection as a whole. **Table 2-3** summarizes the level of service criteria for unsignalized intersections.



Table 2-3
Level of Service Criteria for Stop Controlled Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service (LOS)
≤10.0	A
10.1 – 15.0	B
15.1 – 25.0	C
25.1 – 35.0	D
35.1 – 50.0	E
>50.0	F

Source: Highway Capacity Manual, Transportation Research Board (2010)

City of Lake Elsinore General Plan Compliance

In coordination with City staff, the traffic impact analysis will identify LOS deficiencies for compliance with City of Lake Elsinore General Plan goals. The City of Lake Elsinore has established LOS “D” as the minimum allowable level of service at intersections. Therefore, any intersection operating at LOS “E” or worse will be considered deficient for the purposes of this analysis.



3.0 EXISTING CONDITIONS (2020) SCENARIO

This section documents the circulation system conditions within the study area of the project under Existing Conditions 2020 project scenario. This section also documents operational deficiencies on the existing local and regional circulation networks. No network improvements are assumed under Existing Conditions 2020 project scenario.

ROADWAY NETWORK

Locally significant roadway located within the study area of the proposed project is discussed below.

SH-74/Central Avenue from Conard Avenue to Rosetta Canyon Drive functions as a 4-lane arterial highway between Conard Avenue and Allan Street and as a 5-lane arterial highway between Allan Street and Rosetta Canyon Drive. The posted speed limit on SH-74/Central Avenue is 55 miles per hour (mph). Per the City of Lake Elsinore General Plan Circulation Element, the buildout classification for this segment of SH-74/Central Avenue is an 8-lane augmented urban arterial – state highway, as shown in **Figure 3-1**.

Figures 3-1 and **3-2** show the City of Lake Elsinore General Plan Circulation Network and Recommended Roadway Cross Sections, respectively.

TRANSIT SYSTEM

The Riverside Transit Agency (RTA) is the main transit agency servicing the County of Riverside. Currently, RTA operates Route 9 within the vicinity of the project. Route 9 operates seven days a week and connects to the Lake Elsinore Outlet Center south of the site and Perris Station Transit Center north of the site. Weekday and weekend service frequency is 60 to 90 minutes. Bus stops for Route 9 are currently located at the intersection of SH-74/Central Avenue and Rosetta Canyon Road for northbound and southbound service, about 1150 feet from the site. Pedestrian accessibility and connectivity from the project site to these bus stops are provided with signalized crossings at the intersection of SH-74/Central Avenue and Ardenwood Way and sidewalk along the south side of SH-74/Central Avenue to the bus stops. Route information is included in **Appendix H**.

ACTIVE TRANSPORTATION SYSTEM

Active transportation facilities including pedestrian and bicycle facilities within the study area of the project are provided. Pedestrian crosswalks are generally provided at signalized intersections along SH-74/Central Avenue with sidewalks along the corridor. Class II bike lanes in both directions are provided along SH-74/Central Avenue.

TRAFFIC VOLUMES

The Existing Year 2020 peak hour intersection turning movement volumes were counted on Thursday October 22, 2020. Due to the COVID-19 pandemic, traffic patterns are currently disrupted and not typical. Therefore, IEG, in coordination with City of Lake Elsinore staff used the Central Plaza Traffic Impact Study (February 2017) and the Dexter/Central Chick-fil-A Traffic Impact Analysis (July 2018) to calculate an adjustment factor based on the AM and PM peak hour relationship between different intersection count dates. The adjustment factor was applied to the October 22, 2020 turning movement counts to develop Existing Conditions 2020 baseline volumes. The turning movement counts, adjustment factor calculation, and adjusted volumes are provided in **Appendix B**. The provided October 22, 2020 turning movement counts considered SH-74/Central Avenue as a north-

south corridor. Therefore, intersection configurations for Synchro analysis were input consistent with the counts with the SH-74/Central Avenue movements as north and south at all intersections.

ANALYSIS RESULTS

Table 3-1 shows Existing Conditions intersection operation analysis results.

Figures 3-3 and 3-4 show intersection turning movement volumes under Existing Year 2020 and Existing Plus Project (EP) scenarios, respectively.

Table 3-1
Existing Condition 2020 Scenario Intersection Operation Analysis

Intersection	Intersection Control	Existing Conditions		Existing Year 2020 With Project	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)
1. SH-74/Central Avenue and Conard Avenue	Signal	11.1/13.7	B/B	12.4/14.4	B/B
2. SH-74/Central Avenue and Allan Street	SSSC	32.1/22.5	D/C	32.9/22.9	D/D
3. SH-74/Central Avenue and Ardenwood Way	Signal	9.7/6.8	A/A	13.6/9.3	B/A
4. SH-74/Central Avenue and Rosetta Canyon Drive	Signal	8.7/8.0	A/A	9.1/8.2	A/A

Notes:

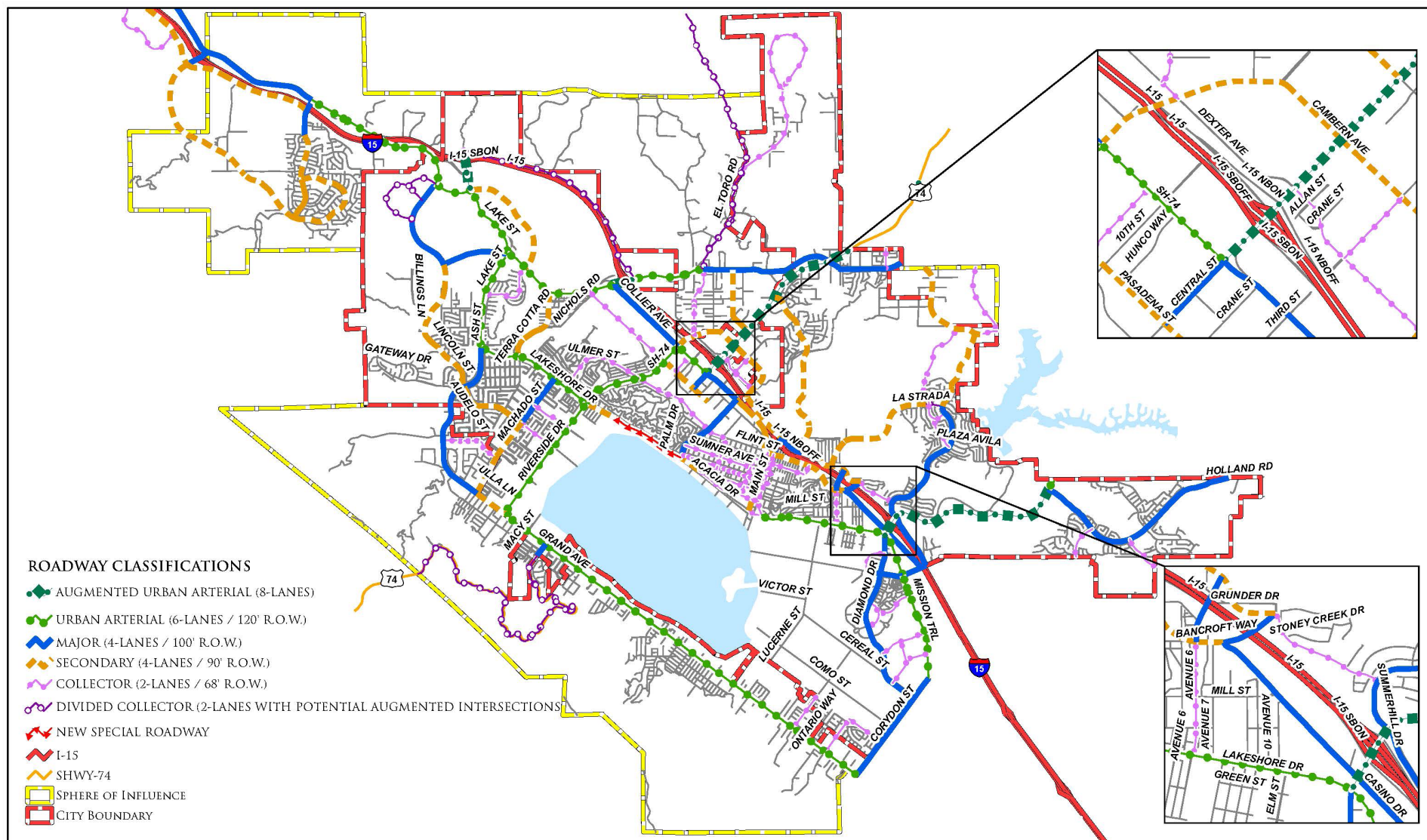
SSSC = Side Street Stop Control

(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle. At unsignalized intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10

Per the analysis results shown in **Table 3-1**, all analyzed intersections are operating at an acceptable LOS under Existing Year 2020 Conditions and the proposed project would not have any operational deficiency under EP Conditions.

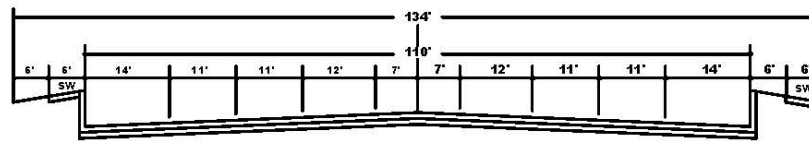
Existing Conditions and Existing Plus Project Conditions peak hour analysis worksheets are provided in **Appendices C and D**, respectively.



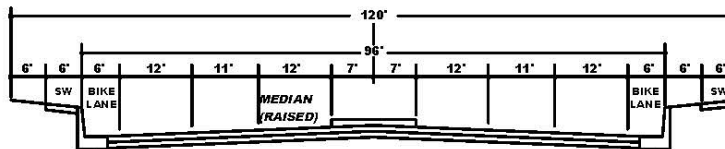
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Central Avenue Gas Station
City of Lake Elsinore Roadway Classifications
Figure 3-1

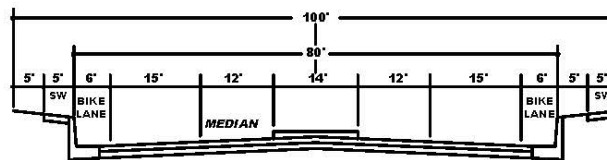
CITY OF LAKE ELSINORE PROPOSED LAND USE PLAN SCENARIO RECOMMENDED ROADWAY CROSS-SECTIONS



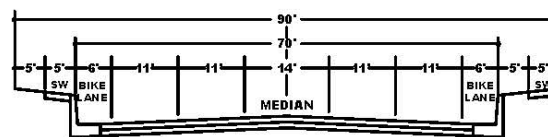
AUGMENTED URBAN ARTERIAL - STATE HIGHWAY
(8-LANE)



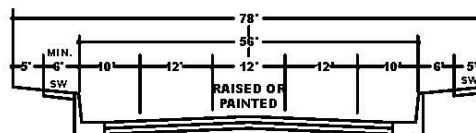
URBAN ARTERIAL HIGHWAY
(6-LANE)



MAJOR HIGHWAY
(4-LANE)

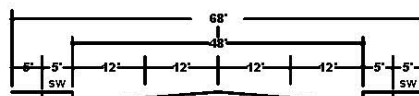


SECONDARY HIGHWAY
(4-LANE)

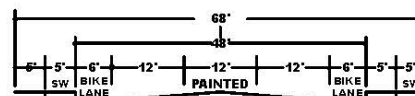


DIVIDED COLLECTOR
(2-LANE)

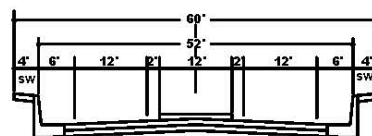
BIKES USE SHOULDER



COLLECTOR HIGHWAY
(4-LANE)



COLLECTOR HIGHWAY
(2-LANE)



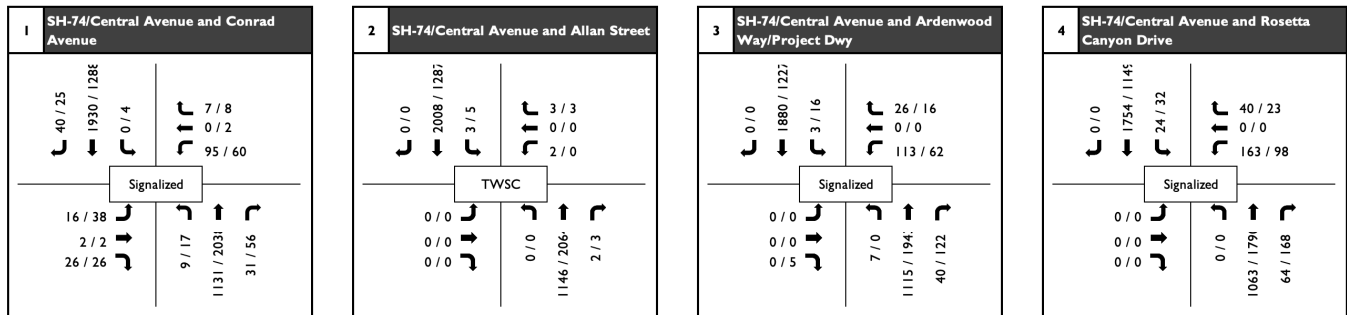
NEW SPECIAL ROADWAY
(2-LANE)
(PROPOSED FOR LAKESHORE DRIVE IN THE COUNTRY CLUB HEIGHT DISTRICT)

SHOULDER/BIKE LANE

* BIKE LANES ARE NOT MANDATORY UNLESS SHOWN ON THE BIKEWAY CIRCULATION ELEMENT PLAN
PRECISE SIDEWALK LOCATION SUBJECT TO CITY ENGINEER APPROVAL
NOTE: CHECK THE DISTRICT PLAN OF YOUR AREA FOR ANY REQUIRED SPECIAL ROADWAY CROSS-SECTION,
ESPECIALLY THE LAKE EDGE AND COUNTRY CLUB HEIGHTS DISTRICT PLANS.
STRIPPING OF COLLECTOR HIGHWAY AS DIRECTED BY CITY ENGINEER.



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TRANSPORTATION PLANNING AND ENGINEERING

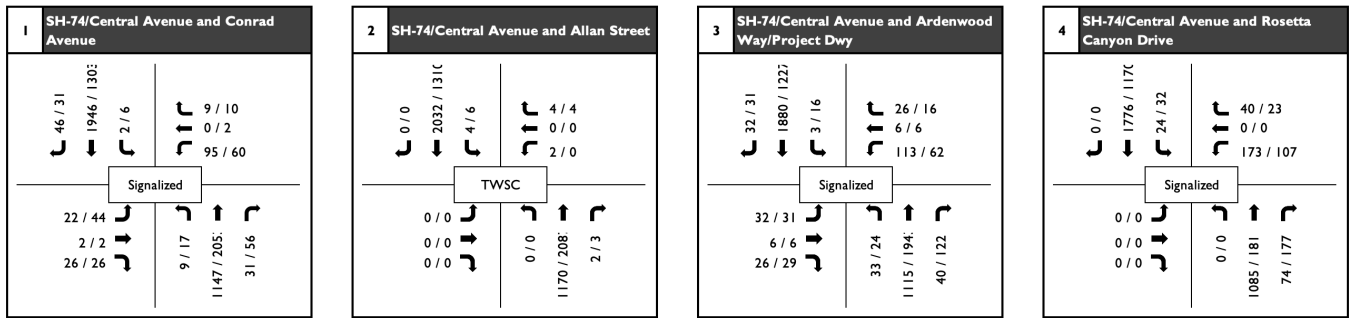


LEGEND

(AM/PM) Peak Hour Volumes



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LEGEND

(AM/PM) Peak Hour Volumes



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TRANSPORTATION PLANNING AND ENGINEERING

4.0 EXISTING PLUS AMBIENT PLUS PROJECT CONDITIONS

This section documents the circulation system conditions within the study area of the project under Existing Plus Ambient Plus Project (EAP) Conditions. Since the project is expected to be built and operational in 2022, a 2% annual growth factor for two years was applied to the adjusted Existing Year 2020 baseline volumes. Project traffic volumes are then added to these volumes to develop EAP Conditions traffic volumes. This section also documents potential operational deficiencies on the existing local and regional circulation networks. No network improvements are assumed under EAP Conditions.

ANALYSIS RESULTS

Table 4-1 shows EAP Conditions intersection operation analysis results.

Figure 4-1 shows intersection turning movement volumes under EAP Conditions.

Table 4-1
EAP Conditions Intersection Operation Analysis

Intersection	Intersection Control	Existing Conditions		EAP Conditions	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)
AM Peak/PM Peak					
1. SH-74/Central Avenue and Conard Avenue	Signal	11.1/13.7	B/B	14.1/16.9	B/B
2. SH-74/Central Avenue and Allan Street	SSSC	32.1/22.5	D/C	35.3/24.4	E/C
3. SH-74/Central Avenue and Ardenwood Way	Signal	9.7/6.8	A/A	15.3/9.4	B/A
4. SH-74/Central Avenue and Rosetta Canyon Drive	Signal	8.7/8.0	A/A	9.6/8.3	A/A

Notes:

SSSC = Side Street Stop Control

(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle. At unsignalized intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10

Per the analysis results shown in **Table 4-1**, all analyzed intersections are operating at an acceptable LOS under EAP Conditions except for SH-74/Central Avenue and Allan Street.

TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The project would have an operational deficiency under EAP conditions at the intersection of SH-74/Central Avenue and Allan Street. This project will construct a raised median in the north-south direction to restrict access to right in/right out only at the intersection of SH-74/Central Avenue and Allan Street. This improvement will mitigate the deficiency at this location, as shown in **Table 4-2** below.



Table 4-2
EAP Conditions with Improvements Intersection Operation Analysis

Intersection	Intersection Control	EAP Conditions		EAP Conditions with Improvement	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)
AM Peak/PM Peak					
2. SH-74/Central Avenue and Allan Street	SSSC	35.3/24.4	E/C	13.9/24.4	B/C

Notes:

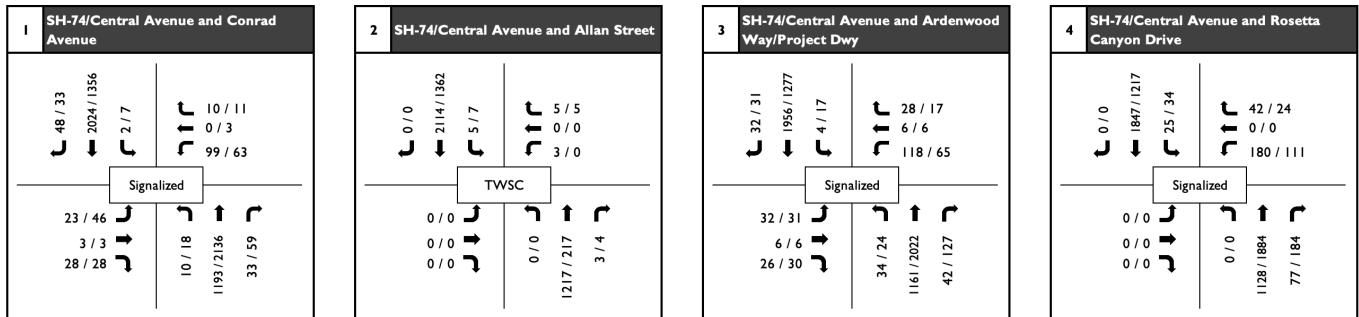
SSSC = Side Street Stop Control

(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle. At unsignalized intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10

EAP Conditions and Post-Mitigation peak hour analysis worksheets are provided in **Appendix E**.





LEGEND

(AM/PM) Peak Hour Volumes



INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

5.0 EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT CONDITIONS

This section documents the circulation system conditions within the study area of the Project under Existing Plus Ambient Plus Cumulative Plus Project (EACP) Conditions. The EACP Conditions traffic volumes were developed by adding cumulative project trips to the EAP Conditions traffic volumes. These cumulative projects are shown in **Table 5-1** below. The locations and cumulative project trip volumes assigned to the study intersections are shown in **Figure 5-1**. This section also documents potential Cumulative Project impacts to the circulation network. The following network improvement is assumed under EACP conditions:

- SH-74/Central Avenue and Allan Street/Project Driveway – The development of the Central Avenue Commercial Retail project will be conditioned to construct a raised median along its property frontage on SH-74/Central Avenue to restrict access to right in/right out vehicular movements at its new project driveway and Allan Street. Should the Central Avenue Commercial Retail project not develop at the time of the subject project occupancy, it is the obligation of the subject property to construct the median at this location, satisfactory to the City Engineer.

Table 5-1
Cumulative Projects

#	Project/Location	Land Use	Quantity	Units ¹
City of Lake Elsinore				
1	Lake Elsinore Walmart	Retail	151.397	TSF
		Specialty Retail	5.300	TSF
		Fast-Food without Drive-Thru	5.300	TSF
		Fast-Food with Drive-Thru	6.800	TSF
2	Tige Watersports	Boat Dealership	34.5	TSF
3	Kassab Travel Center	Gas Station w/ Convenience Market	18	VFP
		Fast-Food with Drive-Thru	2.54	TSF
4	Nichols Ranch (Phases I and II)	Single Family Residential	168	DU
		Park	8.3	AC
5	Central Avenue Commercial Retail	Shopping Center	10.49	TSF
		Fast-Food with Drive-Thru	1.51	TSF

¹DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Position; AC = Acres

*See **Appendix F** for Cumulative Traffic Volumes

ANALYSIS RESULTS

Table 5-2 shows Existing Plus Ambient Plus Cumulative Plus Project Conditions intersection operation analysis results.

Figure 5-2 shows study intersection turning movement volumes under Existing Plus Ambient Plus Cumulative Plus Project Conditions.

Table 5-2
Existing Plus Ambient Plus Cumulative Plus Project Condition Intersection Operation Analysis

Intersection	Intersection Control	Existing Conditions		EACP Conditions	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)
AM Peak/PM Peak					
1. SH-74/Central Avenue and Conard Avenue	Signal	11.1/13.7	B/B	19.6/22.7	B/C
2. SH-74/Central Avenue and Allan Street	SSSC	32.1/22.5	D/C	36.0/26.2	E/D
3. SH-74/Central Avenue and Ardenwood Way	Signal	9.7/6.8	A/A	18.9/9.5	B/A
4. SH-74/Central Avenue and Rosetta Canyon Drive	Signal	8.7/8.0	A/A	11.3/9.1	B/A

Notes:

SSSC = Side Street Stop Control

(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle. At unsignalized intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10

Per the analysis results shown in **Table 5-2**, all study area intersections operate at acceptable LOS under Existing Plus Ambient Plus Cumulative Plus Project Conditions except at the intersection of SH-74/Central Avenue and Allan Street. The project will be conditioned to construct a raised median along SH-74/Central Avenue to restrict access to right in/right out vehicular movements at the intersection of SH-74/Central Avenue and Allan Street. With the construction of Central Avenue Commercial project driveway, the intersection of SH-74/Central Avenue and Allan Street is expected to operate at an acceptable level of service throughout the day except during the AM peak hour, where the operation of the driveway is expected to operate at LOS E. It should be noted that due to the construction of the raised median, the southbound left turn vehicular trips at the intersection of SH-74/Central Avenue and Allan Street were diverted to the intersection of SH-74/Central Avenue and Conard Avenue. These diverted trips were analyzed as through movements under this scenario. As noted above, the proposed project will be conditioned to construct a raised median along SH-74/Central Avenue to restrict access to right in/right out vehicular movements at the intersection of SH-74/Central Avenue and Allan Street.

Additionally, the project will be conditioned to widen SH-74/Central Avenue to its ultimate classification, per the City of Lake Elsinore General Plan, along the property frontage to an 8-lane augmented urban arterial including the implementation of a signal modification at the intersection of SH-74/Central Avenue and Ardenwood Way/Chris Circle. The final design detail related to the roadway widening and SH-74/Central Avenue and Ardenwood Way/Chris Circle intersection will be addressed through the City's ministerial approval process. Improvement plans including ultimate roadway alignment, intersection design; and roadway striping and signage will be designed to City of Lake Elsinore Standards and will be submitted for staff review and approval satisfactory to the City Engineer.

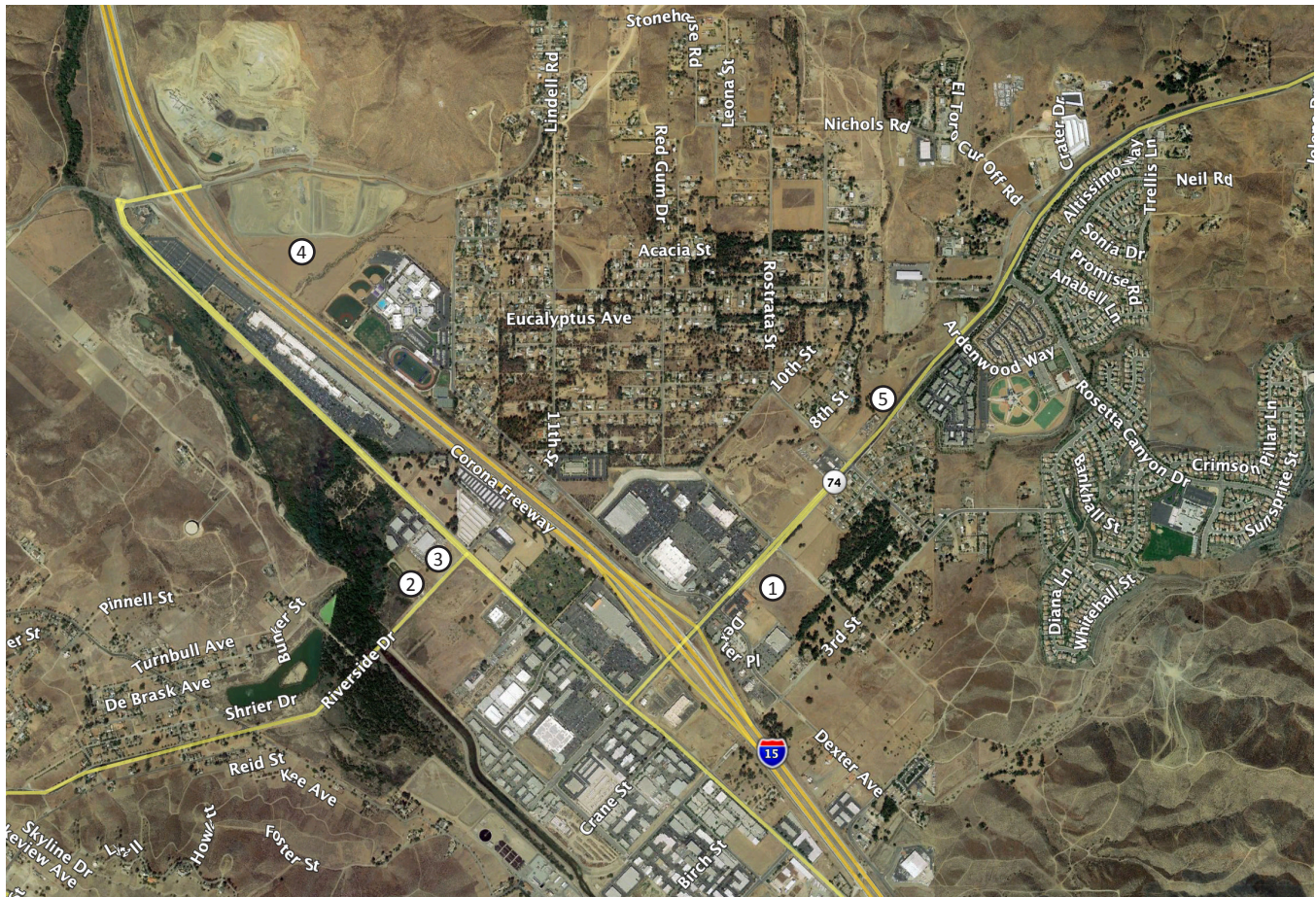
EACP peak hour analysis worksheets are provided in **Appendix G**.

1 SH-74/Central Avenue and Conard Avenue	
8 / 5 123 / 111 4 / 2 0 / 0 0 / 0 3 / 4 Signalized 11 / 5 0 / 0 7 / 8 5 / 8 80 / 83 3 / 4	

2 SH-74/Central Avenue and Allan Street	
113 / 45 59 / 71 0 / 0 2 / 1 0 / 0 0 / 0 TWSC 0 / 0 0 / 0 75 / 47 0 / 0 136 / 115 0 / 0	

3 SH-74/Central Avenue and Ardenwood Way/Project Dwy	
0 / 0 116 / 94 0 / 0 0 / 0 0 / 0 11 / 5 Signalized 0 / 0 0 / 0 0 / 0 0 / 0 131 / 112 8 / 5	

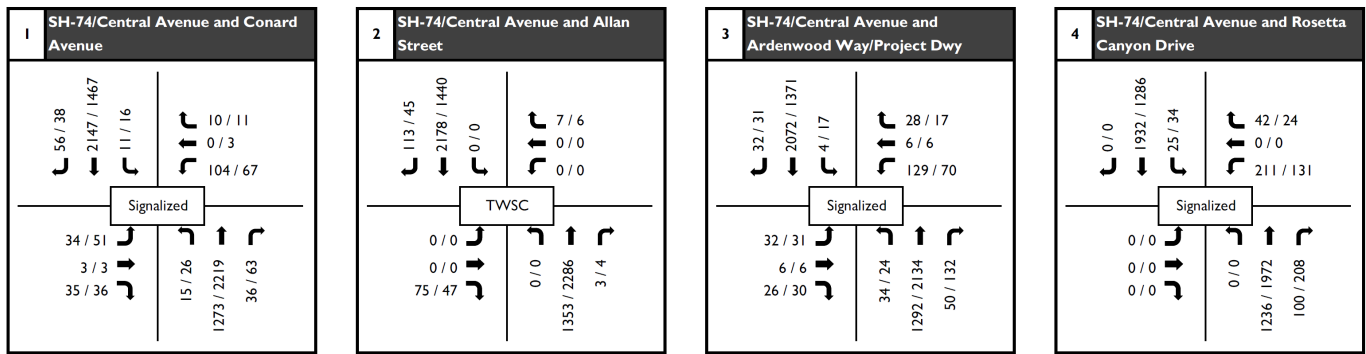
4 SH-74/Central Avenue and Rosetta Canyon Drive	
0 / 0 85 / 69 0 / 0 0 / 0 0 / 0 31 / 20 Signalized 0 / 0 0 / 0 0 / 0 0 / 0 108 / 88 23 / 24	



- ① Lake Elsinore Walmart
- ② Tige Watersports
- ③ Kassab Travel Center
- ④ Nichols Ranch
- ⑤ Central Avenue Retail Center



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LEGEND

(AM/PM) Peak Hour Volumes



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APPENDIX A -

SCOPING AGREEMENT



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APPENDIX A -

SCOPING AGREEMENT



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Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Analysis Guidelines dated December 2020.

Case No. CUP# 200043

Related Cases -

SP No. _____

EIR No. _____

GPA No. _____

CZ No. _____

Project Name: Central Avenue Gas Station

Project Address: Central Avenue and Ardenwood Way

Project Description: Project is proposing the construction of a gas station with 6 fuel dispensers (12 fueling positions) and a 4k square feet C-store

	<u>Consultant</u>	<u>Developer</u>
Name:	<u>Integrated Engineering Group</u>	<u>Western States Engineering</u>
Address:	<u>23905 Clinton Keith Road 114-280</u> <u>Wildomar CA 92562</u>	<u>4887 E. La Palma, ste. 707</u> <u>Anaheim CA, 92807</u>
Telephone:	<u>951-833-3105</u>	<u>714-695-9300</u>
Fax:	_____	_____

A. Trip Generation Source: (ITE 10th Edition)

Current GP Land Use	<u>Provide General Plan Land Use Designation (e.g.: MDR, CR, etc)</u>	Proposed Land Use	<u>Service Commercial</u>
Current Zoning	<u>M-SC</u>	Proposed Zoning	<u>M-SC</u>
Current Trip Generation		Proposed Trip Generation	
	In Out Total	In Out Total	
AM Trips	<u>0</u> <u>0</u> <u>0</u>	<u>64</u> <u>64</u> <u>128</u>	
PM Trips	<u>0</u> <u>0</u> <u>0</u>	<u>61</u> <u>61</u> <u>122</u>	
Internal Trip Allowance	☐ Yes ☐ No	<u>(0 % Trip Discount)</u>	
Pass-By Trip Allowance	☐ Yes ☐ No	<u>(62/56 % AM/PM Trip Discount)*</u>	

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

* Pass-by reduction rates provided by the ITE Trip Generation Handbook (3rd Edition, 2017) were used in calculating the project trip generation.

B. Trip Geographic Distribution: N 20 % S 30 % E 25 % W 25 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Build-out Year: 2022

Annual Ambient Growth Rate: 2 %

Phase Year(s) N/A

Other area projects to be analyzed: Central Avenue Commercial Retail cumulative project will be included in the analysis and other potential cumulative projects to be provided by the City of Lake Elsinore

Model/Forecast methodology No buildout analysis

Exhibit B – Scoping Agreement – Page 2

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

- | | |
|---|-----------|
| 1. <u>SH-74/Central Avenue and Ardenwood Way</u> | 6. _____ |
| 2. <u>SH-74/Central Avenue and Conrad Avenue</u> | 7. _____ |
| 3. <u>SH-74/Central Avenue and Allan Street</u> | 8. _____ |
| 4. <u>SH-74/Central Avenue and Rosetta Canyon Rd.</u> | 9. _____ |
| 5. _____ | 10. _____ |

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

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☐ Yes ☐ No

If so, name of City Jurisdiction: Lake Elsinore

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)

(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

VMT analysis will be provided for County staff review and approval

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of counts _____

Intersection turning movement counts conducted on October 22, 2020 will be used in the TIA. COVID adjustment factor to be provided by the City

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

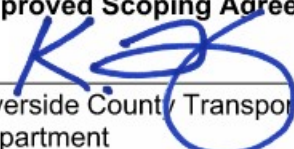
Recommended by:

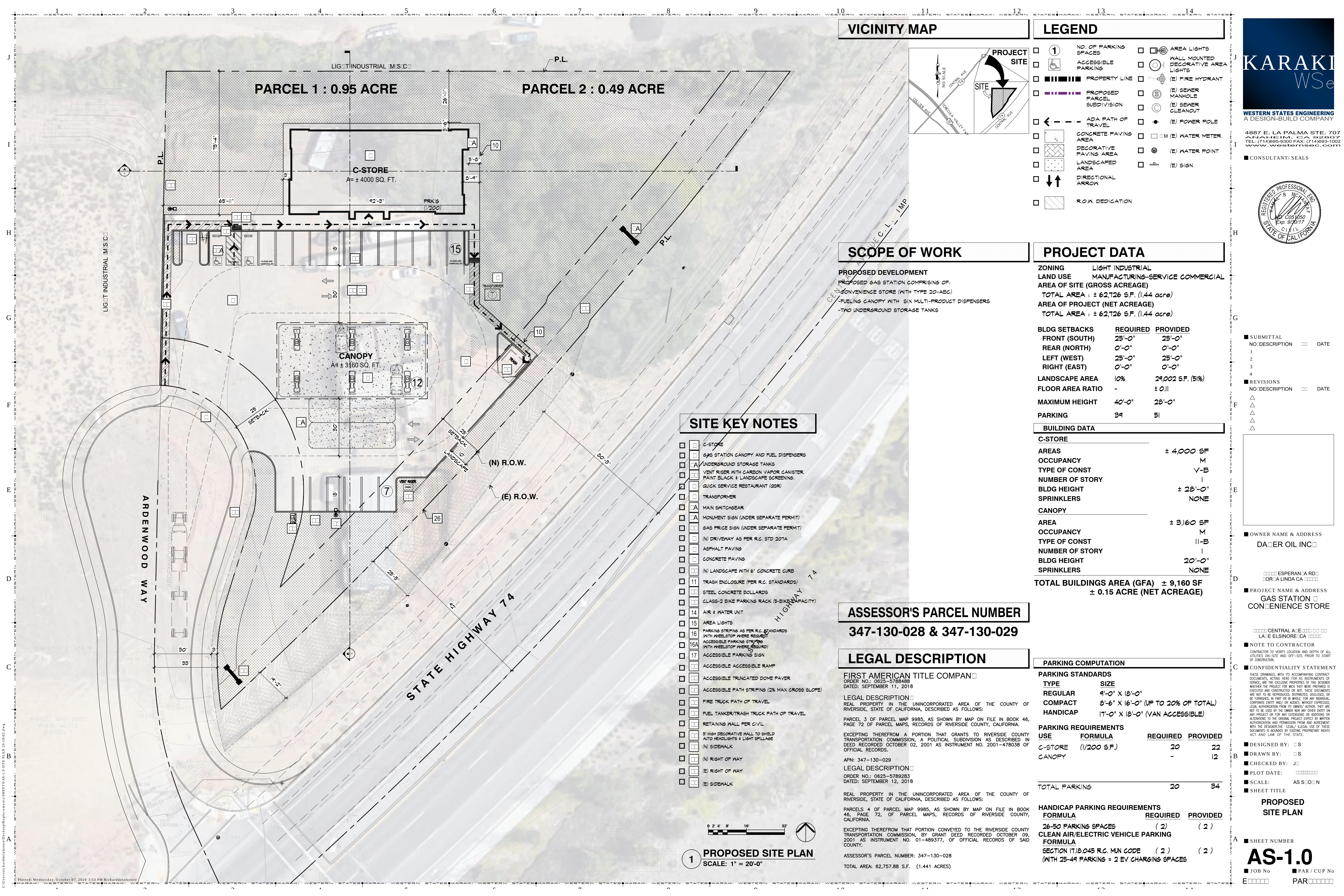
George Ghossain 12/16/20
Consultant's Representative Date

Scoping Agreement Submitted on 12/16/20

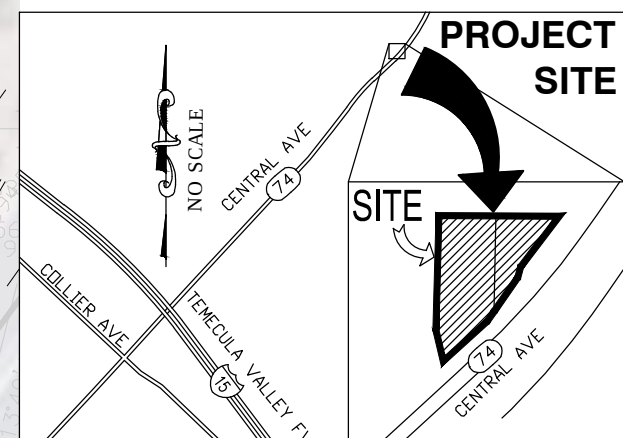
Revised on 1/13/21

Approved Scoping Agreement:

 01/27/2021
Riverside County Transportation Date
Department



VICINITY MAP



LEGEND

- 1 NO. OF PARKING SPACES
- 2 ACCESSIBLE PARKING
- 3 PROPERTY LINE
- 4 PROPOSED PARCEL SUBDIVISION
- 5 ADA PATH OF TRAVEL
- 6 CONCRETE PAVING AREA
- 7 DECORATIVE PAVING AREA
- 8 LANDSCAPED AREA
- 9 DIRECTIONAL ARROW
- 10 R.O.W. DEDICATION
- 11 AREA LIGHTS
- 12 WALL MOUNTED DECORATIVE AREA LIGHTS
- 13 (E) FIRE HYDRANT
- 14 (S) SEWER MANHOLE
- 15 (E) SEWER CLEANOUT
- 16 (E) POWER POLE
- 17 (M) (E) WATER METER
- 18 (E) WATER POINT
- 19 (E) SIGN

SCOPE OF WORK

PROPOSED DEVELOPMENT
PROPOSED GAS STATION COMPRISING OF:
- CONVENIENCE STORE (WITH TYPE 20-ABC)
- FUELING CANOPY WITH SIX MULTI-PRODUCT DISPENSERS
- TWO UNDERGROUND STORAGE TANKS

PROJECT DATA

ZONING	LIGHT INDUSTRIAL	
LAND USE	MANUFACTURING-SERVICE COMMERCIAL	
AREA OF SITE (GROSS ACREAGE)	TOTAL AREA : ± 62,726 S.F. (1.44 acre)	
AREA OF PROJECT (NET ACREAGE)	TOTAL AREA : ± 62,726 S.F. (1.44 acre)	
BLDG SETBACKS	REQUIRED	PROVIDED
FRONT (SOUTH)	25'-0"	25'-0"
REAR (NORTH)	0'-0"	0'-0"
LEFT (WEST)	25'-0"	25'-0"
RIGHT (EAST)	0'-0"	0'-0"
LANDSCAPE AREA	10%	29,002 S.F. (51%)
FLOOR AREA RATIO	-	± 0.11
MAXIMUM HEIGHT	40'-0"	28'-0"
PARKING	39	51

BUILDING DATA

C-STORE	
AREAS	± 4,000 SF
OCCUPANCY	M
TYPE OF CONST	V-B
NUMBER OF STORY	1
BLDG HEIGHT	± 28'-0"
SPRINKLERS	NONE
CANOPY	
AREA	± 3,160 SF
OCCUPANCY	M
TYPE OF CONST	II-B
NUMBER OF STORY	1
BLDG HEIGHT	20'-0"
SPRINKLERS	NONE

TOTAL BUILDINGS AREA (GFA) ± 9,160 SF
± 0.15 ACRE (NET ACREAGE)

ASSESSOR'S PARCEL NUMBER

347-130-028 & 347-130-029

LEGAL DESCRIPTION

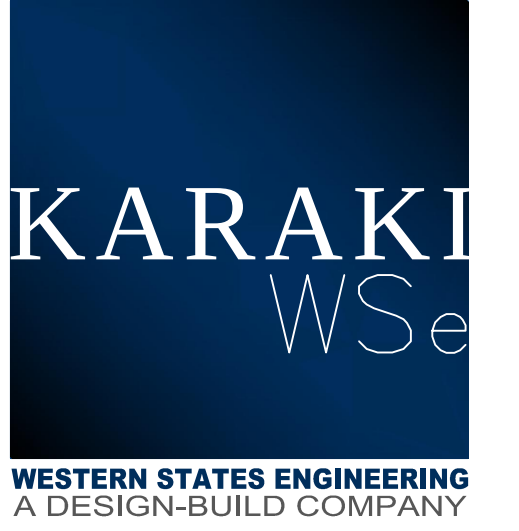
FIRST AMERICAN TITLE COMPANY
ORDER NO.: 0625-5788488
DATED: SEPTEMBER 11, 2018
LEGAL DESCRIPTION
REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
PARCEL 3 OF PARCEL MAP 9985, AS SHOWN BY MAP ON FILE IN BOOK 46, PAGE 72 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
EXCEPTING THEREFROM A PORTION THAT GRANTS TO RIVERSIDE COUNTY TRANSPORTATION COMMISSION, A POLITICAL SUBDIVISION AS DESCRIBED IN DEED RECORDED OCTOBER 02, 2001 AS INSTRUMENT NO. 2001-478038 OF OFFICIAL RECORDS.
APN: 347-130-029
LEGAL DESCRIPTION
ORDER NO.: 0625-5789283
DATED: SEPTEMBER 12, 2018
REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
PARCELS 4 OF PARCEL MAP 9985, AS SHOWN BY MAP ON FILE IN BOOK 46, PAGE 72, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE RIVERSIDE COUNTY TRANSPORTATION COMMISSION, BY GRANT DEED RECORDED OCTOBER 09, 2001 AS INSTRUMENT NO. 01-489377, OF OFFICIAL RECORDS OF SAID COUNTY.
ASSESSOR'S PARCEL NUMBER: 347-130-028
TOTAL AREA: 62,757.88 S.F. (1.441 ACRES)

SITE KEY NOTES

- 1 C-STORE
- 2 GAS STATION CANOPY AND FUEL DISPENSERS
- 3 UNDERGROUND STORAGE TANKS
- 4 VENT RISER WITH CARBON VAPOR CANISTER, PAINT BLACK & LANDSCAPE SCREENING.
- 5 QUICK SERVICE RESTAURANT (QSR)
- 6 TRANSFORMER
- 7 MAIN SWITCHGEAR
- 8 MONUMENT SIGN (UNDER SEPARATE PERMIT)
- 9 GAS PRICE SIGN (UNDER SEPARATE PERMIT)
- 10 (N) DRIVEWAY AS PER R.C. STD 207A
- 11 ASPHALT PAVING
- 12 CONCRETE PAVING
- 13 (N) LANDSCAPE WITH 6" CONCRETE CURB
- 14 TRASH ENCLOSURE (PER R.C. STANDARDS)
- 15 STEEL CONCRETE BOLLARDS
- 16 CLASS-2 BIKE PARKING RACK (5-BIKE CAPACITY)
- 17 AIR & WATER UNIT
- 18 AREA LIGHTS
- 19 PARKING STRIPING AS PER R.C. STANDARDS (WITH WHEELSTOP WHERE REQUIRED)
- 20 ACCESSIBLE PARKING STRIPING (WITH WHEELSTOP WHERE REQUIRED)
- 21 ACCESSIBLE PARKING SIGN
- 22 ACCESSIBLE ACCESSIBLE RAMP
- 23 ACCESSIBLE TRUNCATED DOME PAVEMENT
- 24 ACCESSIBLE PATH STRIPING (2% MAX CROSS SLOPE)
- 25 FIRE TRUCK PATH OF TRAVEL
- 26 FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
- 27 RETAINING WALL PER CIVIL
- 28 3' HIGH DECORATIVE WALL TO SHIELD AUTO HEADLIGHTS & LIGHT SPILLAGE
- 29 (N) SIDEWALK
- 30 (N) RIGHT OF WAY
- 31 (E) RIGHT OF WAY
- 32 (E) SIDEWALK



1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"



4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714) 959-9300 FAX: (714) 959-1002
www.westernsseg.com

CONSULTANT/SEALS



SUBMITTAL	
NO. DESCRIPTION	DATE
1	
2	
3	
4	
REVISIONS	
NO. DESCRIPTION	DATE
1	
2	
3	
4	

OWNER NAME & ADDRESS
DAUER OIL INC
1000 ESPERANZA RD
ORLANDO, CA 95004
PROJECT NAME & ADDRESS
GAS STATION
CONVENIENCE STORE

DESIGNED BY: JS
DRAWN BY: JS
CHECKED BY: JS
PLOT DATE: 10/07/20
SCALE: AS SHOWN
SHEET TITLE

PROPOSED SITE PLAN
SHEET NUMBER
AS-1.0
JOB No: PAR / CUP No: PAR

Trip Generation Calculation:

Trip Generation Rates

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Super Convenience Market/Gas Station	VFP	960	14.04	14.04	28.08	11.48	11.48	22.96	231

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

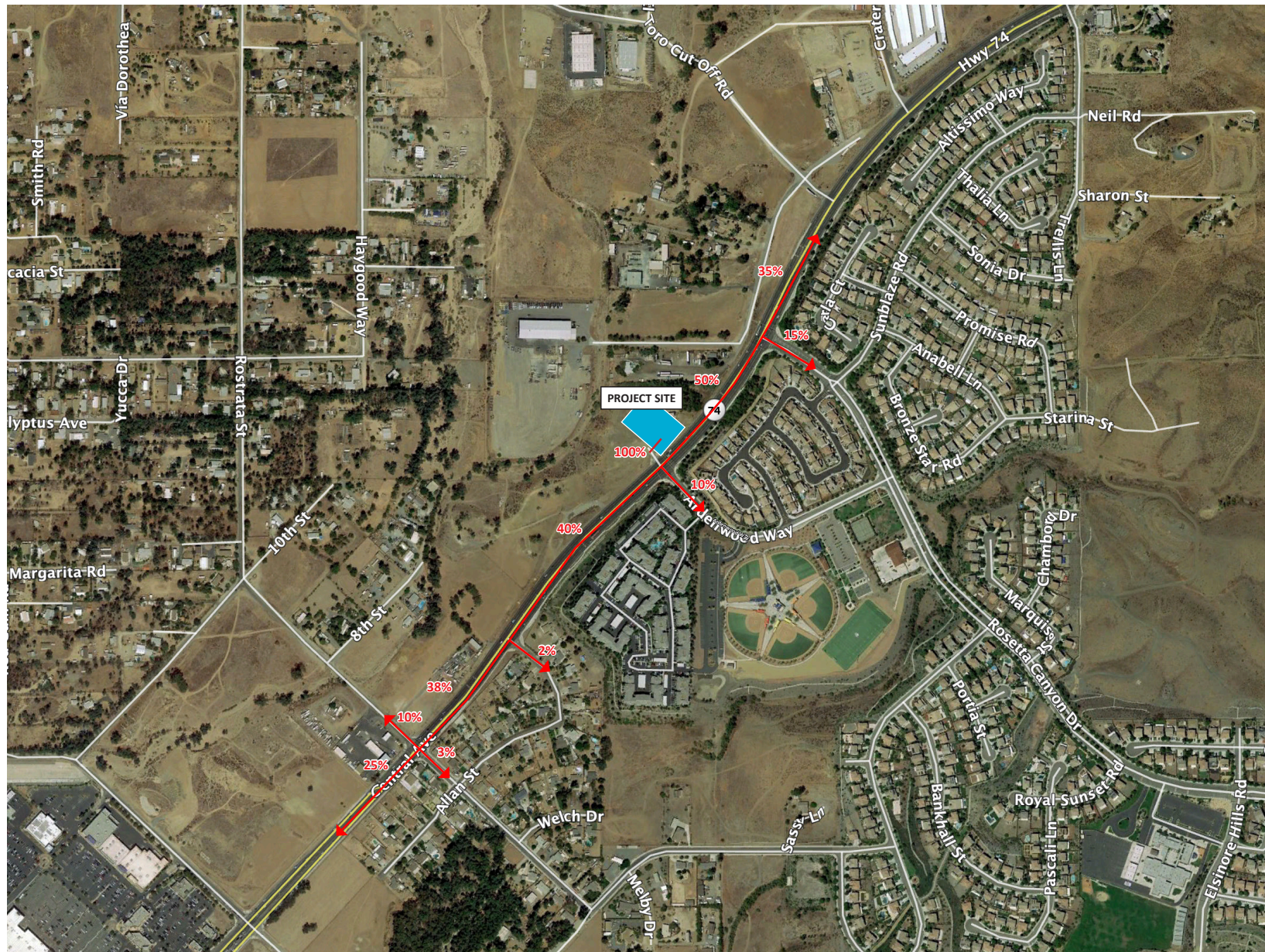
² VFP = Vehicle Fueling Positions

Project Trip Generation

Land Use	Intensity	Units ¹	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Service Station									
Super Convenience Market/Gas Station	12	VFP	168	168	337	138	138	276	2,766
Pass-by Reduction (62% AM Peak Hour, 56% - PM Peak Hour) ²			104	104	209	77	77	154	1,549
TOTAL			64	64	128	61	61	122	1,217

¹ DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

² Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017).



INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Central Avenue Gas Station
Project Trip Distribution

APPENDIX B -
TRAFFIC COUNT DATA



APPENDIX B -

TRAFFIC COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

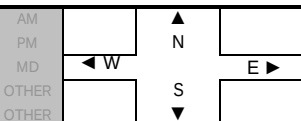
DATE:
Thu, Oct 22, 20

LOCATION: Lake Elsinore
NORTH & SOUTH: Central
EAST & WEST: Conard

PROJECT #: SC2709
LOCATION #: 1
CONTROL: SIGNAL

NOTES:

Minor construction WB 8:00 AM - 4:30 PM



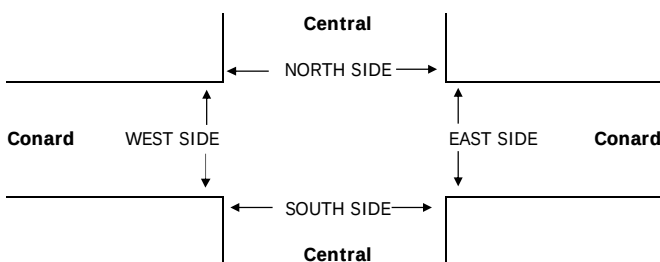
■ Add U-Turns to Left Turns

	NORTHBOUND Central/SH-74			SOUTHBOUND Central/SH-74			EASTBOUND Conard			WESTBOUND Conard			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

AM	7:00 AM	3	127	2	0	317	4	4	0	3	10	0	0	470
	7:15 AM	0	153	0	0	257	6	3	0	5	7	0	0	431
	7:30 AM	1	148	8	0	303	4	2	0	4	12	0	1	483
	7:45 AM	2	175	2	0	274	11	1	0	5	17	0	1	488
	8:00 AM	2	177	8	0	281	2	3	1	1	19	0	2	496
	8:15 AM	6	138	5	0	254	5	4	0	3	14	0	0	429
	8:30 AM	4	172	3	0	244	5	4	0	6	14	0	1	453
	8:45 AM	0	186	3	1	228	1	3	0	5	10	0	1	438
	VOLUMES	18	1,276	31	1	2,158	38	24	1	32	103	0	6	3,688
	APPROACH %	1%	96%	2%	0%	98%	2%	42%	2%	56%	94%	0%	6%	
PM	APP/DEPART	1,325	/	1,306	2,197	/	2,293	57	/	33	109	/	56	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	5	653	18	0	1,115	23	9	1	15	55	0	4	1,898
	APPROACH %	1%	97%	3%	0%	98%	2%	36%	4%	60%	93%	0%	7%	
	PEAK HR FACTOR	0.904												
	APP/DEPART	676	/	666	1,138	/	1,185	25	/	19	59	/	28	0
	4:00 PM	9	437	13	1	277	2	6	0	4	12	1	0	762
	4:15 PM	8	446	14	0	263	3	18	1	6	11	0	1	771
	4:30 PM	6	453	10	2	344	9	9	0	11	8	0	2	854
	4:45 PM	5	467	14	2	315	3	9	2	3	18	1	2	841
PM	5:00 PM	2	460	12	0	262	3	14	0	6	15	0	0	774
	5:15 PM	3	517	16	0	278	8	3	0	4	15	1	3	848
	5:30 PM	5	475	15	0	271	2	14	0	8	12	0	1	803
	5:45 PM	10	502	17	1	275	2	3	0	2	11	2	1	826
	VOLUMES	48	3,757	111	6	2,285	32	76	3	44	102	5	10	6,479
	APPROACH %	1%	96%	3%	0%	98%	1%	62%	2%	36%	87%	4%	9%	
	APP/DEPART	3,916	/	3,843	2,323	/	2,433	123	/	120	117	/	83	0
	BEGIN PEAK HR	4:30 PM												
	VOLUMES	16	1,897	52	4	1,199	23	35	2	24	56	2	7	3,317
	APPROACH %	1%	97%	3%	0%	98%	2%	57%	3%	39%	86%	3%	11%	
	PEAK HR FACTOR	0.917												
PM	APP/DEPART	1,965	/	1,939	1,226	/	1,280	61	/	58	65	/	40	0

0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2



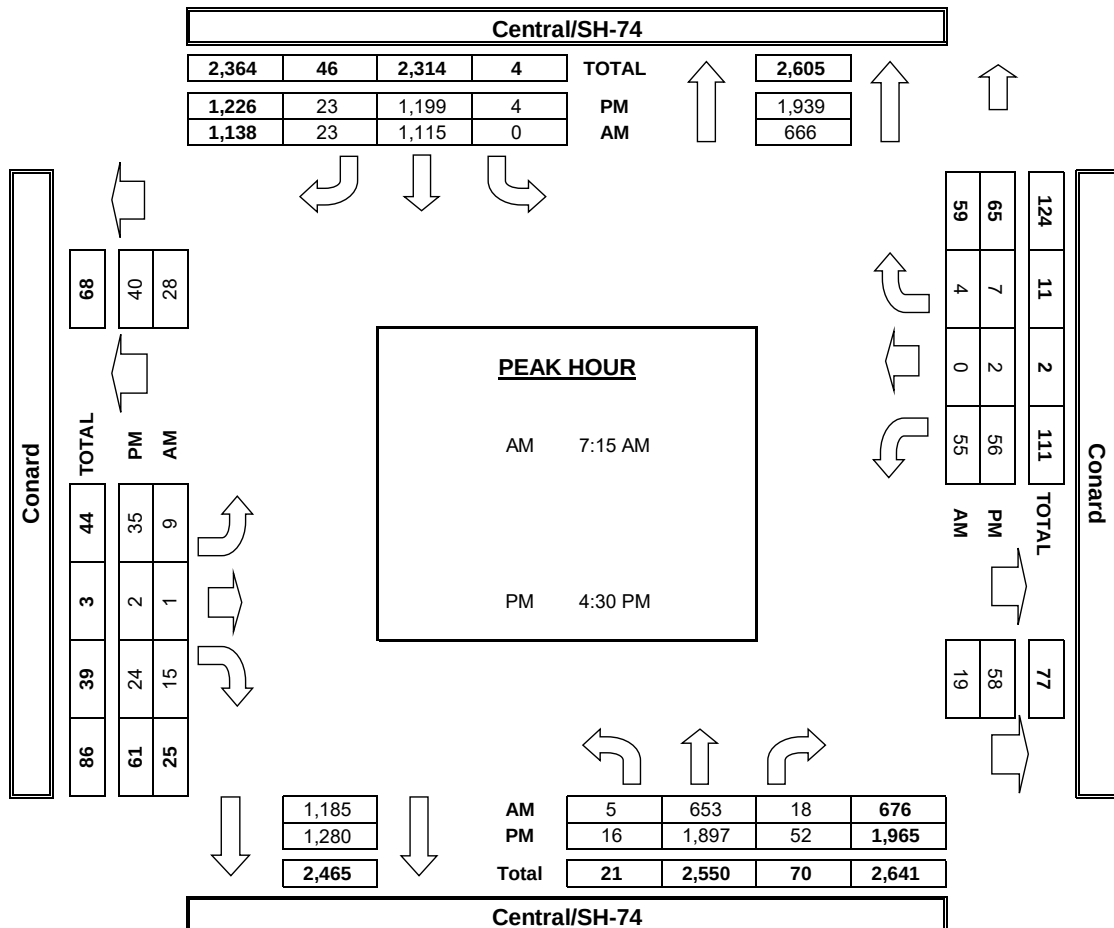
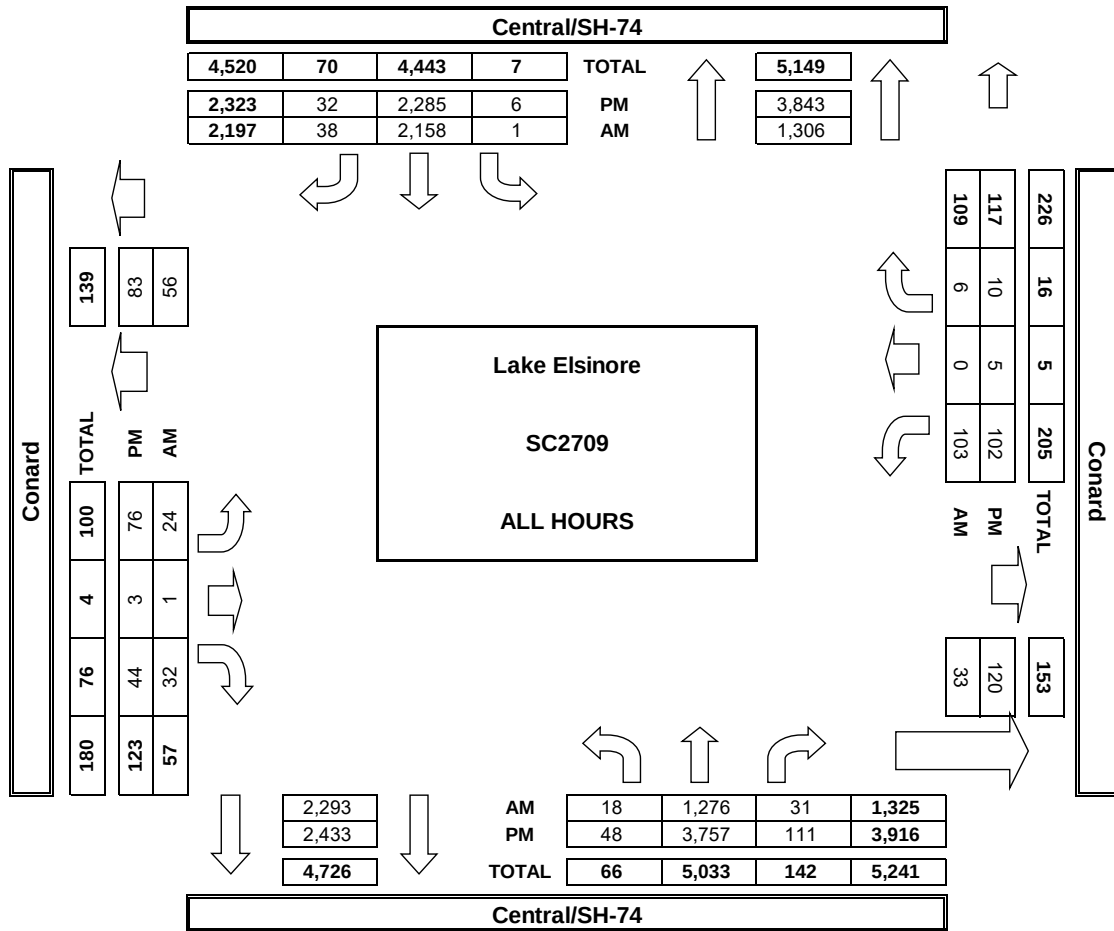
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	1	0	1
	7:45 AM	0	0	0	0	0
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	1	0	1
	8:30 AM	1	0	0	1	2
	8:45 AM	0	0	0	0	0
	TOTAL	1	0	2	1	4
	AM BEGIN PEAK HR	7:15 AM				
PM	4:00 PM	0	0	1	0	1
	4:15 PM	0	0	0	0	0
	4:30 PM	0	0	1	0	1
	4:45 PM	0	0	1	0	1
	5:00 PM	0	0	3	0	3
	5:15 PM	0	0	0	0	0
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL	0	0	6	0	6
	PM BEGIN PEAK HR	4:30 PM				

PEDESTRIAN + BIKE CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
1	0	0	1	2	
0	0	0	0	0	
1	0	2	1	4	
7:15 AM					
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	
0	0	3	0	3	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	6	0	6	
4:30 PM					

PEDESTRIAN CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
1	0	0	1	2	
0	0	0	0	0	
1	0	2	1	4	
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	
0	0	2	0	2	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	5	0	5	
0	0	4	0	4	

BICYCLE CROSSINGS					
NS	SS	ES	WS	TOTAL	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	

AimTD LLC
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

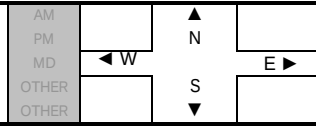
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Thu, Oct 22, 20

LOCATION: Lake Elsinore
NORTH & SOUTH: Central
EAST & WEST: Allan

PROJECT #: SC2709
LOCATION #: 2
CONTROL: STOP W

NOTES:



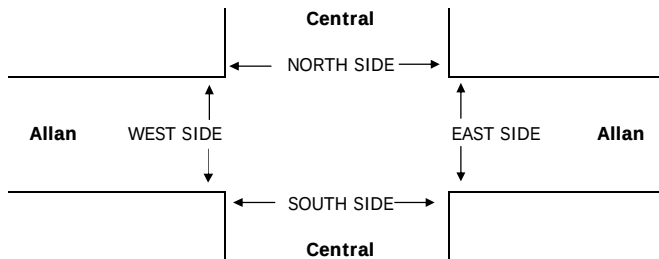
■ Add U-Turns to Left Turns

	NORTHBOUND Central/SH-74			SOUTHBOUND Central/SH-74			EASTBOUND Allan			WESTBOUND Allan			
LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

AM	7:00 AM	0	143	0	1	281	0	0	0	0	0	0	425
	7:15 AM	0	161	0	0	283	0	0	0	0	1	0	445
	7:30 AM	0	160	0	1	308	0	0	0	0	0	0	469
	7:45 AM	0	198	1	0	288	0	0	0	0	0	2	489
	8:00 AM	0	149	0	0	273	0	0	0	0	0	0	422
	8:15 AM	0	160	0	0	236	0	0	0	0	0	1	397
	8:30 AM	0	198	0	0	247	0	0	0	0	0	0	445
	8:45 AM	0	137	0	2	263	0	0	0	1	0	0	403
	VOLUMES	0	1,306	1	4	2,179	0	0	0	2	0	3	3,496
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	40%	0%	60%	
PM	APP/DEPART	1,308	/	1,309	2,183	/	2,182	0	/	5	5	/	0
	BEGIN PEAK HR	7:00 AM			2	1,160	0	0	0	0	0	2	1,828
	VOLUMES	0	662	1	2	1,160	0	0	0	1	0	2	
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	33%	0%	67%	
	PEAK HR FACTOR	0.833			0.940			0.000			0.375		
	APP/DEPART	663	/	664	1,162	/	1,161	0	/	3	3	/	0
	4:00 PM	0	468	0	1	309	0	0	0	0	0	1	779
	4:15 PM	0	485	0	1	310	0	0	0	0	0	0	796
	4:30 PM	0	454	1	0	306	0	0	0	0	0	2	763
	4:45 PM	0	473	1	2	268	0	0	0	0	0	0	744
PM	5:00 PM	0	509	1	2	314	0	0	0	0	0	1	827
	5:15 PM	0	508	1	1	267	0	0	0	0	0	0	777
	5:30 PM	0	488	0	0	282	0	0	0	0	0	0	770
	5:45 PM	0	465	1	1	252	0	0	0	1	0	1	721
	VOLUMES	0	3,850	5	8	2,308	0	0	0	1	0	5	6,179
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	17%	0%	83%	
	APP/DEPART	3,855	/	3,857	2,318	/	2,309	0	/	13	6	/	0
	BEGIN PEAK HR	4:15 PM			5	1,198	0	0	0	0	0	3	3,132
	VOLUMES	0	1,921	3	5	1,198	0	0	0	0	0	3	
	APPROACH %	0%	100%	0%	0%	99%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR	0.943			0.953			0.000			0.375		
	APP/DEPART	1,924	/	1,926	1,205	/	1,198	0	/	8	3	/	0

0	0	0	0	0
0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2



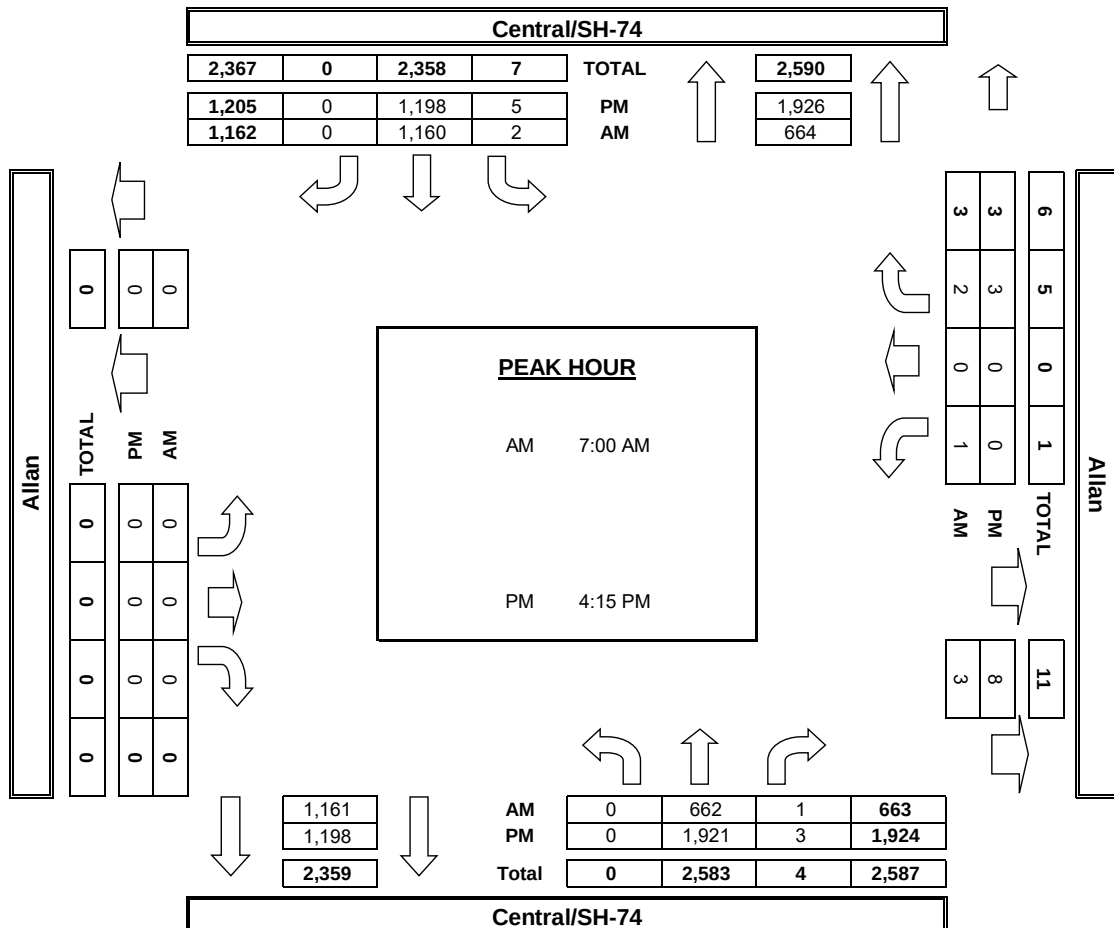
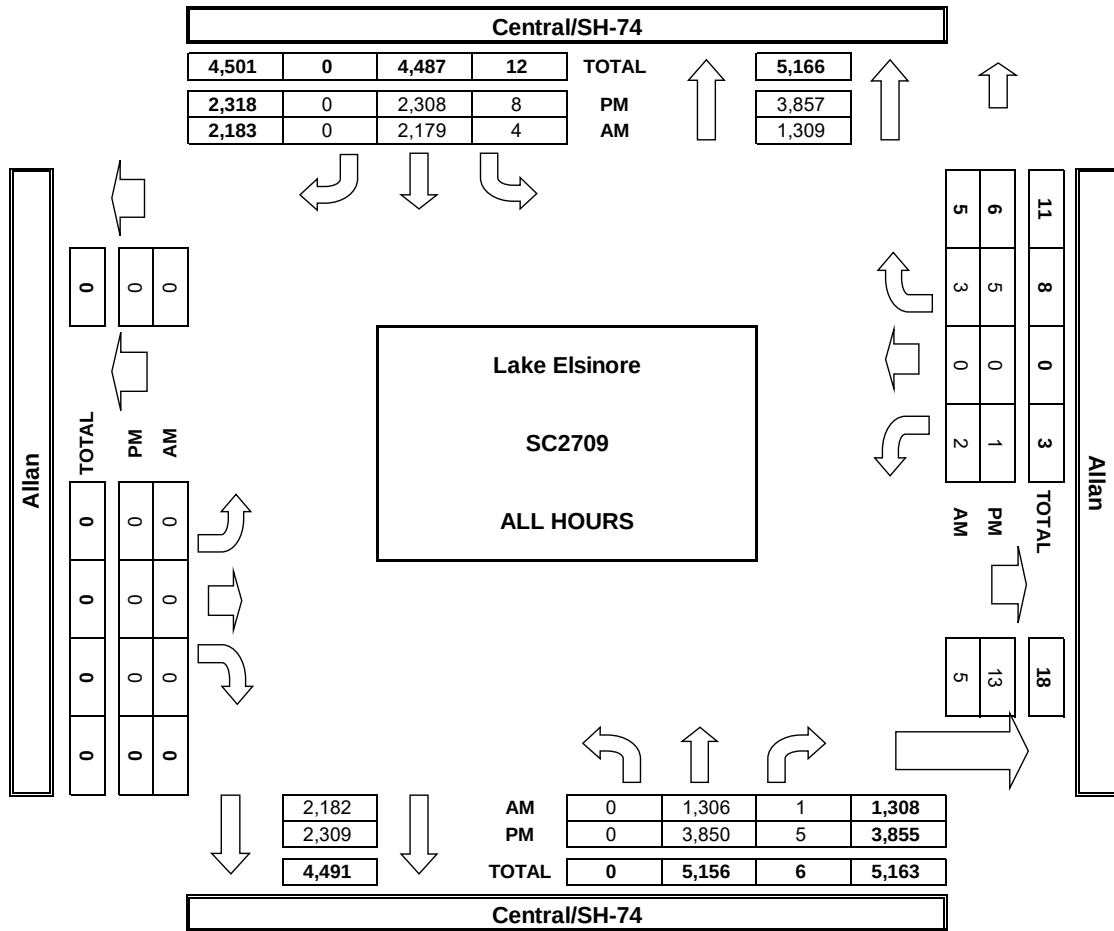
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	1	0	1
	7:30 AM	0	0	0	0	0
	7:45 AM	0	0	1	0	1
	8:00 AM	0	0	1	0	1
	8:15 AM	0	0	1	0	1
	8:30 AM	0	0	2	0	2
	8:45 AM	0	0	0	0	0
	TOTAL	0	0	6	0	6
	AM BEGIN PEAK HR	7:00 AM				
PM	4:00 PM	0	0	0	0	0
	4:15 PM	0	0	1	0	1
	4:30 PM	0	0	1	0	1
	4:45 PM	0	0	3	0	3
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	0	0
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL	0	0	5	0	5
	PM BEGIN PEAK HR	4:15 PM				

PEDESTRIAN + BIKE CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	
0	0	2	0	2	
0	0	0	0	0	
0	0	6	0	6	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	
0	0	3	0	3	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	5	0	5	
0	0	4	0	4	

PEDESTRIAN CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	
0	0	2	0	2	
0	0	0	0	0	
0	0	6	0	6	
0	0	2	0	2	
0	0	1	0	1	
0	0	1	0	1	
0	0	2	0	2	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	4	0	4	
0	0	4	0	4	

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1

AimTD LLC
TURNING MOVEMENT COUNTS



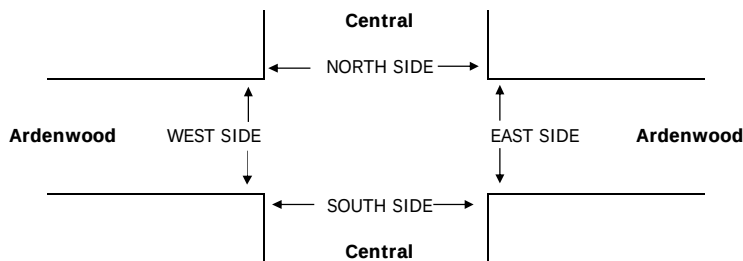
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

PROJECT #: SC2709
LOCATION #: 3
CONTROL: SIGNAL

AM		▲	
PM		N	
MD	◀ W		E ▶
OTHER		S	
OTHER		▼	

- Add U-Turns to Left Turns

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

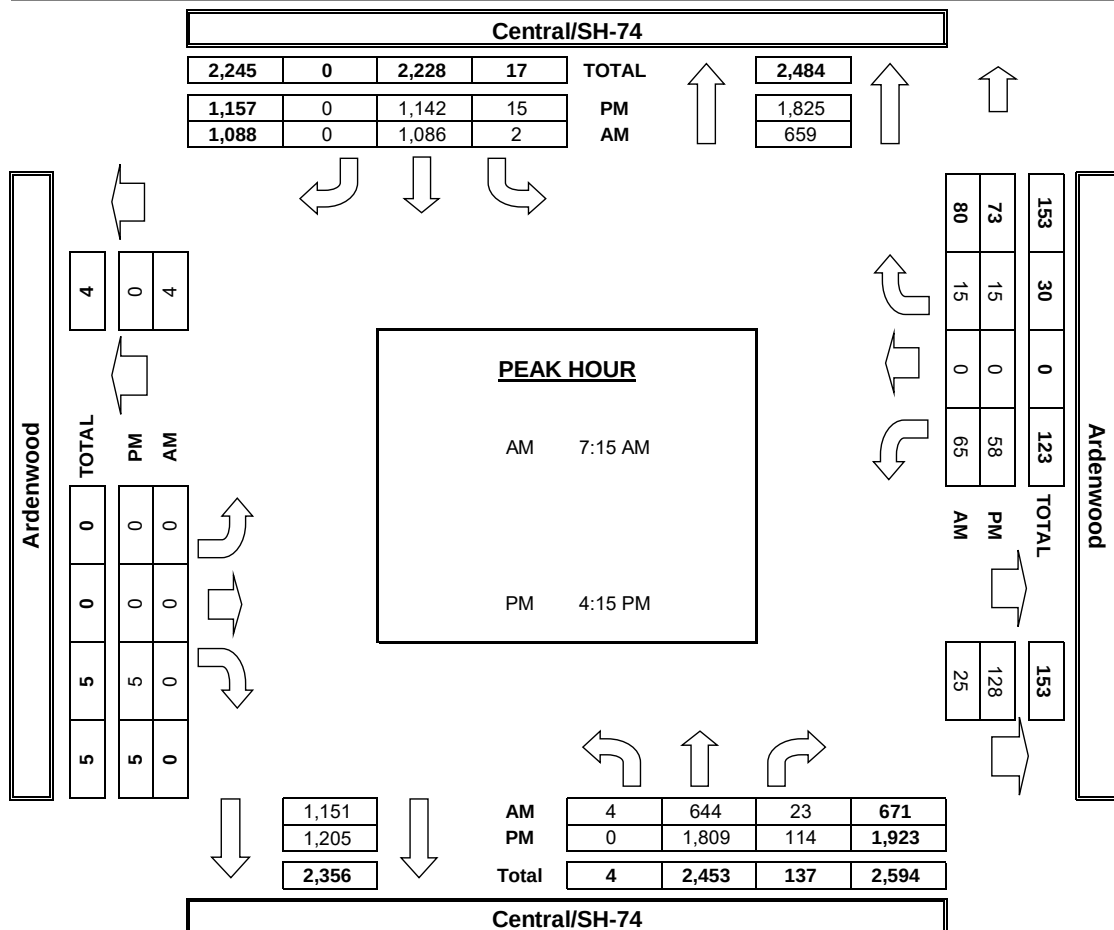
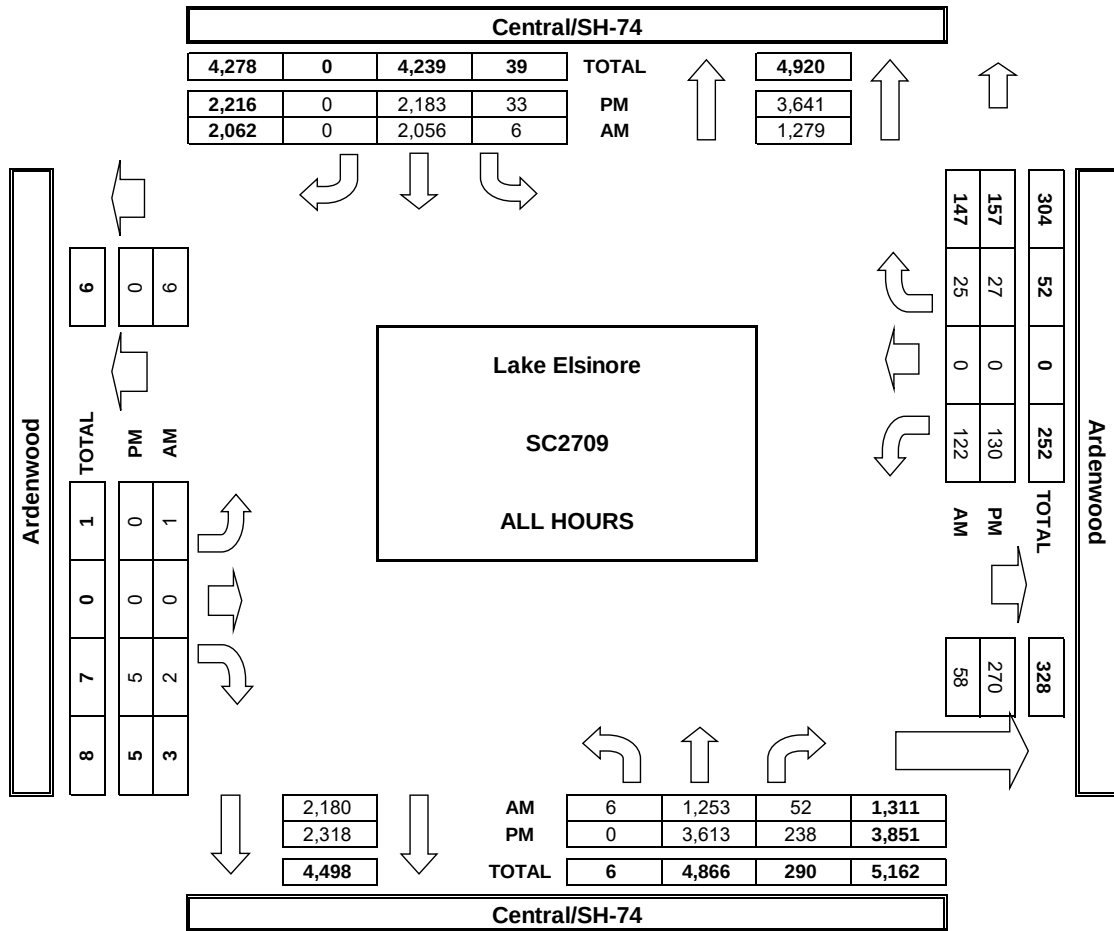
[illegible][illegible]

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	1	1	3
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
0	0	1	0	1
0	0	1	0	1
1	0	6	1	8
7:15 AM				
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
4:15 PM				

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	1	1	3
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
0	0	1	0	1
0	0	1	0	1
1	0	6	1	8
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	1	0	1

[illegible]

AimTD LLC
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Oct 22, 20	LOCATION: NORTH & SOUTH: EAST & WEST:	Lake Elsinore Central Rosetta Canyon	PROJECT #: LOCATION #: CONTROL:	SC2709 4 SIGNAL
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NOTES:	AM PM MD OTHER ▲ ◀ W ◀ S ▶ E ▶ ▼	
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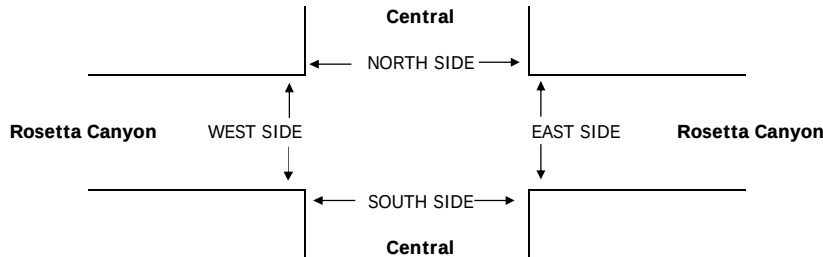
► Add U-Turns to Left Turns

	NORTHBOUND Central/SH-74			SOUTHBOUND Central/SH-74			EASTBOUND Rosetta Canyon			WESTBOUND Rosetta Canyon			
LANES:	NL X	NT 3	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

AM	7:00 AM	0	131	5	2	248	0	0	0	0	23	0	4	413
	7:15 AM	0	152	9	5	252	0	0	0	0	18	0	9	445
	7:30 AM	0	145	10	6	266	0	0	0	0	27	0	4	458
	7:45 AM	0	186	13	1	247	0	0	0	0	26	0	6	479
	8:00 AM	0	135	10	4	226	0	0	0	0	26	0	5	406
	8:15 AM	0	148	10	0	202	0	0	0	0	25	0	4	389
	8:30 AM	0	175	16	2	206	0	0	0	0	24	0	8	431
	8:45 AM	0	125	10	1	214	0	0	0	0	35	0	3	388
	VOLUMES	0	1,197	83	21	1,861	0	0	0	0	204	0	43	3,409
	APPROACH %	0%	94%	6%	1%	99%	0%	0%	0%	0%	83%	0%	17%	
APP/DEPART	1,280	/	1,241	1,882	/	2,065	0	/	103	247	/	0	0	
BEGIN PEAK HR	7:00 AM													
VOLUMES	0	614	37	14	1,013	0	0	0	0	94	0	23	1,795	
APPROACH %	0%	94%	6%	1%	99%	0%	0%	0%	0%	80%	0%	20%		
PEAK HR FACTOR	0.818													
APP/DEPART	651	/	638	1,027	/	1,107	0	/	50	117	/	0	0	
PM	4:00 PM	0	428	29	7	275	0	0	0	0	24	0	7	770
	4:15 PM	0	424	41	10	276	0	0	0	0	21	0	9	781
	4:30 PM	0	396	33	7	276	0	0	0	0	19	0	1	732
	4:45 PM	0	414	36	5	241	0	0	0	0	23	0	7	726
	5:00 PM	0	432	46	8	277	0	0	0	0	28	0	4	795
	5:15 PM	0	429	48	13	231	0	0	0	0	15	0	5	741
	5:30 PM	0	415	30	7	237	0	0	0	0	32	0	7	728
	5:45 PM	0	399	38	17	228	0	0	0	0	17	0	4	703
	VOLUMES	0	3,337	301	74	2,041	0	0	0	0	179	0	44	5,976
	APPROACH %	0%	92%	8%	3%	97%	0%	0%	0%	0%	80%	0%	20%	
	APP/DEPART	3,638	/	3,383	2,115	/	2,220	0	/	373	223	/	0	0
	BEGIN PEAK HR	4:15 PM												
	VOLUMES	0	1,666	156	30	1,070	0	0	0	0	91	0	21	3,034
APPROACH %	0%	91%	9%	3%	97%	0%	0%	0%	0%	81%	0%	19%		
PEAK HR FACTOR	0.953													
APP/DEPART	1,822	/	1,688	1,100	/	1,161	0	/	185	112	/	0	0	

0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2



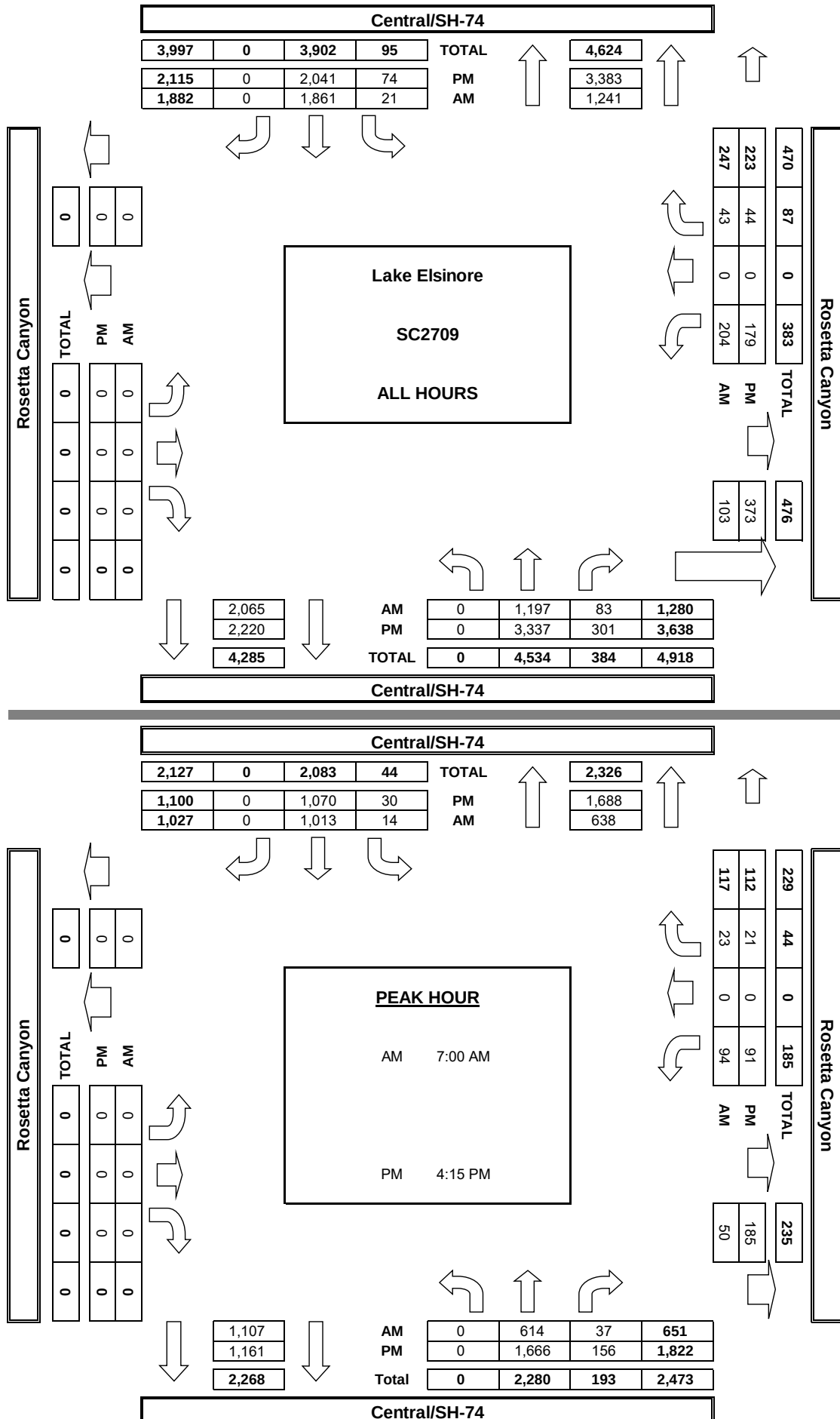
AM	7:00 AM	0	0	1	0	1
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	0	0	0
	7:45 AM	0	0	0	0	0
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	1	0	1
	8:30 AM	0	0	0	0	0
	8:45 AM	0	0	1	0	1
	TOTAL	0	0	3	0	3
	AM BEGIN PEAK HR	7:00 AM				
PM	4:00 PM	0	0	0	0	0
	4:15 PM	0	0	0	0	0
	4:30 PM	0	0	0	0	0
	4:45 PM	0	0	1	0	1
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	0	0
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	2	0	2
	TOTAL	0	0	3	0	3
	PM BEGIN PEAK HR	4:15 PM				

PEDESTRIAN + BIKE CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	3	0	3	
7:00 AM					
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	2	0	2	
0	0	3	0	3	
4:15 PM					

PEDESTRIAN CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	0	0	0	
0	0	1	0	1	
0	0	3	0	3	
0	0	1	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	1	0	1	
0	0	1	0	1	

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
0	0	2	0	2

AimTD LLC
TURNING MOVEMENT COUNTS



Appendix B - Developed 2020 Volumes

Intersection	Project Source	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	AM Adj	PM Adj
Central Ave/Cambern Ave	Chick-fil-A TIA	115	1017	0	2	1600	92	126	3	80	1	0	1	257	1722	3	4	1101	153	240	3	93	0	3	3	4%	3%
Central Ave/Cambern Ave	Central Plaza TIA	113	987	0	0	1486	114	144	2	78	0	2	0	287	1663	6	1	999	159	252	2	110	4	1	1		
Central Ave/Rosseta Canyon Drive		0	909	299	174	1179	0	0	0	0	315	0	118	0	1547	207	35	949	0	0	0	0	315	0	118		
Central Ave/Rosseta Canyon Drive	Applied growth of 4% AM/3% PM	0	943	310	181	1224	0	0	0	0	327	0	122	0	1590	213	36	975	0	0	0	0	324	0	121	73%	7%
Central Ave/Rosseta Canyon Drive	Central Ave Retail Count	0	614	37	14	1013	0	0	0	0	94	0	23	0	1666	156	30	1070	0	0	0	0	91	0	21		

Intersection	Intersection Name	Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SH-74/Central Avenue and Conard Avenue	Existing 2020 Counts	5	653	18	0	1115	23	9	1	15	55	0	4	16	1897	52	4	1199	23	35	2	24	56	2	7
2	SH-74/Central Avenue and Allan Street		0	662	1	2	1160	0	0	0	0	1	0	2	0	1921	3	5	1198	0	0	0	0	0	0	3
3	SH-74/Central Avenue and Ardenwood Way/Project Driveway		4	644	23	2	1086	0	0	0	0	65	0	15	0	1809	114	15	1142	0	0	0	5	58	0	15
4	SH-74/Central Avenue and Rosetta Canyon Drive		0	614	37	14	1013	0	0	0	0	94	0	23	0	1666	156	30	1070	0	0	0	0	91	0	21
1	SH-74/Central Avenue and Conard Avenue	Existing 2020 (Applied growth of 73% AM/7% PM)	9	1131	31	0	1930	40	16	2	26	95	0	7	17	2038	56	4	1288	25	38	2	26	60	2	8
2	SH-74/Central Avenue and Allan Street		0	1146	2	3	2008	0	0	0	0	2	0	3	0	2064	3	5	1287	0	0	0	0	0	0	3
3	SH-74/Central Avenue and Ardenwood Way/Project Driveway		7	1115	40	3	1880	0	0	0	0	113	0	26	0	1943	122	16	1227	0	0	0	5	62	0	16
4	SH-74/Central Avenue and Rosetta Canyon Drive		0	1063	64	24	1754	0	0	0	0	163	0	40	0	1790	168	32	1149	0	0	0	0	98	0	23

APPENDIX C -

EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

APPENDIX C -

EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary
1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	2	26	95	0	7	9	1131	31	0	1930	40
Future Volume (veh/h)	16	2	26	95	0	7	9	1131	31	0	1930	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	2	27	99	0	7	9	1178	32	0	2010	42
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	106	28	89	0	0	152	29	2634	72	3	2339	49
Arrive On Green	0.10	0.10	0.10	0.00	0.00	0.10	0.02	0.75	0.75	0.00	0.66	0.66
Sat Flow, veh/h	365	289	929	0	0	1585	1781	3534	96	1781	3560	74
Grp Volume(v), veh/h	46	0	0	0	0	7	9	592	618	0	1000	1052
Grp Sat Flow(s),veh/h/ln	1583	0	0	0	0	1585	1781	1777	1853	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.3	0.3	8.8	8.8	0.0	30.5	31.0
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.0	0.0	0.3	0.3	8.8	8.8	0.0	30.5	31.0
Prop In Lane	0.37		0.59	0.00		1.00	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	223	0	0	0	0	152	29	1324	1381	3	1167	1220
V/C Ratio(X)	0.21	0.00	0.00	0.00	0.00	0.05	0.31	0.45	0.45	0.00	0.86	0.86
Avail Cap(c_a), veh/h	606	0	0	0	0	1077	180	1324	1381	180	1284	1342
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	0.0	0.0	0.0	28.4	33.7	3.4	3.4	0.0	9.3	9.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.1	6.1	0.2	0.2	0.0	5.5	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.0	0.0	0.1	0.2	0.9	0.9	0.0	7.7	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	0.0	0.0	0.0	28.5	39.8	3.6	3.6	0.0	14.8	15.0
LnGrp LOS	C	A	A	A	A	C	D	A	A	A	B	B
Approach Vol, veh/h		46			7			1219			2052	
Approach Delay, s/veh		29.5			28.5			3.9			14.9	
Approach LOS		C			C			A			B	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		11.6	0.0	57.6	0.0	11.6	6.1	51.5				
Change Period (Y+Rc), s		5.0	5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s		47.0	7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s		2.3	0.0	10.8	0.0	3.7	2.3	33.0				
Green Ext Time (p_c), s		0.0	0.0	8.4	0.0	0.2	0.0	12.4				
Intersection Summary												
HCM 6th Ctrl Delay			11.1									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	3	1146	2	3	2008
Future Vol, veh/h	2	3	1146	2	3	2008
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	1219	2	3	2136
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2296	613	0	0	1223	0
Stage 1	1222	-	-	-	-	-
Stage 2	1074	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	33	435	-	-	566	-
Stage 1	241	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	434	-	-	565	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	241	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	20.9	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 135 434	565	-		
HCM Lane V/C Ratio	-	- 0.016 0.007	0.006	-		
HCM Control Delay (s)	-	- 32.1 13.4	11.4	-		
HCM Lane LOS	-	- D B	B	-		
HCM 95th %tile Q(veh)	-	- 0 0	0	-		

HCM 6th Signalized Intersection Summary 3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station
02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	0	0	0	113	0	26	7	1115	40	3	1880	0
Future Volume (veh/h)	0	0	0	113	0	26	7	1115	40	3	1880	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	122	0	28	8	1199	43	3	2022	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	175	0	259	0	149	25	3526	126	10	2446	0
Arrive On Green	0.00	0.00	0.00	0.09	0.00	0.09	0.01	0.70	0.70	0.01	0.69	0.00
Sat Flow, veh/h	0	1870	0	1781	0	1585	1781	5060	181	1781	3647	0
Grp Volume(v), veh/h	0	0	0	122	0	28	8	806	436	3	2022	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	1702	1838	1781	1777	0
Q Serve(g_s), s	0.0	0.0	0.0	5.2	0.0	1.3	0.3	7.4	7.4	0.1	32.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.2	0.0	1.3	0.3	7.4	7.4	0.1	32.3	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	0	175	0	259	0	149	25	2372	1281	10	2446	0
V/C Ratio(X)	0.00	0.00	0.00	0.47	0.00	0.19	0.31	0.34	0.34	0.30	0.83	0.00
Avail Cap(c_a), veh/h	0	714	0	772	0	605	159	2903	1567	159	3031	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	34.6	0.0	32.8	38.3	4.7	4.7	38.9	8.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.3	0.0	0.6	6.9	0.1	0.2	15.7	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.3	0.0	0.5	0.2	1.4	1.5	0.1	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	36.0	0.0	33.4	45.2	4.8	4.9	54.6	10.5	0.0
LnGrp LOS	A	A	A	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h	0			150			1250			2025		
Approach Delay, s/veh	0.0			35.5			5.1			10.6		
Approach LOS				D			A			B		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	12.4		5.4	60.7		12.4		6.1	60.1			
Change Period (Y+Rc), s	5.0		5.0	6.0		5.0		5.0	6.0			
Max Green Setting (Gmax), s	30.0		7.0	67.0		30.0		7.0	67.0			
Max Q Clear Time (g_c+I1), s	7.2		2.1	9.4		0.0		2.3	34.3			
Green Ext Time (p_c), s	0.4		0.0	9.1		0.0		0.0	19.7			
Intersection Summary												
HCM 6th Ctrl Delay				9.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station

02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	163	40	1063	64	24	1754
Future Volume (veh/h)	163	40	1063	64	24	1754
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	43	1131	68	26	1866
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	207	2871	173	72	2489
Arrive On Green	0.13	0.13	0.58	0.58	0.04	0.70
Sat Flow, veh/h	1781	1585	5093	296	1781	3647
Grp Volume(v), veh/h	173	43	782	417	26	1866
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1817	1781	1777
Q Serve(g_s), s	6.1	1.6	8.1	8.1	0.9	21.5
Cycle Q Clear(g_c), s	6.1	1.6	8.1	8.1	0.9	21.5
Prop In Lane	1.00	1.00		0.16	1.00	
Lane Grp Cap(c), veh/h	232	207	1985	1059	72	2489
V/C Ratio(X)	0.74	0.21	0.39	0.39	0.36	0.75
Avail Cap(c_a), veh/h	850	756	3457	1845	192	4265
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	25.3	7.3	7.3	30.4	6.1
Incr Delay (d2), s/veh	4.7	0.5	0.1	0.2	3.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.5	1.8	2.0	0.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.9	25.7	7.5	7.6	33.4	6.6
LnGrp LOS	C	C	A	A	C	A
Approach Vol, veh/h	216		1199			1892
Approach Delay, s/veh	30.7		7.5			7.0
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	13.5		7.6	43.9	51.5	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	31.0		7.0	66.0	78.0	
Max Q Clear Time (g_c+I1), s	8.1		2.9	10.1	23.5	
Green Ext Time (p_c), s	0.6		0.0	8.7	22.0	
Intersection Summary						
HCM 6th Ctrl Delay			8.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2	26	60	2	8	17	2038	56	4	1288	25
Future Volume (veh/h)	38	2	26	60	2	8	17	2038	56	4	1288	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	2	27	62	2	8	18	2101	58	4	1328	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	21	56	0	30	122	53	2373	65	13	2318	45
Arrive On Green	0.09	0.09	0.09	0.00	0.09	0.09	0.03	0.67	0.67	0.01	0.65	0.65
Sat Flow, veh/h	698	224	607	0	327	1308	1781	3530	97	1781	3565	70
Grp Volume(v), veh/h	68	0	0	0	0	10	18	1052	1107	4	662	692
Grp Sat Flow(s),veh/h/ln	1530	0	0	0	0	1635	1781	1777	1850	1781	1777	1858
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.4	0.7	33.5	34.4	0.2	14.6	14.6
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.0	0.0	0.4	0.7	33.5	34.4	0.2	14.6	14.6
Prop In Lane	0.57		0.40	0.00		0.80	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	223	0	0	0	0	152	53	1194	1244	13	1155	1208
V/C Ratio(X)	0.31	0.00	0.00	0.00	0.00	0.07	0.34	0.88	0.89	0.30	0.57	0.57
Avail Cap(c_a), veh/h	590	0	0	0	0	1092	177	1262	1314	177	1262	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	0.0	0.0	29.1	33.5	9.3	9.4	34.7	6.9	6.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.2	3.8	7.2	7.7	12.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.0	0.0	0.2	0.3	8.6	9.3	0.1	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	0.0	0.0	0.0	29.3	37.3	16.5	17.1	46.8	7.4	7.4
LnGrp LOS	C	A	A	A	A	C	D	B	B	D	A	A
Approach Vol, veh/h		68			10			2177			1358	
Approach Delay, s/veh		31.0			29.3			17.0			7.5	
Approach LOS		C			C			B			A	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		11.5	5.5	53.3	0.0	11.5	7.1	51.8				
Change Period (Y+Rc), s		5.0	5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s		47.0	7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s		2.4	2.2	36.4	0.0	4.9	2.7	16.6				
Green Ext Time (p_c), s		0.0	0.0	10.9	0.0	0.3	0.0	9.7				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	2064	3	5	1287
Future Vol, veh/h	0	3	2064	3	5	1287
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	2173	3	5	1355
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2867	1092	0	0	2180	0
Stage 1	2179	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	13	210	-	-	240	-
Stage 1	72	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	13	209	-	-	239	-
Mov Cap-2 Maneuver	59	-	-	-	-	-
Stage 1	72	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.5	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	209	239	-	
HCM Lane V/C Ratio	-	-	0.015	0.022	-	
HCM Control Delay (s)	-	-	0	22.5	20.4	-
HCM Lane LOS	-	-	A	C	C	-
HCM 95th %tile Q(veh)	-	-	-	0	0.1	-

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	0	0	5	62	0	16	0	1943	122	16	1227	0
Future Volume (veh/h)	0	0	5	62	0	16	0	1943	122	16	1227	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	5	65	0	17	0	2045	128	17	1292	0
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	0	0	135	227	0	135	3	3145	196	51	2649	0
Arrive On Green	0.00	0.00	0.09	0.09	0.00	0.09	0.00	0.64	0.64	0.03	0.75	0.00
Sat Flow, veh/h	0	0	1585	1411	0	1585	1781	4913	306	1781	3647	0
Grp Volume(v), veh/h	0	0	5	65	0	17	0	1414	759	17	1292	0
Grp Sat Flow(s),veh/h/ln	0	0	1585	1411	0	1585	1781	1702	1815	1781	1777	0
Q Serve(g_s), s	0.0	0.0	0.2	2.9	0.0	0.6	0.0	16.6	16.8	0.6	9.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.2	3.1	0.0	0.6	0.0	16.6	16.8	0.6	9.5	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		0.17	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	135	227	0	135	3	2179	1162	51	2649	0
V/C Ratio(X)	0.00	0.00	0.04	0.29	0.00	0.13	0.00	0.65	0.65	0.34	0.49	0.00
Avail Cap(c_a), veh/h	0	0	780	801	0	780	192	3403	1814	192	3552	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	27.3	28.7	0.0	27.5	0.0	7.2	7.2	31.0	3.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.7	0.0	0.4	0.0	0.3	0.6	3.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.0	0.0	0.2	0.0	3.1	3.4	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	27.4	29.4	0.0	27.9	0.0	7.5	7.9	34.8	3.4	0.0
LnGrp LOS	A	A	C	C	A	C	A	A	A	C	A	A
Approach Vol, veh/h		5			82			2173			1309	
Approach Delay, s/veh		27.4			29.1			7.6			3.9	
Approach LOS		C			C			A			A	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.5	6.9	47.6		10.5	0.0	54.5				
Change Period (Y+Rc), s		5.0	5.0	6.0		5.0	5.0	6.0				
Max Green Setting (Gmax), s		32.0	7.0	65.0		32.0	7.0	65.0				
Max Q Clear Time (g_c+I1), s		5.1	2.6	18.8		2.2	0.0	11.5				
Green Ext Time (p_c), s		0.2	0.0	22.8		0.0	0.0	11.1				
Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary 4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station
02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			   			  
Traffic Volume (veh/h)	98	23	1790	168	32	1149
Future Volume (veh/h)	98	23	1790	168	32	1149
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	24	1884	177	34	1209
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	173	154	2885	270	88	2607
Arrive On Green	0.10	0.10	0.61	0.61	0.05	0.73
Sat Flow, veh/h	1781	1585	4918	444	1781	3647
Grp Volume(v), veh/h	103	24	1347	714	34	1209
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1790	1781	1777
Q Serve(g_s), s	3.6	0.9	16.7	16.9	1.2	8.9
Cycle Q Clear(g_c), s	3.6	0.9	16.7	16.9	1.2	8.9
Prop In Lane	1.00	1.00		0.25	1.00	
Lane Grp Cap(c), veh/h	173	154	2067	1087	88	2607
V/C Ratio(X)	0.60	0.16	0.65	0.66	0.39	0.46
Avail Cap(c_a), veh/h	933	830	3303	1737	192	4105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	26.9	8.3	8.3	29.9	3.5
Incr Delay (d2), s/veh	3.3	0.5	0.4	0.7	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.3	3.5	3.9	0.5	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.4	27.4	8.6	9.0	32.7	3.6
LnGrp LOS	C	C	A	A	C	A
Approach Vol, veh/h	127		2061			1243
Approach Delay, s/veh	30.6		8.8			4.4
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	11.3		8.2	45.4	53.6	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	34.0		7.0	63.0	75.0	
Max Q Clear Time (g_c+I1), s	5.6		3.2	18.9	10.9	
Green Ext Time (p_c), s	0.3		0.0	20.5	10.1	
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

APPENDIX D -

EXISTING PLUS PROJECT CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

APPENDIX D -

EXISTING PLUS PROJECT CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2	26	95	0	9	9	1147	31	2	1946	46
Future Volume (veh/h)	22	2	26	95	0	9	9	1147	31	2	1946	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	2	27	99	0	9	9	1195	32	2	2027	48
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	119	27	78	0	0	152	29	2373	64	7	2339	55
Arrive On Green	0.10	0.10	0.10	0.00	0.00	0.10	0.02	0.67	0.67	0.00	0.66	0.66
Sat Flow, veh/h	469	285	815	0	0	1585	1781	3535	95	1781	3548	84
Grp Volume(v), veh/h	52	0	0	0	0	9	9	600	627	2	1011	1064
Grp Sat Flow(s),veh/h/ln	1569	0	0	0	0	1585	1781	1777	1853	1781	1777	1855
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.4	0.3	11.7	11.7	0.1	31.4	32.0
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.4	0.3	11.7	11.7	0.1	31.4	32.0
Prop In Lane	0.44		0.52	0.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	225	0	0	0	0	152	29	1193	1244	7	1171	1223
V/C Ratio(X)	0.23	0.00	0.00	0.00	0.00	0.06	0.31	0.50	0.50	0.29	0.86	0.87
Avail Cap(c_a), veh/h	599	0	0	0	0	1067	179	1272	1327	179	1272	1328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	0.0	0.0	0.0	28.7	34.0	5.7	5.7	34.7	9.4	9.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.2	6.1	0.3	0.3	22.3	6.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.1	0.2	2.2	2.3	0.1	8.1	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	0.0	0.0	0.0	28.9	40.1	6.0	6.0	57.0	15.4	15.7
LnGrp LOS	C	A	A	A	A	C	D	A	A	E	B	B
Approach Vol, veh/h		52			9			1236			2077	
Approach Delay, s/veh		30.0			28.9			6.3			15.6	
Approach LOS		C			C			A			B	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		11.7	5.3	52.9	0.0	11.7	6.1	52.0				
Change Period (Y+Rc), s		5.0	5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s		47.0	7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s		2.4	2.1	13.7	0.0	4.0	2.3	34.0				
Green Ext Time (p_c), s		0.0	0.0	8.4	0.0	0.2	0.0	12.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.4									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	4	1170	2	4	2032
Future Vol, veh/h	2	4	1170	2	4	2032
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	4	1245	2	4	2162
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2337	626	0	0	1249	0
Stage 1	1248	-	-	-	-	-
Stage 2	1089	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	31	427	-	-	553	-
Stage 1	234	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	31	426	-	-	552	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	234	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	20	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 131 426	552	-		
HCM Lane V/C Ratio	-	- 0.016 0.01	0.008	-		
HCM Control Delay (s)	-	- 32.9 13.5	11.6	-		
HCM Lane LOS	-	- D B	B	-		
HCM 95th %tile Q(veh)	-	- 0 0	0	-		

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	32	6	26	113	6	26	33	1115	40	3	1880	32
Future Volume (veh/h)	32	6	26	113	6	26	33	1115	40	3	1880	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	6	28	122	6	28	35	1199	43	3	2022	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	33	65	241	30	138	82	3571	128	10	2379	40
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.71	0.71	0.01	0.67	0.67
Sat Flow, veh/h	585	324	636	1375	287	1341	1781	5060	181	1781	3576	60
Grp Volume(v), veh/h	68	0	0	122	0	34	35	806	436	3	1002	1054
Grp Sat Flow(s),veh/h/ln	1545	0	0	1375	0	1629	1781	1702	1838	1781	1777	1860
Q Serve(g_s), s	1.4	0.0	0.0	3.1	0.0	1.6	1.6	7.9	7.9	0.1	37.2	37.8
Cycle Q Clear(g_c), s	3.4	0.0	0.0	6.4	0.0	1.6	1.6	7.9	7.9	0.1	37.2	37.8
Prop In Lane	0.50		0.41	1.00		0.82	1.00		0.10	1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	241	0	168	82	2402	1297	10	1182	1237
V/C Ratio(X)	0.31	0.00	0.00	0.51	0.00	0.20	0.43	0.34	0.34	0.30	0.85	0.85
Avail Cap(c_a), veh/h	588	0	0	578	0	568	145	2649	1430	145	1383	1447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	37.3	0.0	35.4	40.0	4.9	4.9	42.6	11.1	11.1
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.6	0.0	0.6	3.5	0.1	0.2	15.8	4.5	4.5
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	1.3	0.0	0.0	2.5	0.0	0.7	0.8	1.6	1.8	0.1	10.7	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	0.0	0.0	39.0	0.0	36.0	43.4	5.0	5.0	58.4	15.6	15.7
LnGrp LOS	D	A	A	D	A	D	D	A	A	E	B	B
Approach Vol, veh/h		68			156			1277			2059	
Approach Delay, s/veh		36.9			38.3			6.0			15.7	
Approach LOS		D			D			A			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.9	5.5	66.8		13.9	9.0	63.3				
Change Period (Y+Rc), s		5.0	5.0	6.0		5.0	5.0	6.0				
Max Green Setting (Gmax), s		30.0	7.0	67.0		30.0	7.0	67.0				
Max Q Clear Time (g_c+I1), s		8.4	2.1	9.9		5.4	3.6	39.8				
Green Ext Time (p_c), s		0.5	0.0	9.1		0.3	0.0	17.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station

02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	173	40	1085	74	24	1776
Future Volume (veh/h)	173	40	1085	74	24	1776
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	43	1154	79	26	1889
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	243	216	2861	196	71	2490
Arrive On Green	0.14	0.14	0.59	0.59	0.04	0.70
Sat Flow, veh/h	1781	1585	5048	334	1781	3647
Grp Volume(v), veh/h	184	43	805	428	26	1889
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1810	1781	1777
Q Serve(g_s), s	6.7	1.6	8.6	8.6	1.0	22.9
Cycle Q Clear(g_c), s	6.7	1.6	8.6	8.6	1.0	22.9
Prop In Lane	1.00	1.00		0.18	1.00	
Lane Grp Cap(c), veh/h	243	216	1996	1061	71	2490
V/C Ratio(X)	0.76	0.20	0.40	0.40	0.36	0.76
Avail Cap(c_a), veh/h	820	729	3334	1773	185	4114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	25.8	7.6	7.6	31.5	6.4
Incr Delay (d2), s/veh	4.8	0.4	0.1	0.2	3.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.6	2.0	2.2	0.4	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.9	26.3	7.7	7.8	34.6	6.9
LnGrp LOS	C	C	A	A	C	A
Approach Vol, veh/h	227		1233			1915
Approach Delay, s/veh	31.6		7.7			7.3
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	14.2		7.7	45.5	53.2	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	31.0		7.0	66.0	78.0	
Max Q Clear Time (g_c+I1), s	8.7		3.0	10.6	24.9	
Green Ext Time (p_c), s	0.6		0.0	9.1	22.3	
Intersection Summary						
HCM 6th Ctrl Delay			9.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	2	26	60	2	10	17	2053	56	6	1303	31
Future Volume (veh/h)	44	2	26	60	2	10	17	2053	56	6	1303	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	2	27	62	2	10	18	2116	58	6	1343	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	19	52	0	25	126	52	2369	65	20	2314	55
Arrive On Green	0.09	0.09	0.09	0.00	0.09	0.09	0.03	0.67	0.67	0.01	0.65	0.65
Sat Flow, veh/h	764	199	553	0	271	1355	1781	3531	96	1781	3547	84
Grp Volume(v), veh/h	74	0	0	0	0	12	18	1059	1115	6	672	703
Grp Sat Flow(s),veh/h/ln	1516	0	0	0	0	1626	1781	1777	1850	1781	1777	1855
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.5	0.7	34.5	35.5	0.2	15.0	15.1
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.5	0.7	34.5	35.5	0.2	15.0	15.1
Prop In Lane	0.61		0.36	0.00		0.83	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	223	0	0	0	0	151	52	1192	1241	20	1159	1210
V/C Ratio(X)	0.33	0.00	0.00	0.00	0.00	0.08	0.34	0.89	0.90	0.31	0.58	0.58
Avail Cap(c_a), veh/h	583	0	0	0	0	1075	175	1249	1301	175	1249	1304
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	0.0	0.0	0.0	0.0	29.5	33.8	9.5	9.7	34.9	6.9	6.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.2	3.8	7.9	8.4	8.5	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0	0.0	0.2	0.3	9.2	9.9	0.1	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	0.0	0.0	0.0	29.7	37.7	17.4	18.1	43.4	7.5	7.5
LnGrp LOS	C	A	A	A	A	C	D	B	B	D	A	A
Approach Vol, veh/h	74		12				2192				1381	
Approach Delay, s/veh	31.5		29.7				17.9				7.6	
Approach LOS	C		C				B				A	
Timer - Assigned Phs	2		3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6		5.8	53.7	0.0	11.6	7.1	52.4				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s	47.0		7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s	2.5		2.2	37.5	0.0	5.2	2.7	17.1				
Green Ext Time (p_c), s	0.0		0.0	10.2	0.0	0.3	0.0	9.9				
Intersection Summary												
HCM 6th Ctrl Delay	14.4											
HCM 6th LOS	B											

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	2087	3	6	1310
Future Vol, veh/h	0	4	2087	3	6	1310
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	2197	3	6	1379
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2905	1104	0	0	2204	0
Stage 1	2203	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	12	206	-	-	235	-
Stage 1	70	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	12	205	-	-	234	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	70	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.9	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	205	234	-	
HCM Lane V/C Ratio	-	-	0.021	0.027	-	
HCM Control Delay (s)	-	-	0	22.9	20.8	
HCM Lane LOS	-	-	A	C	C	
HCM 95th %tile Q(veh)	-	-	-	0.1	0.1	

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	31	6	29	62	6	16	24	1943	122	16	1227	31
Future Volume (veh/h)	31	6	29	62	6	16	24	1943	122	16	1227	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	6	31	65	6	17	25	2045	128	17	1292	33
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	134	32	68	260	43	121	69	3109	194	51	2203	56
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0.63	0.63	0.03	0.62	0.62
Sat Flow, veh/h	546	321	689	1371	431	1220	1781	4913	306	1781	3540	90
Grp Volume(v), veh/h	70	0	0	65	0	23	25	1414	759	17	648	677
Grp Sat Flow(s),veh/h/ln	1557	0	0	1371	0	1651	1781	1702	1815	1781	1777	1854
Q Serve(g_s), s	1.2	0.0	0.0	0.0	0.0	0.8	0.9	17.4	17.6	0.6	14.5	14.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	2.3	0.0	0.8	0.9	17.4	17.6	0.6	14.5	14.5
Prop In Lane	0.47		0.44	1.00		0.74	1.00		0.17	1.00		0.05
Lane Grp Cap(c), veh/h	234	0	0	260	0	164	69	2154	1148	51	1106	1154
V/C Ratio(X)	0.30	0.00	0.00	0.25	0.00	0.14	0.36	0.66	0.66	0.34	0.59	0.59
Avail Cap(c_a), veh/h	805	0	0	781	0	791	187	3314	1767	187	1730	1805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	0.0	28.1	0.0	27.5	31.3	7.7	7.7	31.8	7.5	7.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.5	0.0	0.4	3.1	0.3	0.7	3.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.0	0.0	0.3	0.4	3.5	3.9	0.3	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	0.0	28.6	0.0	27.9	34.4	8.0	8.4	35.7	8.0	8.0
LnGrp LOS	C	A	A	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h	70			88			2198			1342		
Approach Delay, s/veh	29.0			28.4			8.5			8.3		
Approach LOS	C			C			A			A		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	11.6		6.9	48.3		11.6	7.6	47.5				
Change Period (Y+Rc), s	5.0		5.0	6.0		5.0	5.0	6.0				
Max Green Setting (Gmax), s	32.0		7.0	65.0		32.0	7.0	65.0				
Max Q Clear Time (g_c+I1), s	4.3		2.6	19.6		4.7	2.9	16.5				
Green Ext Time (p_c), s	0.3		0.0	22.6		0.3	0.0	10.0				
Intersection Summary												
HCM 6th Ctrl Delay			9.3									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station

02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			
Traffic Volume (veh/h)	107	23	1811	177	32	1170
Future Volume (veh/h)	107	23	1811	177	32	1170
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	24	1906	186	34	1232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	173	154	2894	281	88	2617
Arrive On Green	0.10	0.10	0.61	0.61	0.05	0.74
Sat Flow, veh/h	1781	1585	4901	459	1781	3647
Grp Volume(v), veh/h	113	24	1368	724	34	1232
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1787	1781	1777
Q Serve(g_s), s	4.0	0.9	17.3	17.5	1.2	9.3
Cycle Q Clear(g_c), s	4.0	0.9	17.3	17.5	1.2	9.3
Prop In Lane	1.00	1.00		0.26	1.00	
Lane Grp Cap(c), veh/h	173	154	2082	1093	88	2617
V/C Ratio(X)	0.65	0.16	0.66	0.66	0.39	0.47
Avail Cap(c_a), veh/h	916	815	3244	1703	189	4031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	27.3	8.3	8.4	30.5	3.5
Incr Delay (d2), s/veh	4.1	0.5	0.4	0.7	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.3	3.7	4.0	0.5	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.9	27.8	8.7	9.1	33.3	3.7
LnGrp LOS	C	C	A	A	C	A
Approach Vol, veh/h	137		2092			1266
Approach Delay, s/veh	32.0		8.8			4.4
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	11.4		8.3	46.4	54.7	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	34.0		7.0	63.0	75.0	
Max Q Clear Time (g_c+I1), s	6.0		3.2	19.5	11.3	
Green Ext Time (p_c), s	0.4		0.0	20.9	10.4	
Intersection Summary						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

APPENDIX E -

EXISTING PLUS AMBIENT PLUS PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

APPENDIX E -

EXISTING PLUS AMBIENT PLUS PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary
1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	3	28	99	0	10	10	1193	33	2	2024	48
Future Volume (veh/h)	23	3	28	99	0	10	10	1193	33	2	2024	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	3	29	103	0	10	10	1243	34	2	2108	50
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	115	28	77	0	0	149	31	2398	66	7	2359	56
Arrive On Green	0.09	0.09	0.09	0.00	0.00	0.09	0.02	0.68	0.68	0.00	0.66	0.66
Sat Flow, veh/h	463	294	813	0	0	1585	1781	3533	97	1781	3548	84
Grp Volume(v), veh/h	56	0	0	0	0	10	10	625	652	2	1051	1107
Grp Sat Flow(s),veh/h/ln	1571	0	0	0	0	1585	1781	1777	1853	1781	1777	1855
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.4	0.4	12.5	12.5	0.1	34.8	35.5
Cycle Q Clear(g_c), s	2.2	0.0	0.0	0.0	0.0	0.4	0.4	12.5	12.5	0.1	34.8	35.5
Prop In Lane	0.43		0.52	0.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	220	0	0	0	0	149	31	1206	1258	7	1181	1234
V/C Ratio(X)	0.25	0.00	0.00	0.00	0.00	0.07	0.32	0.52	0.52	0.29	0.89	0.90
Avail Cap(c_a), veh/h	584	0	0	0	0	1039	174	1239	1292	174	1239	1294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	0.0	0.0	0.0	29.6	34.8	5.7	5.7	35.6	9.9	10.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	0.2	5.7	0.4	0.3	22.3	8.1	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.0	0.0	0.2	0.2	2.4	2.5	0.1	9.5	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	0.0	0.0	0.0	29.8	40.5	6.1	6.1	57.9	17.9	18.3
LnGrp LOS	C	A	A	A	A	C	D	A	A	E	B	B
Approach Vol, veh/h	56					10		1287			2160	
Approach Delay, s/veh	31.0					29.8		6.3			18.2	
Approach LOS	C					C		A			B	
Timer - Assigned Phs	2		3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8		5.3	54.7	0.0	11.8	6.3	53.7				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s	47.0		7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s	2.4		2.1	14.5	0.0	4.2	2.4	37.5				
Green Ext Time (p_c), s	0.0		0.0	9.0	0.0	0.2	0.0	10.1				
Intersection Summary												
HCM 6th Ctrl Delay	14.1											
HCM 6th LOS	B											

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	5	1217	3	5	2114
Future Vol, veh/h	3	5	1217	3	5	2114
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	1295	3	5	2249

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2434	651	0	0	1300
Stage 1	1299	-	-	-	-
Stage 2	1135	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	26	411	-	-	529
Stage 1	220	-	-	-	-
Stage 2	269	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	26	410	-	-	528
Mov Cap-2 Maneuver	122	-	-	-	-
Stage 1	220	-	-	-	-
Stage 2	267	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 122 410	528	-
HCM Lane V/C Ratio	-	- 0.026 0.013	0.01	-
HCM Control Delay (s)	-	- 35.3 13.9	11.9	-
HCM Lane LOS	-	- E B	B	-
HCM 95th %tile Q(veh)	-	- 0.1 0	0	-

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	6	26	118	6	28	34	1161	42	4	1956	32
Future Volume (veh/h)	32	6	26	118	6	28	34	1161	42	4	1956	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	6	28	127	6	30	37	1248	45	4	2103	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	33	67	240	29	143	83	3594	130	13	2401	39
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.05	0.71	0.71	0.01	0.67	0.67
Sat Flow, veh/h	595	312	634	1375	271	1355	1781	5059	182	1781	3579	58
Grp Volume(v), veh/h	68	0	0	127	0	36	37	840	453	4	1041	1096
Grp Sat Flow(s),veh/h/ln	1540	0	0	1375	0	1626	1781	1702	1837	1781	1777	1860
Q Serve(g_s), s	1.6	0.0	0.0	3.6	0.0	1.8	1.8	8.6	8.6	0.2	42.2	42.7
Cycle Q Clear(g_c), s	3.5	0.0	0.0	7.1	0.0	1.8	1.8	8.6	8.6	0.2	42.2	42.7
Prop In Lane	0.50		0.41	1.00		0.83	1.00		0.10	1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	240	0	172	83	2418	1305	13	1192	1248
V/C Ratio(X)	0.31	0.00	0.00	0.53	0.00	0.21	0.44	0.35	0.35	0.30	0.87	0.88
Avail Cap(c_a), veh/h	559	0	0	551	0	539	138	2519	1360	138	1315	1376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	0.0	39.2	0.0	37.0	42.0	5.0	5.0	44.7	11.8	11.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.8	0.0	0.6	3.7	0.1	0.2	12.4	6.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	2.8	0.0	0.7	0.8	1.8	2.0	0.1	12.8	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	41.0	0.0	37.6	45.7	5.1	5.2	57.1	18.1	18.3
LnGrp LOS	D	A	A	D	A	D	D	A	A	E	B	B
Approach Vol, veh/h	68			163			1330			2141		
Approach Delay, s/veh	38.5			40.2			6.3			18.3		
Approach LOS	D			D			A			B		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	14.6		5.7	70.3		14.6		9.2	66.7			
Change Period (Y+Rc), s	5.0		5.0	6.0		5.0		5.0	6.0			
Max Green Setting (Gmax), s	30.0		7.0	67.0		30.0		7.0	67.0			
Max Q Clear Time (g_c+I1), s	9.1		2.2	10.6		5.5		3.8	44.7			
Green Ext Time (p_c), s	0.5		0.0	9.7		0.3		0.0	16.0			
Intersection Summary												
HCM 6th Ctrl Delay	15.3											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary 4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station
02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	180	42	1128	77	25	1847
Future Volume (veh/h)	180	42	1128	77	25	1847
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	191	45	1200	82	27	1965
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	246	219	2935	201	72	2525
Arrive On Green	0.14	0.14	0.60	0.60	0.04	0.71
Sat Flow, veh/h	1781	1585	5049	333	1781	3647
Grp Volume(v), veh/h	191	45	837	445	27	1965
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1810	1781	1777
Q Serve(g_s), s	7.5	1.8	9.5	9.5	1.1	26.1
Cycle Q Clear(g_c), s	7.5	1.8	9.5	9.5	1.1	26.1
Prop In Lane	1.00	1.00		0.18	1.00	
Lane Grp Cap(c), veh/h	246	219	2047	1089	72	2525
V/C Ratio(X)	0.78	0.21	0.41	0.41	0.37	0.78
Avail Cap(c_a), veh/h	734	653	3133	1666	171	3857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	27.8	7.7	7.7	34.0	6.8
Incr Delay (d2), s/veh	5.2	0.5	0.1	0.2	3.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.6	2.3	2.5	0.5	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.5	28.3	7.8	7.9	37.2	7.4
LnGrp LOS	D	C	A	A	D	A
Approach Vol, veh/h	236		1282			1992
Approach Delay, s/veh	34.1		7.8			7.8
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	15.1		7.9	49.8	57.7	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	30.0		7.0	67.0	79.0	
Max Q Clear Time (g_c+I1), s	9.5		3.1	11.5	28.1	
Green Ext Time (p_c), s	0.6		0.0	9.6	23.7	
Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	3	28	63	3	11	18	2136	59	7	1356	33
Future Volume (veh/h)	46	3	28	63	3	11	18	2136	59	7	1356	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	3	29	65	3	11	19	2202	61	7	1398	34
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	19	51	0	32	119	55	2381	66	23	2328	57
Arrive On Green	0.09	0.09	0.09	0.00	0.09	0.09	0.03	0.67	0.67	0.01	0.66	0.66
Sat Flow, veh/h	758	201	556	0	351	1287	1781	3530	97	1781	3545	86
Grp Volume(v), veh/h	79	0	0	0	0	14	19	1102	1161	7	700	732
Grp Sat Flow(s),veh/h/ln	1515	0	0	0	0	1639	1781	1777	1850	1781	1777	1855
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	0.6	0.8	38.6	39.8	0.3	16.2	16.3
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.0	0.0	0.6	0.8	38.6	39.8	0.3	16.2	16.3
Prop In Lane	0.59		0.37	0.00		0.79	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	219	0	0	0	0	151	55	1199	1248	23	1167	1218
V/C Ratio(X)	0.36	0.00	0.00	0.00	0.00	0.09	0.35	0.92	0.93	0.31	0.60	0.60
Avail Cap(c_a), veh/h	571	0	0	0	0	1060	172	1223	1273	172	1223	1276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	0.0	0.0	0.0	30.2	34.5	10.1	10.3	35.5	7.1	7.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.3	3.7	11.1	11.9	7.5	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.0	0.0	0.2	0.4	11.2	12.1	0.2	3.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	0.0	0.0	0.0	30.4	38.2	21.2	22.2	43.1	7.8	7.8
LnGrp LOS	C	A	A	A	A	C	D	C	C	D	A	A
Approach Vol, veh/h	79					14		2282		1439		
Approach Delay, s/veh	32.5					30.4		21.9		8.0		
Approach LOS	C					C		C		A		
Timer - Assigned Phs	2		3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7		5.9	55.0	0.0	11.7	7.2	53.7				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s	47.0		7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s	2.6		2.3	41.8	0.0	5.5	2.8	18.3				
Green Ext Time (p_c), s	0.0		0.0	7.2	0.0	0.3	0.0	10.5				
Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	2171	4	7	1362
Future Vol, veh/h	0	5	2171	4	7	1362
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	2285	4	7	1434

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	3022	1149	0	0	2293
Stage 1	2291	-	-	-	-
Stage 2	731	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	10	192	-	-	217
Stage 1	62	-	-	-	-
Stage 2	437	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	10	191	-	-	216
Mov Cap-2 Maneuver	51	-	-	-	-
Stage 1	62	-	-	-	-
Stage 2	423	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	191	216
HCM Lane V/C Ratio	-	-	0.028	0.034
HCM Control Delay (s)	-	-	0	24.4
HCM Lane LOS	-	-	A	C
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 6th Signalized Intersection Summary 3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station
02/15/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	31	6	30	65	6	17	24	2022	127	17	1277	31
Future Volume (veh/h)	31	6	30	65	6	17	24	2022	127	17	1277	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	6	32	68	6	18	25	2128	134	18	1344	33
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	128	30	67	252	40	119	69	3166	198	53	2253	55
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0.64	0.64	0.03	0.64	0.64
Sat Flow, veh/h	542	312	701	1370	412	1236	1781	4911	307	1781	3545	87
Grp Volume(v), veh/h	71	0	0	68	0	24	25	1471	791	18	673	704
Grp Sat Flow(s),veh/h/ln	1555	0	0	1370	0	1648	1781	1702	1815	1781	1777	1855
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.9	1.0	18.8	19.1	0.7	15.5	15.5
Cycle Q Clear(g_c), s	2.9	0.0	0.0	2.5	0.0	0.9	1.0	18.8	19.1	0.7	15.5	15.5
Prop In Lane	0.46		0.45	1.00		0.75	1.00		0.17	1.00		0.05
Lane Grp Cap(c), veh/h	225	0	0	252	0	158	69	2194	1170	53	1129	1179
V/C Ratio(X)	0.32	0.00	0.00	0.27	0.00	0.15	0.36	0.67	0.68	0.34	0.60	0.60
Avail Cap(c_a), veh/h	772	0	0	749	0	757	179	3176	1693	179	1658	1730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	0.0	29.6	0.0	28.9	32.7	7.7	7.8	33.1	7.4	7.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.4	3.2	0.4	0.7	3.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.1	0.0	0.4	0.4	3.8	4.2	0.3	3.5	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	0.0	0.0	30.2	0.0	29.3	35.9	8.1	8.5	36.9	8.0	7.9
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h	71		92				2287		1395			
Approach Delay, s/veh	30.5		29.9				8.5		8.3			
Approach LOS	C		C				A		A			
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	11.7		7.1	50.9	11.7		7.7	50.3				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0		5.0	6.0				
Max Green Setting (Gmax), s	32.0		7.0	65.0	32.0		7.0	65.0				
Max Q Clear Time (g_c+I1), s	4.5		2.7	21.1	4.9		3.0	17.5				
Green Ext Time (p_c), s	0.3		0.0	23.8	0.3		0.0	10.7				
Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary 4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station
02/15/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	111	24	1884	184	34	1217
Future Volume (veh/h)	111	24	1884	184	34	1217
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	25	1983	194	36	1281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	168	149	2959	287	90	2657
Arrive On Green	0.09	0.09	0.63	0.63	0.05	0.75
Sat Flow, veh/h	1781	1585	4900	459	1781	3647
Grp Volume(v), veh/h	117	25	1422	755	36	1281
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1787	1781	1777
Q Serve(g_s), s	4.4	1.0	18.7	19.1	1.4	9.9
Cycle Q Clear(g_c), s	4.4	1.0	18.7	19.1	1.4	9.9
Prop In Lane	1.00	1.00		0.26	1.00	
Lane Grp Cap(c), veh/h	168	149	2129	1118	90	2657
V/C Ratio(X)	0.70	0.17	0.67	0.68	0.40	0.48
Avail Cap(c_a), veh/h	819	729	3181	1670	179	3933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	29.0	8.4	8.4	32.0	3.5
Incr Delay (d2), s/veh	5.2	0.5	0.4	0.7	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.4	4.0	4.4	0.6	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.7	29.5	8.7	9.2	34.9	3.6
LnGrp LOS	D	C	A	A	C	A
Approach Vol, veh/h	142		2177			1317
Approach Delay, s/veh	34.6		8.9			4.5
Approach LOS	C		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	11.5		8.5	49.5	58.0	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	32.0		7.0	65.0	77.0	
Max Q Clear Time (g_c+I1), s	6.4		3.4	21.1	11.9	
Green Ext Time (p_c), s	0.4		0.0	22.5	11.1	
Intersection Summary						
HCM 6th Ctrl Delay			8.3			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗↗
Traffic Vol, veh/h	0	5	1217	3	0	2119
Future Vol, veh/h	0	5	1217	3	0	2119
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	1295	3	0	2254

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	651	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	411	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	410	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	410
HCM Lane V/C Ratio	-	-	0.013
HCM Control Delay (s)	-	-	13.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	5	2171	4	0	1369
Future Vol, veh/h	0	5	2171	4	0	1369
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	2285	4	0	1441
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	1149	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	192	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	191	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	24.4	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	191		-		
HCM Lane V/C Ratio	-	0.028		-		
HCM Control Delay (s)	-	24.4		-		
HCM Lane LOS	-	C		-		
HCM 95th %tile Q(veh)	-	0.1		-		

APPENDIX F -

CUMULATIVE PROJECT TRIP DISTRIBUTION

APPENDIX F -

CUMULATIVE PROJECT TRIP DISTRIBUTION



1 Lakeshore Dr. & Riverside Dr. (SR-74) 	2 Graham Av. & Main St. 	3 Lakeshore Dr./ Mission Bl. & Diamond Dr. 	4 Gunnerson St./ Strickland Av. & Riverside Dr. (SR-74) 	5 Collier Av. & Riverside Dr. (SR-74) 	6 Collier Av. & Central Av. (SR-74) 	7 Auto Center Dr. & Diamond Dr.
8 I-15 SB Ramps & Nichols Rd. 	9 I-15 SB Ramps & Central Av. (SR-74) 	10 I-15 SB Ramps & Main St. 	11 I-15 SB Ramps & Railroad Canyon Rd. 	12 I-15 NB Ramps & Nichols Rd. 	13 I-15 NB Ramps & Central Av. (SR-74) 	14 I-15 NB Ramps & Main St.
15 I-15 NB Ramps & Railroad Canyon Rd. 	16 Dexter Av. & 11th St. 	17 Dexter Av. & Central Av. (SR-74) 	18 Dexter Av. & Allan St. 	19 Dexter Av. & Crane St. 	20 Dexter Av. & 3rd St. 	21 Dexter Av. & 2nd St.
22 Camino Del Norte & Main St. 	23 Summerhill Dr./ Grape St. & Railroad Canyon Rd. 	24 Driveway 1 & Central Av. (SR-74) 	25 Cambern Av. & Central Av. (SR-74) 	26 Cambern Av. & Driveway 2 	27 Cambern Av. & Driveway 3 	28 Cambern Av. & 3rd St.
29 Conard Av. & Central Av. (SR-74) 	30 Rosetta Cyn. Dr. & Central Av. (SR-74) 	31 Riverside St. & Central Av. (SR-74) 	32 Meadowbrook Av./ Greenwald Av. & Central Av. (SR-74) 			

WEEKDAY PM PEAK HOUR INTERSECTION VOLUMES



1 Lakeshore Dr. & Riverside Dr. (SR-74) 	2 Graham Av. & Main St. 	3 Lakeshore Dr./ Mission Bl. & Diamond Dr. 	4 Gunnerson St./ Strickland Av. & Riverside Dr. (SR-74) 	5 Collier Av. & Riverside Dr. (SR-74) 	6 Collier Av. & Central Av. (SR-74) 	7 Auto Center Dr. & Diamond Dr.
8 I-15 SB Ramps & Nichols Rd. 	9 I-15 SB Ramps & Central Av. (SR-74) 	10 I-15 SB Ramps & Main St. 	11 I-15 SB Ramps & Railroad Canyon Rd. 	12 I-15 NB Ramps & Nichols Rd. 	13 I-15 NB Ramps & Central Av. (SR-74) 	14 I-15 NB Ramps & Main St.
15 I-15 NB Ramps & Railroad Canyon Rd. 	16 Dexter Av. & 11th St. 	17 Dexter Av. & Central Av. (SR-74) 	18 Dexter Av. & Allan St. 	19 Dexter Av. & Crane St. 	20 Dexter Av. & 3rd St. 	21 Dexter Av. & 2nd St.
22 Camino Del Norte & Main St. 	23 Summerhill Dr./ Grape St. & Railroad Canyon Rd. 	24 Driveway 1 & Central Av. (SR-74) 	25 Cambern Av. & Central Av. (SR-74) 	26 Cambern Av. & Driveway 2 	27 Cambern Av. & Driveway 3 	28 Cambern Av. & 3rd St.
29 Conard Av. & Central Av. (SR-74) 	30 Rosetta Cyn. Dr. & Central Av. (SR-74) 	31 Riverside St. & Central Av. (SR-74) 	32 Meadowbrook Av./ Greenwald Av. & Central Av. (SR-74) 			



SCOPING AGREEMENT
FOR
PROPOSED BOAT SALE AND MANUFACTURING FACILITY ON RIVERSIDE
DRIVE (APN: 378-030-006)
CITY OF LAKE ELSINORE CA.

Revised June 30, 2017



[Handwritten signatures]

TABLE 1:

PROJECT TRIP GENERATION- Boat Manufacturing/Sales Facility

LAND USE	UNITS	A.M. PEAK HOUR			P.M. PEAK HOUR			DAILY		
		IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
PHASE 1: Land Use 140- Manufacturing	25.682 TSF									
Trips/Unit		0.57	0.16	0.73	0.26	0.47	0.73	1.91	1.91	3.82
Trips		15	4	19	7	12	19	49	49	98
PHASE 2: Land Use 140- Manufacturing	9.8 TSF	0.57	0.16	0.73	0.26	0.47	0.73	1.91	1.91	3.82
		6	2	8	3	5	8	19	19	38
Total New Trips		21	6	27	10	17	27	68	68	136

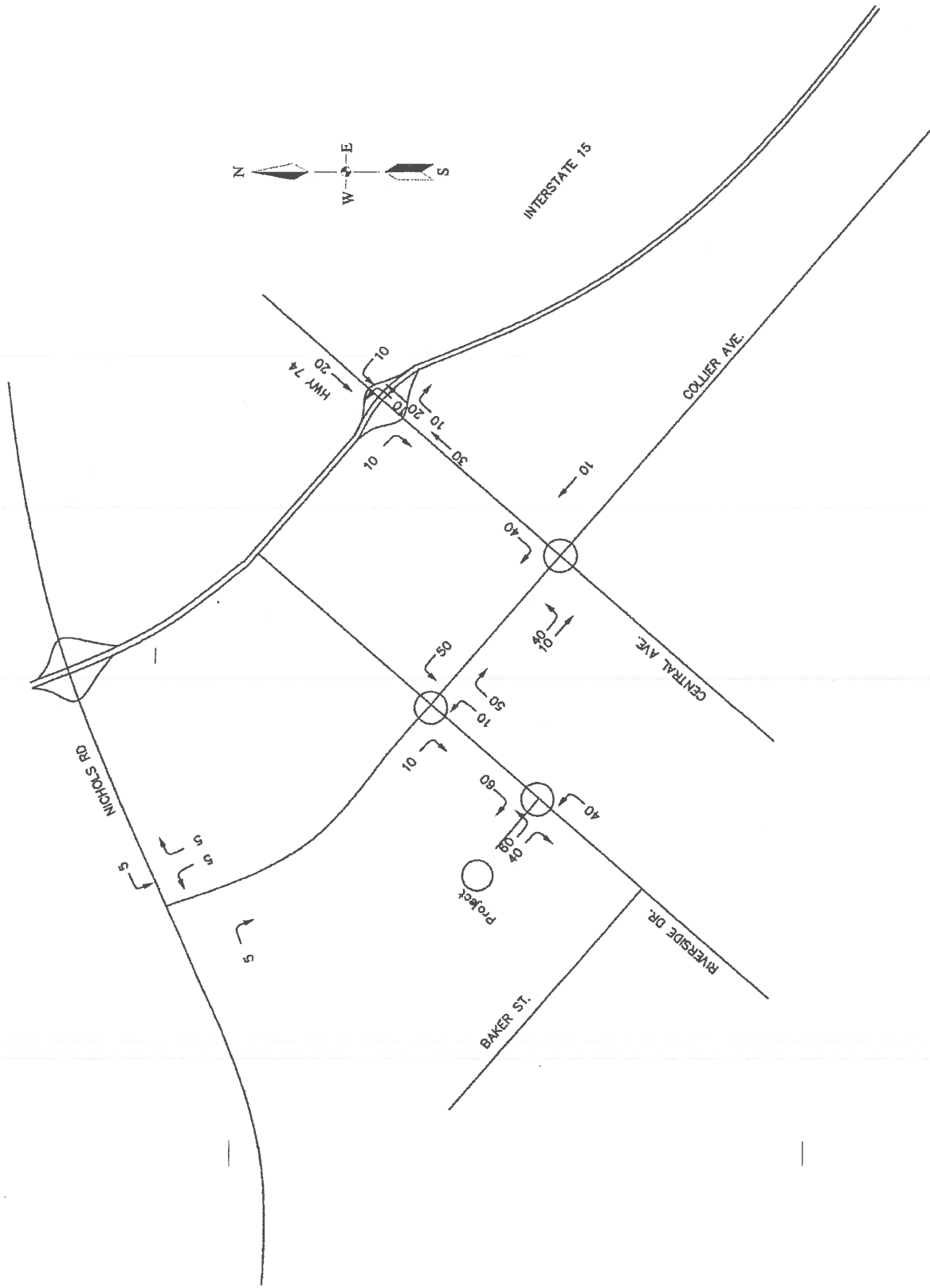
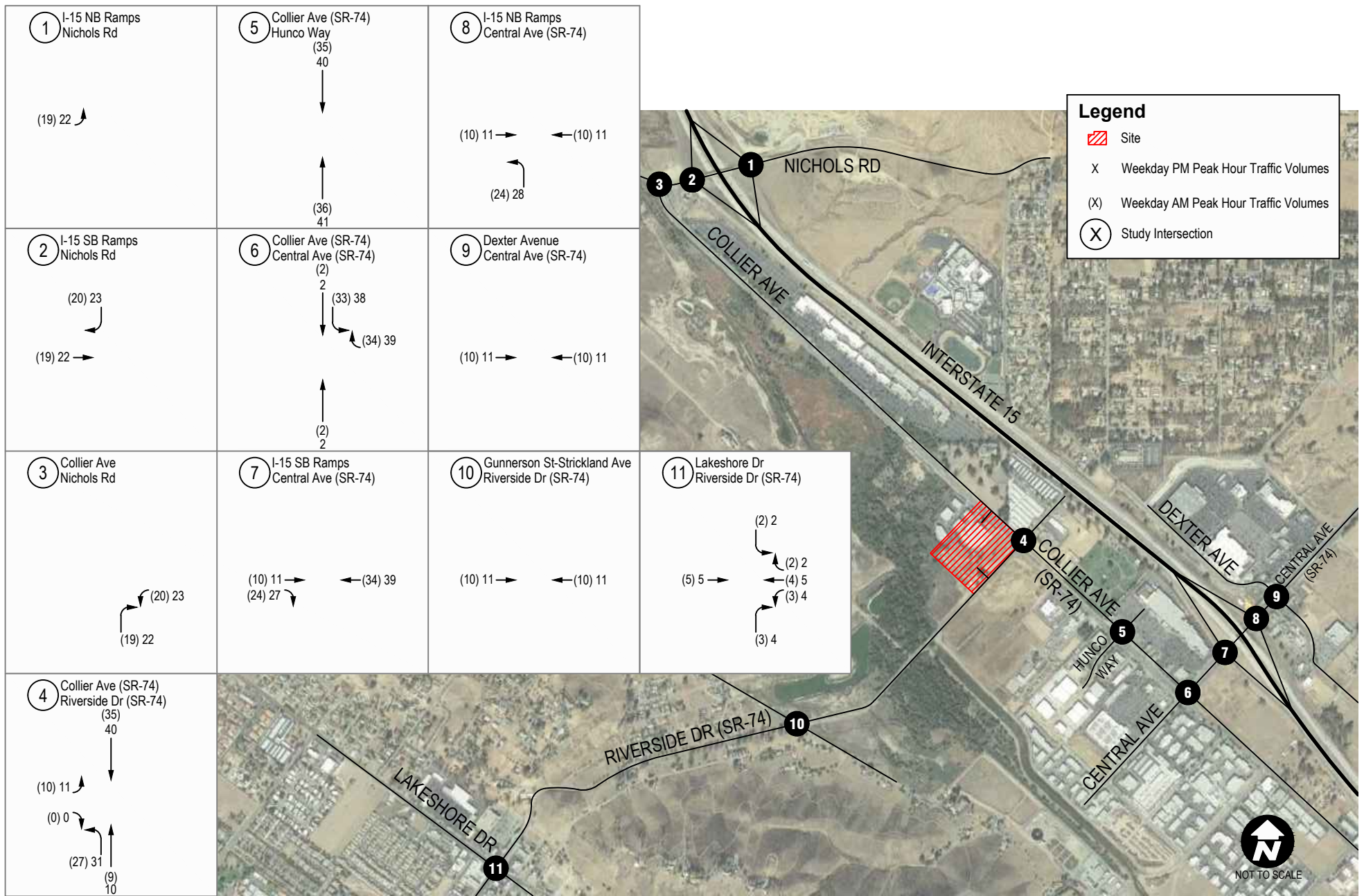


EXHIBIT 2: PROJECT TRIP DISTRIBUTION %



Source: Google Maps, 10/2016

Project Net Total Trip Assignment

Kassab Travel Center TIA

FIGURE

5

1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Nichols Ranch (referred to as “Project”) located south of Nichols Road and east of the I-15 Freeway in the City of Lake Elsinore as shown on Exhibit 1-1.

The purpose of this traffic impact analysis is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. As directed by City of Lake Elsinore staff, this traffic study has been prepared in accordance with the County of Riverside’s Traffic Impact Analysis Preparation Guide (April 2008), the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies (December 2002), and consultation with City of Lake Elsinore staff during the scoping process. (1) (2) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 PROJECT OVERVIEW

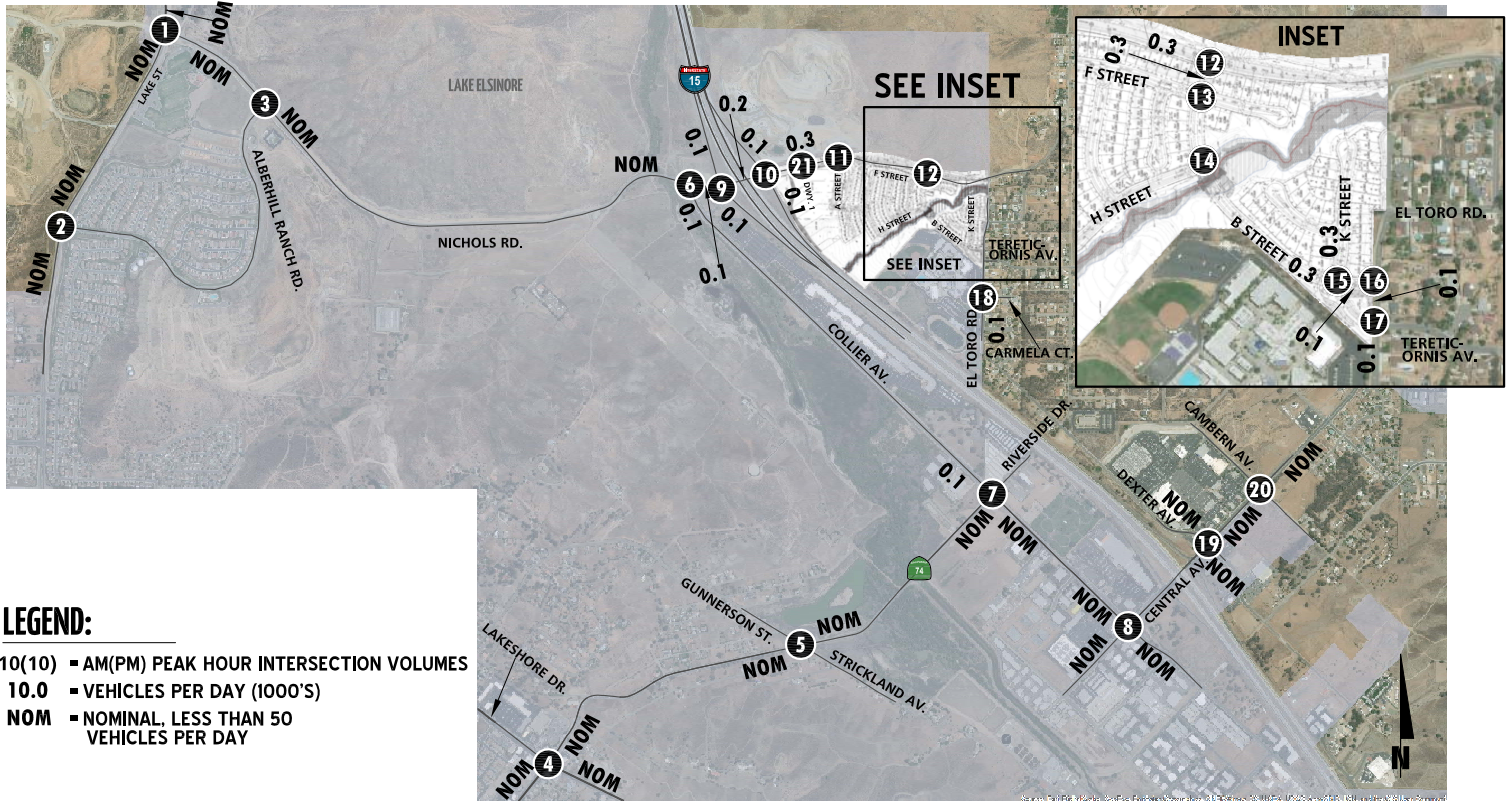
The proposed Project is located within the Alberhill Ranch Specific Plan and a portion (southern parcel) lies outside of the Specific Plan. For purposes of the traffic analysis it is anticipated that the Project will be evaluated in 3 phases, with Phase 1 having a projected Opening Year of 2020, Phase 2 having a project Opening Year of 2021, and Project Buildout anticipated to occur in 2024.

- Phase 1 (2020): 34 low-medium density residential dwelling units
- Phase 2 (2021): Phase 1 (2020) development plus 134 additional low-medium density residential dwelling units (buildout of residential) and an 8.3-acre park
- Phase 3 (2024): Phase 1 (2020) and Phase 2 (2021) development plus 6,000 square feet (sf) of fast-food restaurant with drive-through window use, 9,400 sf of high turnover (sit-down) restaurant use, 8,000 sf of health and fitness club use, 43,000 sf of office use, 5,500 sf of fast food without drive-through, a 16-vehicle fueling position gas station with convenience store and car wash, and 130 room hotel

As indicated on Exhibit 1-1, access to the Project site is proposed to be provided by Nichols Road via A Street and B Street and El Toro Road via B Street. The Project will construct B Street between El Toro Road and Nichols Road in Phase 1 (2020). Regional access to the Project site is provided via the I-15 Freeway at Nichols Road interchange.

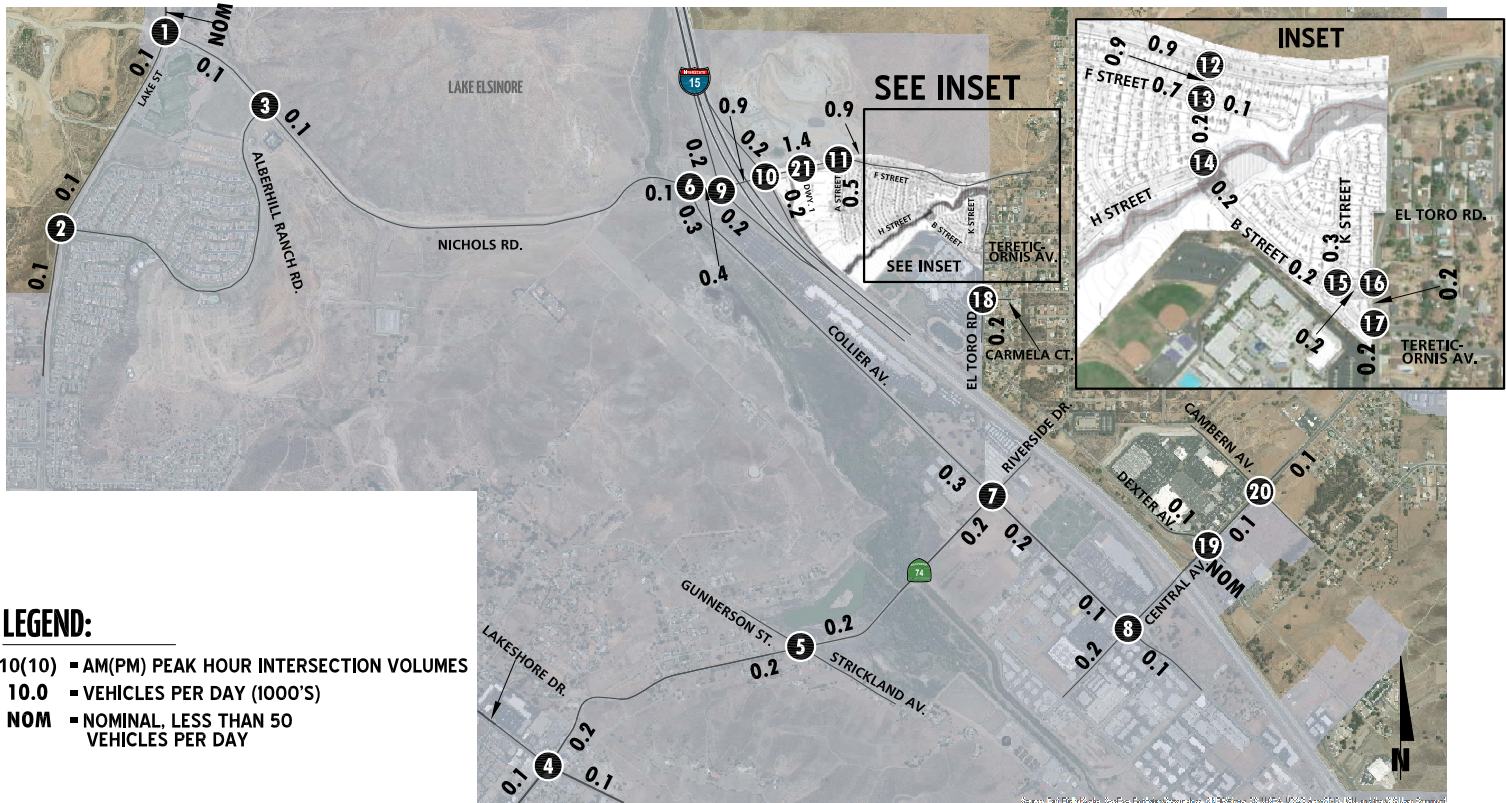
Trips generated by the Project’s proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (3) The Project is estimated to generate a net total of 6,900 trip-ends per day on a typical weekday with approximately 734 AM peak hour trips, and 622 PM peak hour trips. The assumptions and methods used to estimate the Project’s trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

EXHIBIT 4-4: PROJECT ONLY (PHASE 1) TRAFFIC VOLUMES



1 Lake St. & Nichols Rd. 	2 Lake St. & Alberhill Ranch Rd. 	3 Alberhill Ranch Rd. & Nichols Rd. 	4 Lakeshore Dr. & Riverside Dr. (SR-74) 	5 Gunnerson St./ Strickland Av. & Riverside Dr. (SR-74) 	6 Collier Av. & Nichols Rd. 	7 Collier Av. & Riverside Dr. (SR-74)
8 Collier Av. & Central Av. (SR-74) 	9 I-15 SB Ramps & Nichols Rd. 	10 I-15 NB Ramps & Nichols Rd. 	11 A Street & Nichols Rd. Future Intersection	12 B Street & Nichols Rd. 	13 B Street & F Street Future Intersection	14 B Street & H Street Future Intersection
15 K Street & B Street 	16 El Toro Rd. & B Street 	17 El Toro Rd. & Tereticornis Av. 	18 El Toro Rd. & Carmela Ct. 	19 Dexter Av. & Central Av. (SR-74) 	20 Cambern Av. & Central Av. (SR-74) 	21 Driveway 1 & Nichols Rd. Future Intersection

EXHIBIT 4-5: PROJECT ONLY (PHASE 2) TRAFFIC VOLUMES



1 Lake St. & Nichols Rd. 	2 Lake St. & Alberhill Ranch Rd. 	3 Alberhill Ranch Rd. & Nichols Rd. 	4 Lakeshore Dr. & Riverside Dr. (SR-74) 	5 Gunnerson St./ Strickland Av. & Riverside Dr. (SR-74) 	6 Collier Av. & Nichols Rd. 	7 Collier Av. & Riverside Dr. (SR-74)
8 Collier Av. & Central Av. (SR-74) 	9 I-15 SB Ramps & Nichols Rd. 	10 I-15 NB Ramps & Nichols Rd. 	11 A Street & Nichols Rd. 	12 B Street & Nichols Rd. 	13 B Street & F Street 	14 B Street & H Street Future Intersection
15 K Street & B Street 	16 El Toro Rd. & B Street 	17 El Toro Rd. & Tereticornis Av. 	18 El Toro Rd. & Carmela Ct. 	19 Dexter Av. & Central Av. (SR-74) 	20 Cambern Av. & Central Av. (SR-74) 	21 Driveway 1 & Nichols Rd. Future Intersection

APPENDIX G -

**EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION
ANALYSIS WORKSHEETS**

APPENDIX G -

**EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION
ANALYSIS WORKSHEETS**

HCM 6th Signalized Intersection Summary
1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

09/05/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	3	35	104	0	10	15	1273	36	11	2147	56
Future Volume (veh/h)	34	3	35	104	0	10	15	1273	36	11	2147	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1477	1870	1870
Adj Flow Rate, veh/h	35	3	36	108	0	10	16	1326	38	11	2236	58
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	123	21	69	0	0	146	47	2376	68	27	2358	61
Arrive On Green	0.09	0.09	0.09	0.00	0.00	0.09	0.03	0.67	0.67	0.02	0.67	0.67
Sat Flow, veh/h	566	229	753	0	0	1585	1781	3528	101	1406	3539	91
Grp Volume(v), veh/h	74	0	0	0	0	10	16	667	697	11	1118	1176
Grp Sat Flow(s),veh/h/ln	1547	0	0	0	0	1585	1781	1777	1852	1406	1777	1854
Q Serve(g_s), s	1.9	0.0	0.0	0.0	0.0	0.4	0.7	14.6	14.6	0.6	42.1	43.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.0	0.0	0.4	0.7	14.6	14.6	0.6	42.1	43.1
Prop In Lane	0.47		0.49	0.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	214	0	0	0	0	146	47	1197	1248	27	1184	1235
V/C Ratio(X)	0.35	0.00	0.00	0.00	0.00	0.07	0.34	0.56	0.56	0.41	0.94	0.95
Avail Cap(c_a), veh/h	560	0	0	0	0	1001	168	1197	1248	132	1194	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	0.0	0.0	30.9	35.6	6.3	6.4	36.1	11.2	11.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.2	4.2	0.6	0.6	9.6	14.6	15.5
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	1.3	0.0	0.0	0.0	0.0	0.2	0.3	3.1	3.2	0.3	13.6	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	0.0	0.0	0.0	0.0	31.1	39.8	6.9	6.9	45.7	25.8	26.8
LnGrp LOS	C	A	A	A	A	C	D	A	A	D	C	C
Approach Vol, veh/h		74			10			1380			2305	
Approach Delay, s/veh		33.1			31.1			7.3			26.4	
Approach LOS		C			C			A			C	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		11.9	6.4	56.1	0.0	11.9	7.0	55.6				
Change Period (Y+Rc), s		5.0	5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s		47.0	7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s		2.4	2.6	16.6	0.0	5.3	2.7	45.1				
Green Ext Time (p_c), s		0.0	0.0	9.8	0.0	0.3	0.0	4.4				
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↗↗			↗↗	↗
Traffic Vol, veh/h	0	0	75	0	0	7	0	1353	3	0	2178	113
Future Vol, veh/h	0	0	75	0	0	7	0	1353	3	0	2178	113
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	79	0	0	7	0	1424	3	0	2293	119
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1147	-	-	714	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	193	0	0	374	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	193	-	-	374	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	36		14.8		0		0					
HCM LOS	E		B									
Minor Lane/Major Mvmt	NBT		NBR EBLn1WBLn1		SBT		SBR					
Capacity (veh/h)	-		193 374		-		-					
HCM Lane V/C Ratio	-		0.409 0.02		-		-					
HCM Control Delay (s)	-		36 14.8		-		-					
HCM Lane LOS	-		E B		-		-					
HCM 95th %tile Q(veh)	-		1.8 0.1		-		-					

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

09/05/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	32	6	26	129	6	28	34	1292	50	4	2072	32
Future Volume (veh/h)	32	6	26	129	6	28	34	1292	50	4	2072	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1477	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	6	28	139	6	30	37	1389	54	4	2228	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	33	71	246	31	153	64	3596	140	13	2418	37
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.05	0.71	0.71	0.01	0.67	0.67
Sat Flow, veh/h	611	292	632	1375	271	1355	1406	5043	196	1781	3583	55
Grp Volume(v), veh/h	68	0	0	139	0	36	37	938	505	4	1102	1160
Grp Sat Flow(s),veh/h/ln	1535	0	0	1375	0	1626	1406	1702	1835	1781	1777	1860
Q Serve(g_s), s	1.8	0.0	0.0	4.6	0.0	1.9	2.5	10.5	10.5	0.2	51.0	51.8
Cycle Q Clear(g_c), s	3.7	0.0	0.0	8.4	0.0	1.9	2.5	10.5	10.5	0.2	51.0	51.8
Prop In Lane	0.50		0.41	1.00		0.83	1.00		0.11	1.00		0.03
Lane Grp Cap(c), veh/h	230	0	0	246	0	184	64	2428	1309	13	1199	1255
V/C Ratio(X)	0.30	0.00	0.00	0.56	0.00	0.20	0.58	0.39	0.39	0.30	0.92	0.92
Avail Cap(c_a), veh/h	526	0	0	520	0	508	102	2428	1309	130	1239	1297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	0.0	0.0	41.3	0.0	38.7	44.9	5.5	5.5	47.5	13.4	13.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.0	0.0	0.5	7.9	0.1	0.2	12.5	10.9	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	3.3	0.0	0.8	1.0	2.4	2.6	0.1	17.2	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	0.0	0.0	43.3	0.0	39.2	52.8	5.6	5.6	59.9	24.2	24.5
LnGrp LOS	D	A	A	D	A	D	D	A	A	E	C	C
Approach Vol, veh/h	68				175				1480			
Approach Delay, s/veh	40.1				42.4				6.8			
Approach LOS	D				D				A			
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	15.9		5.7	74.5	15.9		9.4	70.8				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0		5.0	6.0				
Max Green Setting (Gmax), s	30.0		7.0	67.0	30.0		7.0	67.0				
Max Q Clear Time (g_c+I1), s	10.4		2.2	12.5	5.7		4.5	53.8				
Green Ext Time (p_c), s	0.5		0.0	11.6	0.3		0.0	11.1				
Intersection Summary												
HCM 6th Ctrl Delay	18.9											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary
4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station
09/05/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
Traffic Volume (veh/h)	211	42	1236	100	25	1932
Future Volume (veh/h)	211	42	1236	100	25	1932
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	45	1315	106	27	2055
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	275	244	2948	238	70	2531
Arrive On Green	0.15	0.15	0.61	0.61	0.04	0.71
Sat Flow, veh/h	1781	1585	4984	388	1781	3647
Grp Volume(v), veh/h	224	45	929	492	27	2055
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1800	1781	1777
Q Serve(g_s), s	10.0	2.0	12.0	12.0	1.2	32.5
Cycle Q Clear(g_c), s	10.0	2.0	12.0	12.0	1.2	32.5
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	275	244	2084	1102	70	2531
V/C Ratio(X)	0.82	0.18	0.45	0.45	0.39	0.81
Avail Cap(c_a), veh/h	650	578	2774	1467	152	3415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	30.3	8.5	8.5	38.5	8.1
Incr Delay (d2), s/veh	5.9	0.4	0.2	0.3	3.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.7	3.1	3.4	0.6	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.5	30.6	8.7	8.8	42.0	9.2
LnGrp LOS	D	C	A	A	D	A
Approach Vol, veh/h	269		1421			2082
Approach Delay, s/veh	38.0		8.7			9.6
Approach LOS	D		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	17.7		8.2	56.3	64.5	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	30.0		7.0	67.0	79.0	
Max Q Clear Time (g_c+I1), s	12.0		3.2	14.0	34.5	
Green Ext Time (p_c), s	0.7		0.0	11.3	24.1	
Intersection Summary						
HCM 6th Ctrl Delay			11.3			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
1: SR-74/Central Avenue & Conard Avenue

Central Avenue Gas Station

09/05/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	3	36	67	3	11	26	2219	63	16	1467	38
Future Volume (veh/h)	51	3	36	67	3	11	26	2219	63	16	1467	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1477	1870	1870
Adj Flow Rate, veh/h	53	3	37	69	3	11	27	2288	65	16	1512	39
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	14	55	0	32	117	72	2356	67	37	2316	60
Arrive On Green	0.09	0.09	0.09	0.00	0.09	0.09	0.04	0.67	0.67	0.03	0.65	0.65
Sat Flow, veh/h	753	156	600	0	351	1287	1781	3527	100	1406	3539	91
Grp Volume(v), veh/h	93	0	0	0	0	14	27	1146	1207	16	758	793
Grp Sat Flow(s),veh/h/ln	1509	0	0	0	0	1639	1781	1777	1850	1406	1777	1854
Q Serve(g_s), s	3.7	0.0	0.0	0.0	0.0	0.6	1.1	45.1	46.5	0.8	19.2	19.3
Cycle Q Clear(g_c), s	4.4	0.0	0.0	0.0	0.0	0.6	1.1	45.1	46.5	0.8	19.2	19.3
Prop In Lane	0.57		0.40	0.00		0.79	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	213	0	0	0	0	150	72	1187	1236	37	1163	1213
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.09	0.38	0.97	0.98	0.43	0.65	0.65
Avail Cap(c_a), veh/h	554	0	0	0	0	1031	167	1189	1238	132	1189	1240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	0.0	0.0	0.0	0.0	31.1	34.9	11.6	11.8	35.8	7.8	7.8
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.3	3.3	18.4	20.0	7.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	0.0	0.0	0.2	0.5	15.4	16.9	0.3	4.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	0.0	0.0	0.0	0.0	31.4	38.2	30.0	31.9	43.5	9.0	9.0
LnGrp LOS	C	A	A	A	A	C	D	C	C	D	A	A
Approach Vol, veh/h	93			14			2380			1567		
Approach Delay, s/veh	34.2			31.4			31.0			9.4		
Approach LOS	C			C			C			A		
Timer - Assigned Phs	2		3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8		7.0	55.9	0.0	11.8	8.0	54.9				
Change Period (Y+Rc), s	5.0		5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s	47.0		7.0	50.0	18.0	24.0	7.0	50.0				
Max Q Clear Time (g_c+I1), s	2.6		2.8	48.5	0.0	6.4	3.1	21.3				
Green Ext Time (p_c), s	0.0		0.0	1.4	0.0	0.4	0.0	11.5				
Intersection Summary												
HCM 6th Ctrl Delay	22.7											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕			↕	↗
Traffic Vol, veh/h	0	0	47	0	0	6	0	2286	4	0	1440	45
Future Vol, veh/h	0	0	47	0	0	6	0	2286	4	0	1440	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	92	95	92	92	92	95	95	92	92	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	49	0	0	7	0	2406	4	0	1516	47
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	758	-	-	1205	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	350	0	0	176	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	350	-	-	176	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17		26.2		0		0					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBT		NBR EBLn1WBLn1		SBT		SBR					
Capacity (veh/h)	-		350 176		-		-					
HCM Lane V/C Ratio	-		0.141 0.037		-		-					
HCM Control Delay (s)	-		17 26.2		-		-					
HCM Lane LOS	-		C D		-		-					
HCM 95th %tile Q(veh)	-		0.5 0.1		-		-					

HCM 6th Signalized Intersection Summary

3: SR-74/Central Avenue & Ardenwood Way

Central Avenue Gas Station

09/05/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	6	30	70	6	17	24	2134	132	17	1371	31
Future Volume (veh/h)	31	6	30	70	6	17	24	2134	132	17	1371	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1477	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	6	32	74	6	18	25	2246	139	18	1443	33
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	122	28	64	240	38	113	53	3261	200	52	2324	53
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.04	0.66	0.66	0.03	0.65	0.65
Sat Flow, veh/h	549	304	700	1370	412	1236	1406	4918	302	1781	3551	81
Grp Volume(v), veh/h	71	0	0	74	0	24	25	1549	836	18	721	755
Grp Sat Flow(s),veh/h/ln	1553	0	0	1370	0	1648	1406	1702	1816	1781	1777	1856
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	1.0	1.3	20.8	21.3	0.7	17.5	17.6
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.9	0.0	1.0	1.3	20.8	21.3	0.7	17.5	17.6
Prop In Lane	0.46		0.45	1.00		0.75	1.00		0.17	1.00		0.04
Lane Grp Cap(c), veh/h	214	0	0	240	0	151	53	2257	1204	52	1163	1214
V/C Ratio(X)	0.33	0.00	0.00	0.31	0.00	0.16	0.47	0.69	0.69	0.35	0.62	0.62
Avail Cap(c_a), veh/h	685	0	0	670	0	668	133	3081	1643	168	1608	1679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	0.0	31.9	0.0	31.0	34.9	7.7	7.8	35.2	7.4	7.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.7	0.0	0.5	6.2	0.4	0.8	3.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	1.3	0.0	0.4	0.5	4.3	4.8	0.3	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	0.0	32.6	0.0	31.5	41.1	8.1	8.6	39.1	8.0	8.0
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h	71		98				2410		1494			
Approach Delay, s/veh	32.8		32.3				8.6		8.4			
Approach LOS	C		C				A		A			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	11.8		7.2		55.1		11.8		7.8		54.4	
Change Period (Y+Rc), s	5.0		5.0		6.0		5.0		5.0		6.0	
Max Green Setting (Gmax), s	30.0		7.0		67.0		30.0		7.0		67.0	
Max Q Clear Time (g_c+I1), s	4.9		2.7		23.3		5.1		3.3		19.6	
Green Ext Time (p_c), s	0.3		0.0		25.8		0.3		0.0		12.2	
Intersection Summary												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

4: SR-74/Central Avenue & Rosetta Canyon Road

Central Avenue Gas Station

09/05/2021



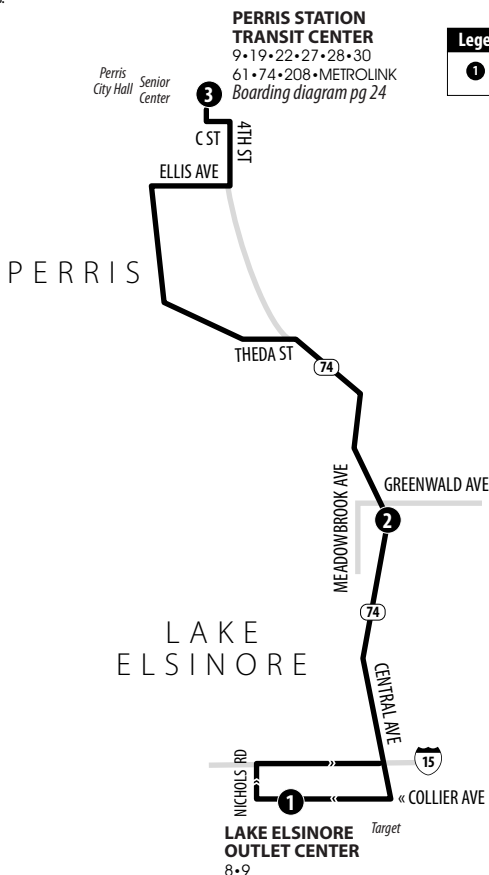
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	131	24	1972	208	34	1286
Future Volume (veh/h)	131	24	1972	208	34	1286
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	138	25	2076	219	36	1354
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	185	165	2979	311	88	2665
Arrive On Green	0.10	0.10	0.63	0.63	0.05	0.75
Sat Flow, veh/h	1781	1585	4864	490	1781	3647
Grp Volume(v), veh/h	138	25	1498	797	36	1354
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1782	1781	1777
Q Serve(g_s), s	5.7	1.1	21.6	22.3	1.5	11.6
Cycle Q Clear(g_c), s	5.7	1.1	21.6	22.3	1.5	11.6
Prop In Lane	1.00	1.00		0.27	1.00	
Lane Grp Cap(c), veh/h	185	165	2160	1130	88	2665
V/C Ratio(X)	0.75	0.15	0.69	0.70	0.41	0.51
Avail Cap(c_a), veh/h	757	674	2940	1539	166	3636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	30.7	9.0	9.1	34.7	3.8
Incr Delay (d2), s/veh	5.9	0.4	0.4	0.9	3.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.4	5.0	5.5	0.7	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.6	31.1	9.4	10.0	37.8	3.9
LnGrp LOS	D	C	A	B	D	A
Approach Vol, veh/h	163		2295			1390
Approach Delay, s/veh	37.5		9.6			4.8
Approach LOS	D		A			A
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	12.8		8.7	53.7	62.4	
Change Period (Y+Rc), s	5.0		5.0	6.0	6.0	
Max Green Setting (Gmax), s	32.0		7.0	65.0	77.0	
Max Q Clear Time (g_c+l1), s	7.7		3.5	24.3	13.6	
Green Ext Time (p_c), s	0.4		0.0	23.5	12.2	
Intersection Summary						
HCM 6th Ctrl Delay			9.1			
HCM 6th LOS			A			

APPENDIX H -

TRANSIT ROUTE INFORMATION

APPENDIX H -
TRANSIT ROUTE INFORMATION

Routing and timetables
subject to change.
Rutas y horarios son
sujetos a cambios.


Legend | Map not to scale
1 Time and/or Transfer Point

9

Northbound to Perris Station Transit Center | Weekdays & Weekends

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lake Elsinore Outlet Center	Hwy. 74 & Meadowbrook	Perris Station Transit Center
1	2	3
6:38	6:48	7:03
7:50	8:00	8:15
9:26	9:37	9:52
10:36	10:47	11:02
11:45	11:56	12:13
12:46	12:59	1:16
1:59	2:12	2:29
3:11	3:24	3:41
4:21	4:34	4:51
5:36	5:48	6:05
6:37	6:49	7:04

9

Southbound to Lake Elsinore Outlet Center | Weekdays & Weekends

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Perris Station Transit Center	Hwy. 74 & Meadowbrook	Lake Elsinore Outlet Center
3	2	1
6:50	7:02	7:13
7:50	8:02	8:13
8:45	8:57	9:08
10:07	10:19	10:31
11:15	11:28	11:40
12:25	12:38	12:50
1:34	1:47	1:59
2:37	2:50	3:02
3:59	4:12	4:24
5:02	5:15	5:27
6:14	6:27	6:39