TRAFFIC IMPACT ANALYSIS REPORT

MISSION TRAIL APARTMENTS PROJECT

Lake Elsinore, California
March 22, 2017
(Update to the February 23, 2017 Report)

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Project Description

- The Mission Trail Apartments Project is located in the City of Lake Elsinore, California. The proposed Project will consist of the construction of 81 apartment dwelling units. The Project site is located on the west side of Mission Trail, south of Hidden Trail. Vehicular access to the Project site will be provided via one (1) unsignalized driveway along Mission Trail, which will be aligned with the access for the existing U-Wash self-serve car wash on the east side of Mission Trail. The proposed Project is expected to be completed and occupied by Year 2019.

Project Trip Generation Forecast

- The Project is forecast to generate 539 daily trips, with 41 trips (8 inbound, 33 outbound) forecast during the AM peak hour and 50 trips (33 inbound, 17 outbound) forecast during the PM peak hour on a "typical" weekday.

Key Intersections and Roadway Segments

- Two (2) key study intersections were selected for evaluation based on discussions with City of Lake Elsinore staff. The key study intersections listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation:

    1. Mission Trail at Hidden Trail/Elberta Road
    2. Mission Trail at Olive Street

- The study roadway segment listed below is a location that could potentially be impacted by the Project. The one (1) roadway segment listed below was selected based on the arterial network within the study area and discussions with City of Lake Elsinore staff:

    1. Mission Trail, between Hidden Trail/Elbert Road and Sedco Boulevard

Cumulative Projects Traffic Characteristics

- The eighteen (18) cumulative projects are forecast to generate a combined total of 42,625 daily trips, with 2,112 trips (989 inbound and 1,123 outbound) forecast during the AM peak hour and 3,490 trips (1,907 inbound and 1,583 outbound) forecast during the PM peak hour.

Intersection Analysis

- Under Existing traffic conditions, all of the existing key study intersections currently operate at acceptable levels of service (i.e., LOS D or better) during the AM and PM peak hours.

- Under Existing With Project traffic conditions, traffic associated with the proposed Project ***will not*** significantly impact either of the key study intersections when compared to the LOS standards and significant impact criteria specified in this report. All of the key study intersections currently operate and are forecast to continue to operate at acceptable LOS D or better during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

- Under Existing With Ambient Growth (Year 2019) With Project traffic conditions, none of the key study intersections are forecast to operate at adverse levels of service during with the addition of Project traffic during the AM or PM peak hours for the Existing With Ambient Growth (Year 2019) With Project traffic conditions, based on the LOS impact criteria mentioned in this report. All of the key study intersections are forecast to continue to operate at acceptable service levels during the AM and PM peak hours.

- Under Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project traffic conditions, none of the key study intersections are forecast to operate at adverse levels of service during with the addition of Project traffic during the AM or PM peak hours, based on the LOS impact criteria mentioned in this report. All of the key study intersections are forecast to continue to operate at acceptable service levels during the AM and PM peak hours.

Roadway Segment Analysis

- Under Existing traffic conditions, the key study roadway segment currently operates at an acceptable level of service (LOS A).

- Under Existing With Project traffic conditions, the key study roadway segment is forecast to operate at an acceptable level of service. Therefore, this location is not forecast to have a significant impact.

- The key study roadway segment is forecast to operate at an acceptable level of service for the Existing With Ambient Growth (Year 2019) With Project conditions. Therefore, this location is not forecast to have a significant impact.

- The key study roadway segment is forecast to operate at an acceptable level of service for the Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project conditions. Therefore, this location is not forecast to have a significant impact.

Recommended Improvements

- The results of the Existing With Project intersection capacity analysis and roadway segment analysis indicate that the proposed Project will not impact any of the key study intersections or roadway segments. As such, no improvements are recommended.

- The results of the Existing With Ambient Growth With Project intersection capacity analysis and roadway segment analysis indicate that the proposed Project will not impact any of the key study intersections or roadway segments. As such, no improvements are recommended.
- The results of the Existing With Ambient Growth With Cumulative Projects With Project intersection capacity analysis and roadway segment analysis indicate that the proposed Project will not impact any of the key study intersections or roadway segments. As such, no improvements are recommended.

Project Specific Improvements

- Subject to the review and approval of the City of Lake Elsinore, the following Project design features are to be implemented in conjunction with development of the proposed Project to ensure adequate access and egress to the site is provided:
    - Mission Trail at Project Driveway: Add a west leg with an eastbound shared left-turn/right-turn outbound lane and one inbound lane to the intersection. + "STOP" sign and "STOP" bar on the eastbound approach. Restripe the northbound approach to provide an exclusive northbound left-turn lane. Improve the southwesterly side of Mission Trail to the ultimate half-width along the Project frontage.

Project Driveway Analysis

- The Project driveway is forecast to operate at an unacceptable level of service during the PM peak hour for all traffic conditions.
- To improve the unacceptable LOS during the PM peak hour, it is recommended that the eastbound left-turn (outbound) movement and the westbound (outbound) left-turn movement be restricted during the PM peak period (4:00 – 6:00 PM). The PM peak period restriction will be implemented through the use of proper signage and resident notification. With the recommended improvements, the Project driveway is forecast to operate at an acceptable level of service for all traffic conditions. (It should be noted that with the existing lane geometry along Mission Trail, the driveway intersection will operate at acceptable service levels during the AM and PM peak hours under all analyzed traffic conditions.)

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MISSION TRAIL APARTMENTS PROJECT

Lake Elsinore, California
March 22, 2017
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1.0 INTRODUCTION

This traffic impact analysis report addresses the potential impacts and circulation needs associated with the proposed Mission Trail Apartments project (hereinafter referred to as Project) in the City of Lake Elsinore, California. The proposed Project will consist of the construction of 81 apartment dwelling units. The Project site is located on the west side of Mission Trail, south of Hidden Trail. Access to the Project site will be provided via one (1) unsignalized driveway along Mission Trail, which will be aligned with the access for the existing U-Wash self-serve car wash on the east side of Mission Trail. The proposed Project is expected to be completed and fully occupied by Year 2019.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts the Project may have on the local network in the vicinity of the Project site. The traffic impact analysis evaluates the operating conditions at one (2) key study intersections and one (1) key study roadway segment within the Project vicinity, estimates the trip generation potential of the Project and forecasts near-term operating conditions with the Project.

This traffic impact analysis report satisfies the *Riverside County Transportation Department Traffic Impact Analysis Preparation Guide (April 2008)* and is consistent with the requirements and procedures outlined in the *Riverside County Congestion Management Program (CMP).* The Scope of Work for this traffic study, which is included in ***Appendix A***, was developed in conjunction with City of Lake Elsinore staff.

The Project site has been visited and an inventory of adjacent area roadways and intersections made. In support of detailed intersection capacity analyses, existing traffic count information has been compiled.

Existing peak hours and daily traffic information has been collected at the key study intersections and roadway segment, respectively, on a "typical" weekday for use in the preparation of intersection and roadway segment level of service calculations. This traffic report analyzes Existing (Year 2016) and Year 2019 AM peak hour, PM peak hour, and weekday daily traffic conditions with the proposed Project.

1.1 Study Area

1.1.1 *Intersections*

Two (2) key study intersections were selected for evaluation based on discussions with City of Lake Elsinore staff. The key study intersections listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation:

1. Mission Trail at Hidden Trail/Elberta Road
2. Mission Trail at Olive Street

1.1.2 *Roadway Segments*

The study roadway segment listed below is a location that could potentially be impacted by the Project. The one (1) roadway segment listed below was selected based on the arterial network within the study area and discussions with City of Lake Elsinore staff:

1. Mission Trail, between Hidden Trail/Elberta Road and Sedco Boulevard

1.2 Traffic Impact Analysis Components

The Highway Capacity Manual (HCM) Delay, Volume to Capacity (V/C) Ratio, and corresponding Level of Service (LOS) calculations at the key study locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative traffic, and the Project. When necessary, this report recommends intersection and/or roadway segment improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or addresses the impact of the Project. Included in this Traffic Impact Analysis are:

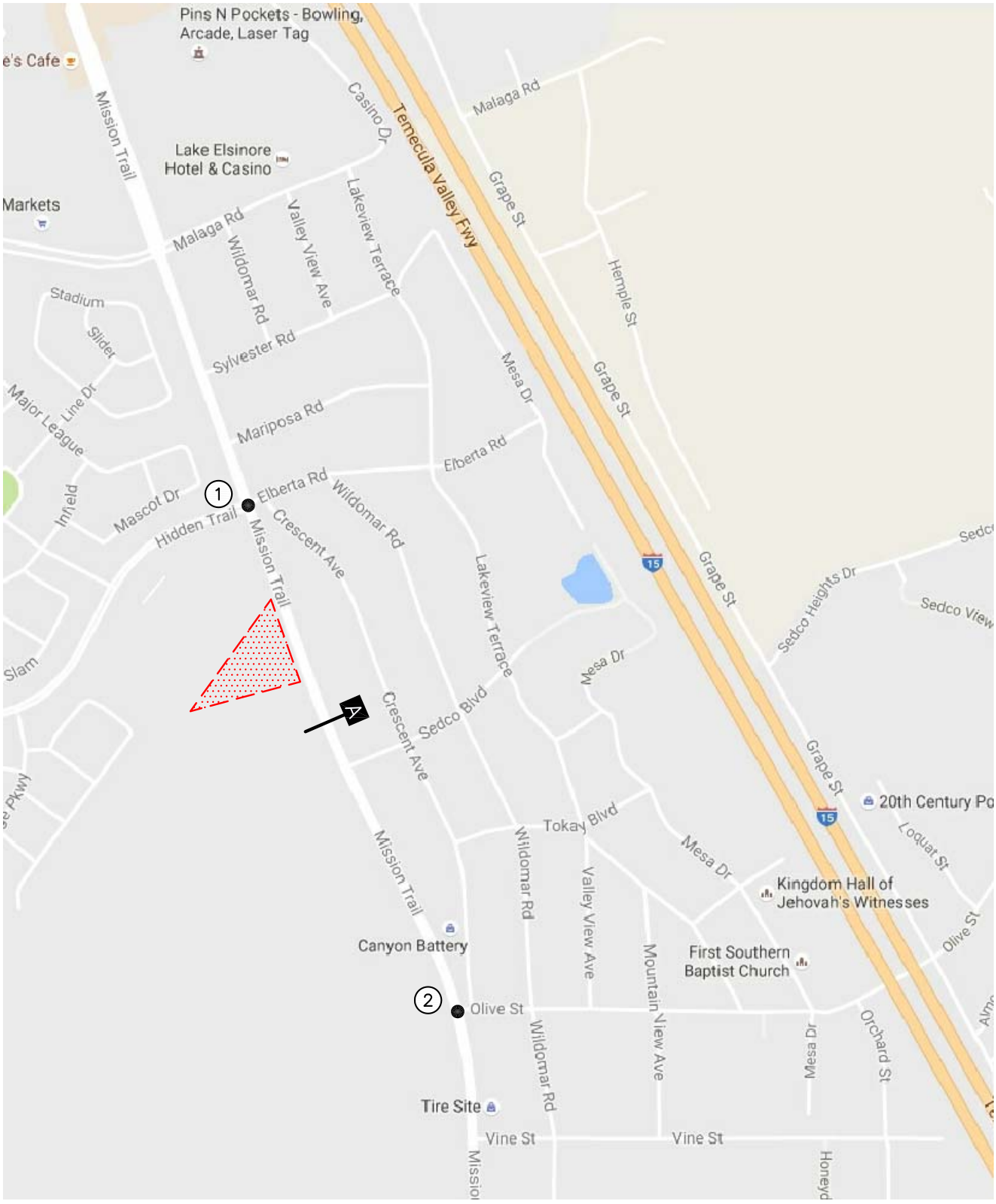
- Existing traffic counts,
- Estimated Project traffic generation/distribution/assignment,
- Weekday Daily, AM peak hour, and PM peak hour LOS analyses for Existing (Year 2016) conditions,
- Weekday Daily, AM peak hour, and PM peak hour LOS analyses for Existing (Year 2016) conditions with Project traffic,
- Weekday Daily, AM peak hour, and PM peak hour LOS analyses for Existing with Ambient Growth (Year 2019) with Project traffic,
- Weekday Daily, AM peak hour, and PM peak hour LOS analyses for Existing with Ambient Growth (Year 2019) with Cumulative traffic conditions with Project traffic,
- Project-Specific Traffic Improvements,
- Project Fair-Share Contribution towards improvements, if any,
- Site Access and On-Site Circulation Analysis, and
- Congestion Management Program (CMP) Conformance.

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system.

1.3 Traffic Impact Analysis Scenarios

The following scenarios are those for which Delay/"V/C" and corresponding LOS calculations have been performed at the key intersections and key roadway segments for existing and near-term traffic conditions:

1. Existing (Year 2016) Traffic Conditions
2. Existing With Project Traffic Conditions,
3. Scenario (2) With Recommended Improvements, if any,
4. Existing With Ambient Growth (Year 2019) With Project Traffic Conditions,
5. Scenario (4) With Recommended Improvements, if any,
6. Existing With Ambient Growth (Year 2019) With Project With Cumulative Traffic Conditions, and
7. Scenario (6) With Recommended Improvements, if any.



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SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1-1

VICINTY MAP

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

2.0 PROJECT DESCRIPTION AND LOCATION

The Project is located in the City of Lake Elsinore, California. The proposed Project will consist of the construction of 81 apartment dwelling units. The Project site is located on the west side of Mission Trail, south of Hidden Trail. Vehicular access to the Project site will be provided via one (1) unsignalized driveway along Mission Trail, which will be aligned with the access for the existing U-Wash self-serve car wash on the east of Mission Trail. The proposed Project is expected to be completed and occupied by Year 2019.

Figure 2-1 presents an aerial image of the existing site for the proposed Project. ***Figure 2-2*** presents the proposed site plan prepared by Graham Architectural.

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SOURCE: GOOGLE

KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE AERIAL

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

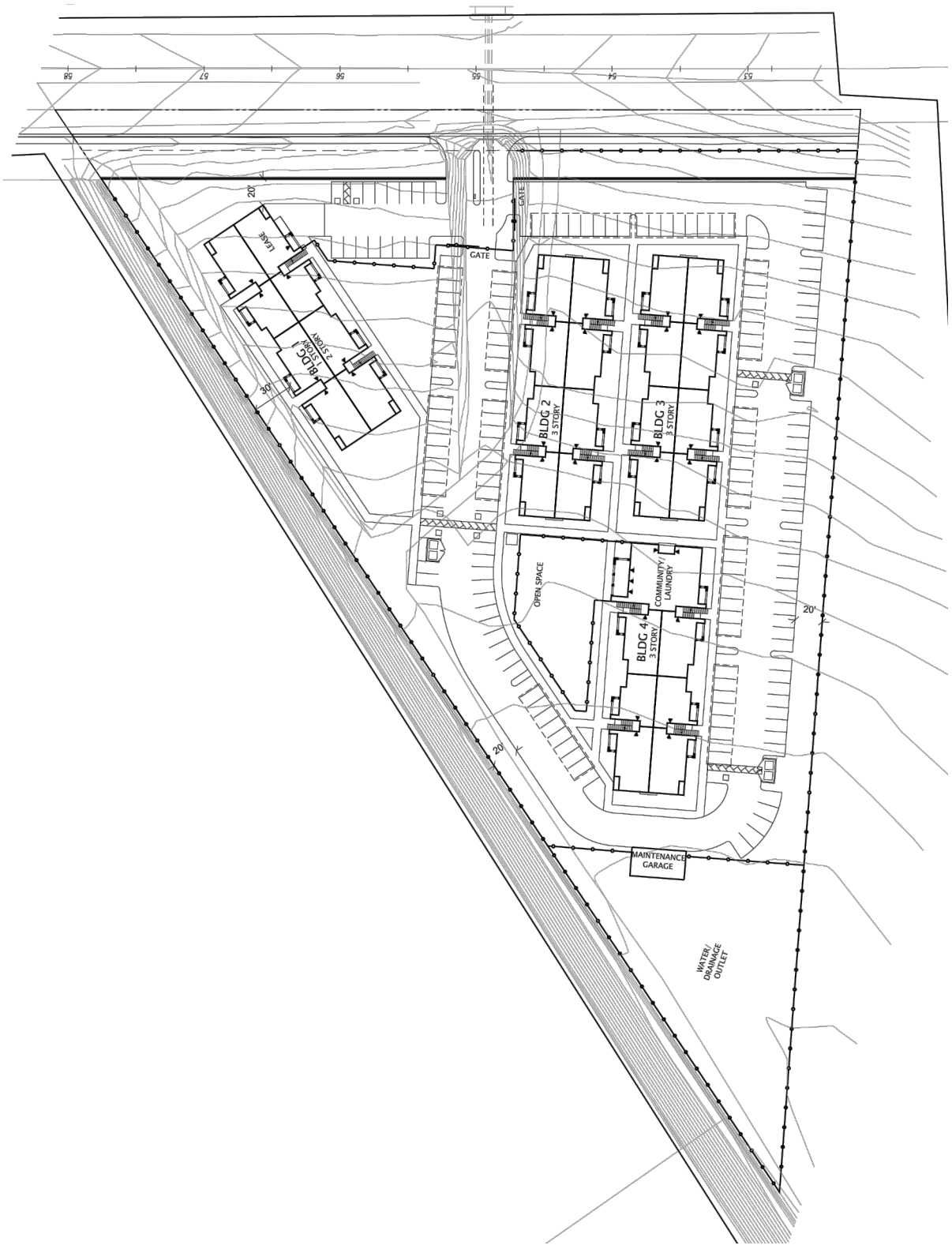

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FIGURE 2-2

PROPOSED SITE PLAN

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

3.0 ANALYSIS CONDITIONS AND METHODOLOGY

3.1 Existing Street Network

The I-15 freeway provides primary regional access to the proposed Project. The I-15 Freeway runs in the north-south direction, northeast of the Project site. The principal street serving the Project site is Mission Trail. The following discussion provides a brief synopsis of the key area street.

Mission Trail is a four-lane, divided roadway oriented in the north-south direction. Mission Trail borders the Project site to the east. On-street parking is not permitted on either side of the roadway within the Project vicinity. The posted speed on Mission Trail is 50 mph.

Figure 3-1 presents an inventory of the existing roadway conditions within the study area evaluated in this report. The number of travel lanes and intersection controls for the key area study intersections and roadway segments are identified. It should be noted that for the purposes of this report, an undivided roadway is a roadway where the opposing travel lanes are separated by a raised or striped median or a two-way-left-turn-lane.

3.2 Existing Traffic Volumes

Existing weekday AM and PM peak hour traffic volumes for the two (2) existing key study intersections and daily two-way traffic volumes for the one (1) key roadway segment evaluated in this report, were collected by *Counts Unlimited, Inc.* in December 2016. Existing volumes at the U-Wash self-serve car wash (located across from the Project site) were estimated using ITE Land Use 947: Self-Service Car Wash trip rates for five (5) wash stalls. It should be noted that ITE does not provide rates for the AM peak hour. However, based on information provided by the U-Wash car wash, any traffic during the AM peak hour will be nominal; therefore, no trips were added during the AM peak hour.

Appendix B contains the existing intersection turning movement and roadway segment traffic count data.

Figures 3-2 and ***3-3*** present the existing AM and PM peak hour traffic volumes, respectively, for the two (2) existing key study intersections. In addition, *Figure 3-3* also presents the existing daily traffic volumes for the key study roadway segment.

3.3 Level Of Service (LOS) Analysis Methodologies

Weekday AM and PM peak hour operating conditions for the key study intersections were evaluated using the *Highway Capacity Manual 2010 (HCM 2010)* methodology. Daily operating conditions for the key study roadway segment were analyzed using the V/C Ratio.

3.3.1 *Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)*

Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an

intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in ***Table 3-1***.

3.3.2 *Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

3.3.2.1 Two-Way Stop-Controlled Intersections

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections are shown in ***Table 3-2***.

3.3.3 *Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)*

In conformance with the City of Lake Elsinore requirements, daily operating conditions for the key study roadway segments have been investigated according to the V/C Ratio of each roadway segment. The V/C relationship is used to estimate the LOS of the roadway segment with the volume based on the 24-hour traffic volumes and the capacity based on the City's classification of each roadway. The six qualitative categories of Level of Service have been defined along with the corresponding V/C value range and are shown in ***Table 3-3***.

The roadway segment daily capacity of each street classification according to the *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011)* is presented in ***Table 3-4***.

3.4 Impact Criteria and Thresholds

City of Lake Elsinore

According to City of Lake Elsinore criteria, LOS D is the minimum acceptable condition that should be maintained during the AM and PM peak commute hours. Therefore, any City intersection operating at LOS "E" or "F" will be considered adverse. However, as noted by the *City of Lake Elsinore General Plan Update Draft Program EIR* on page 3.4-58, the City considers LOS "E" as acceptable for City intersections located within either the Main Street Overlay District or the Ballpark District in an effort to increase activity and revitalize these areas. The one (1) key roadway segment must also maintain LOS "D" or better.

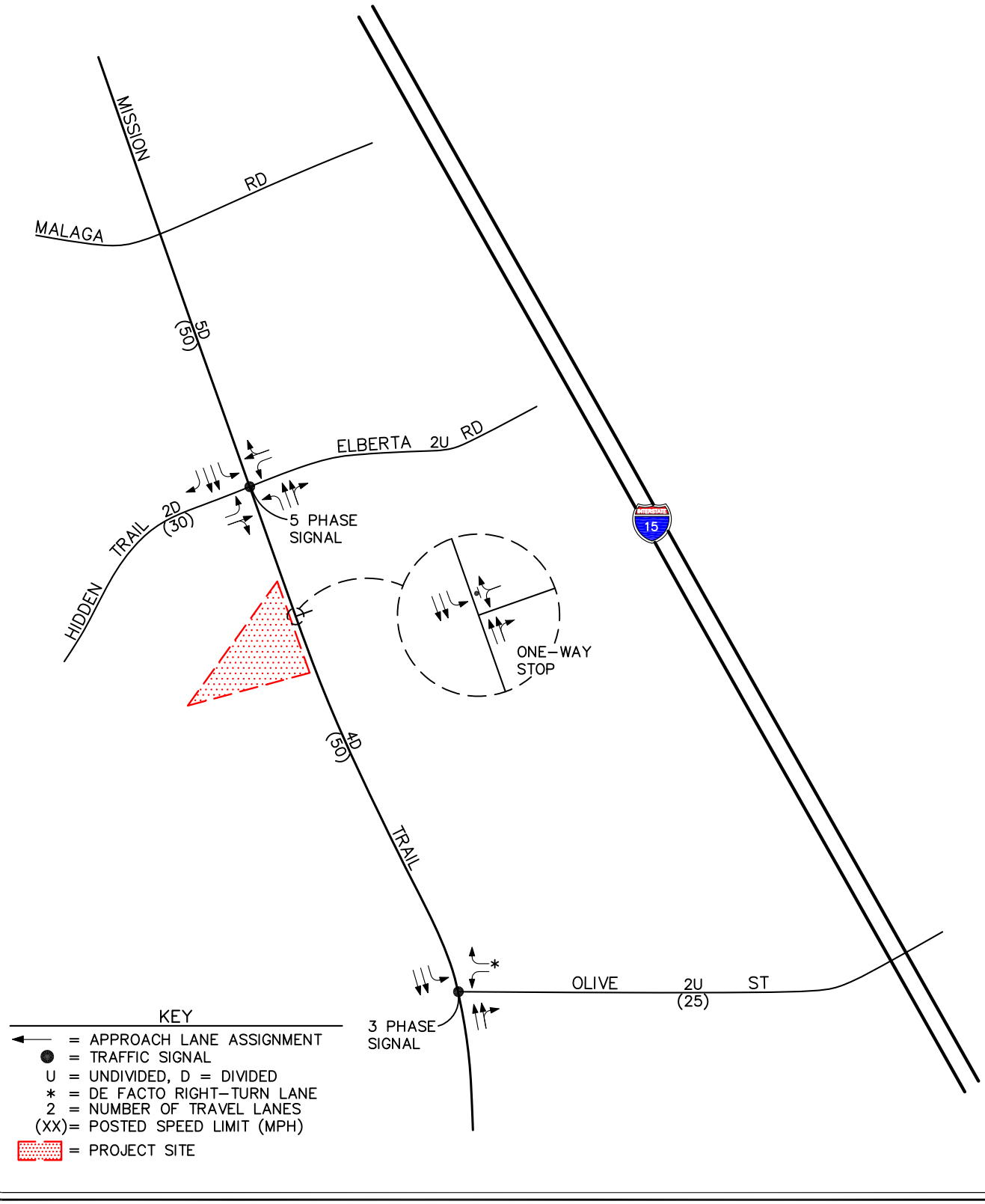

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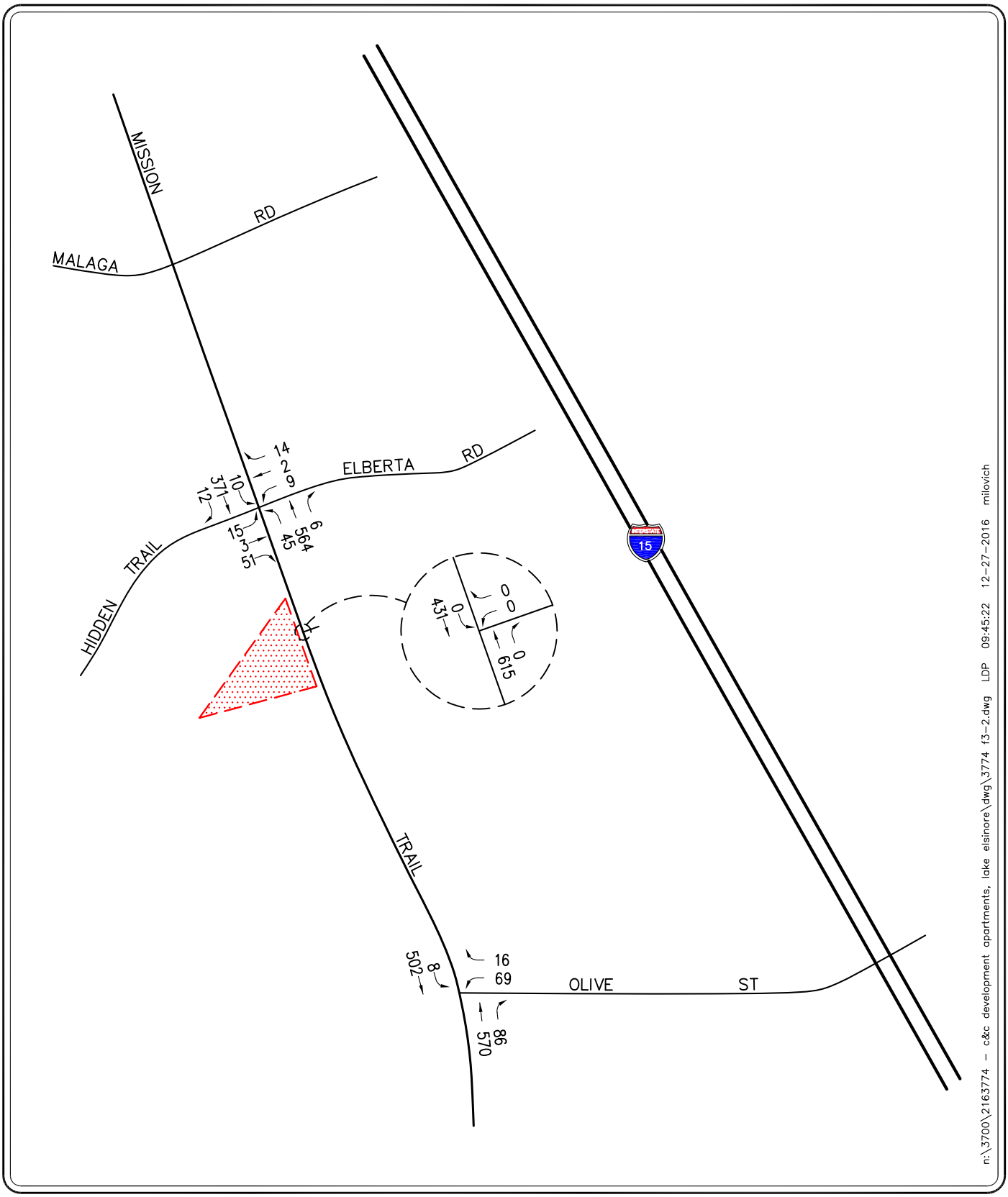
FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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KEY

= PROJECT SITE

FIGURE 3-2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

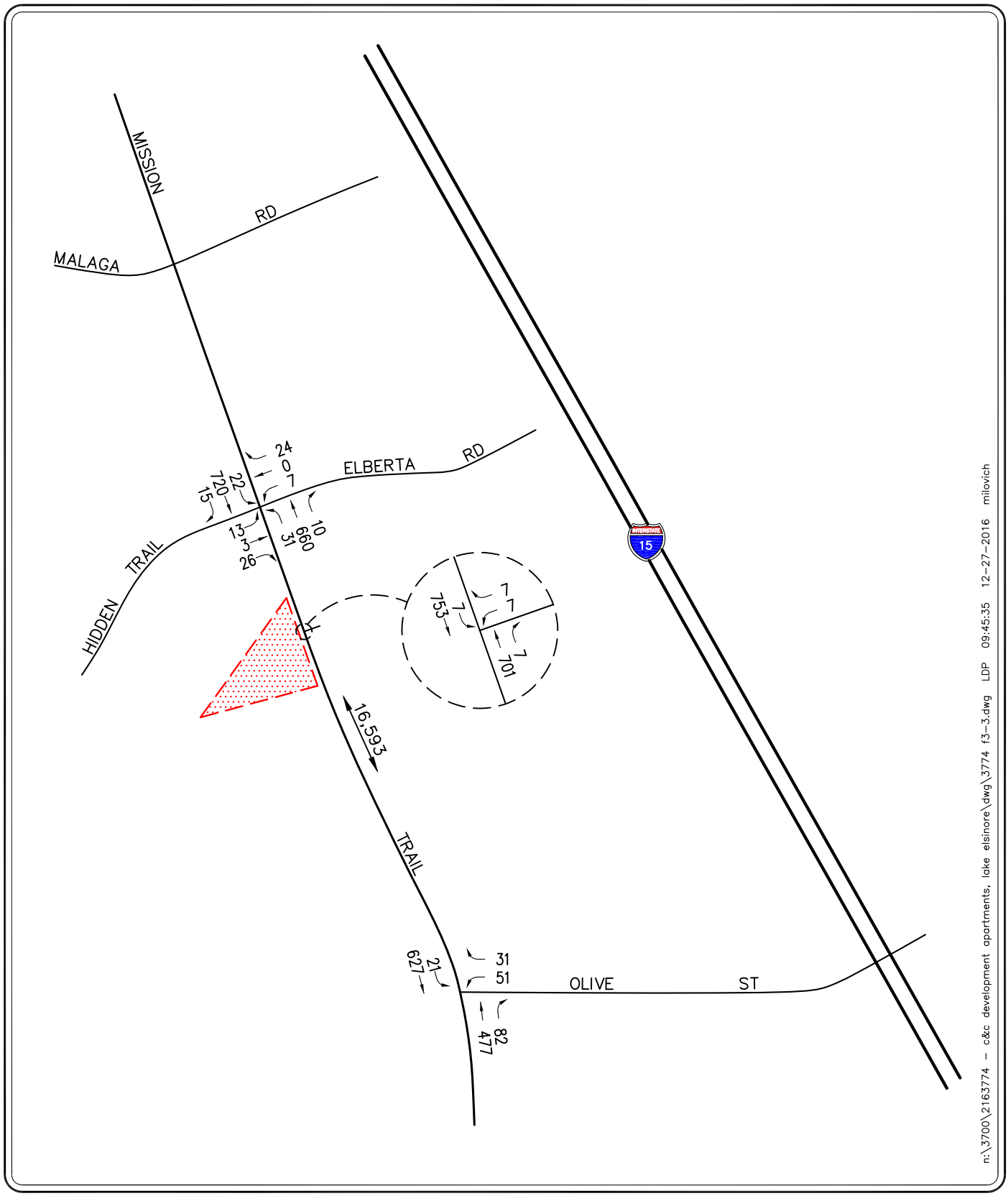

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FIGURE 3-3

EXISTING PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)[1]

Control Delay (sec/veh)	Level of Service (LOS)	Level of Service Description
≤ 10	A	This level of service occurs when the v/c ratio is low and either progression is exceptionally favorable or the cycle length is very short.
> 10-20	B	This level generally occurs when the v/c ratio is low and either progression is highly favorable or the cycle length is short.
> 20-35	C	Average traffic delays. These higher delays may result when progression is favorable or the cycle length is moderate. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
> 35-55	D	Long traffic delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop and individual cycle failures are noticeable.
> 55-80	E	Very long traffic delays. This level is considered by many agencies (i.e. SANBAG) to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent.
> 80	F	Severe congestion. This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[1] Source: *Highway Capacity Manual 2010*, Chapter 18: Signalized Intersections.

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY)[2]

Control Delay (sec/veh)	Level of Service (LOS)	Level of Service Description
0-10	A	Little or no delay
> 10-15	B	Short traffic delays
> 15-25	C	Average traffic delays
> 25-35	D	Long traffic delays
> 35-50	E	Very long traffic delays
> 50	F	Severe congestion

[2] Source: *Highway Capacity Manual 2010*, Chapter 19: Two-Way Stop-Controlled Intersections and Chapter 20: All-Way Stop-Controlled Intersections.

TABLE 3-3

LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS (V/C METHODOLOGY)[3]

Level of Service (LOS)	Volume to Capacity Ratio (V/C)	Level of Service Description
A	≤ 0.600	**EXCELLENT**. Describes primarily free flow operations at average travel speeds, usually about 90% of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	0.601 – 0.700	**VERY GOOD**. Represents reasonably unimpeded operations at average travel speeds, usually about 70% of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
C	0.701 – 0.800	**GOOD**. Represents stable conditions; however, ability to maneuver and change lanes in mid-block location may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50% of the average free flow speed for the arterial class. Motorists will experience appreciable tension while driving.
D	0.801 – 0.900	**FAIR**. Borders on a range in which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40% of free flow speed.
E	0.901 – 1.000	**POOR**. Characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
F	> 1.000	**FAILURE**. Characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with resultant high approach delays. Adverse progression is frequently a contributor to this condition.

Note:

- **LOS F** applies whenever the flow rate exceeds the segment capacity.

[3] Source: *Transportation Research Board 2000.*

TABLE 3-4

DAILY ROADWAY SEGMENT CAPACITIES[4]

Type of Arterial	Lane Configuration	LOS E Capacity (VPD)
Urban Arterial	8-Lanes	71,800
Urban Arterial	6-Lanes	53,900
Major	4-Lanes	34,100
Secondary	4-Lanes	25,900
Divided Collector	4-Lanes	18,000
Collector	2-Lanes	13,000

Notes:

- VPD = Vehicles per Day

[4] Source: *City of Lake Elsinore General Plan Update Draft Program EIR – Section 3.4: Transportation and Circulation,* August 2011.

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations and/or rates to the Project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds.

Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway segments and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast Project traffic. If necessary, the need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the Ninth Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2012].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project, and the lower part presents the forecast daily and peak hour Project traffic volumes for a "typical" weekday. As shown, the trip generation potential of the proposed Project was estimated using ITE Land Use 220: Apartments trip rates.

Review of *Table 5-1* shows that the proposed Project is forecast to generate 539 daily trips, with 41 trips (8 inbound, 33 outbound) forecast during the AM peak hour and 50 trips (33 inbound, 17 outbound) forecast during the PM peak hour on a "typical" weekday.

5.2 Project Traffic Distribution and Assignment

The Project directional trip distribution pattern is presented in ***Figure 5-1***. Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers,
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals; and
- ingress/egress availability at the Project site.

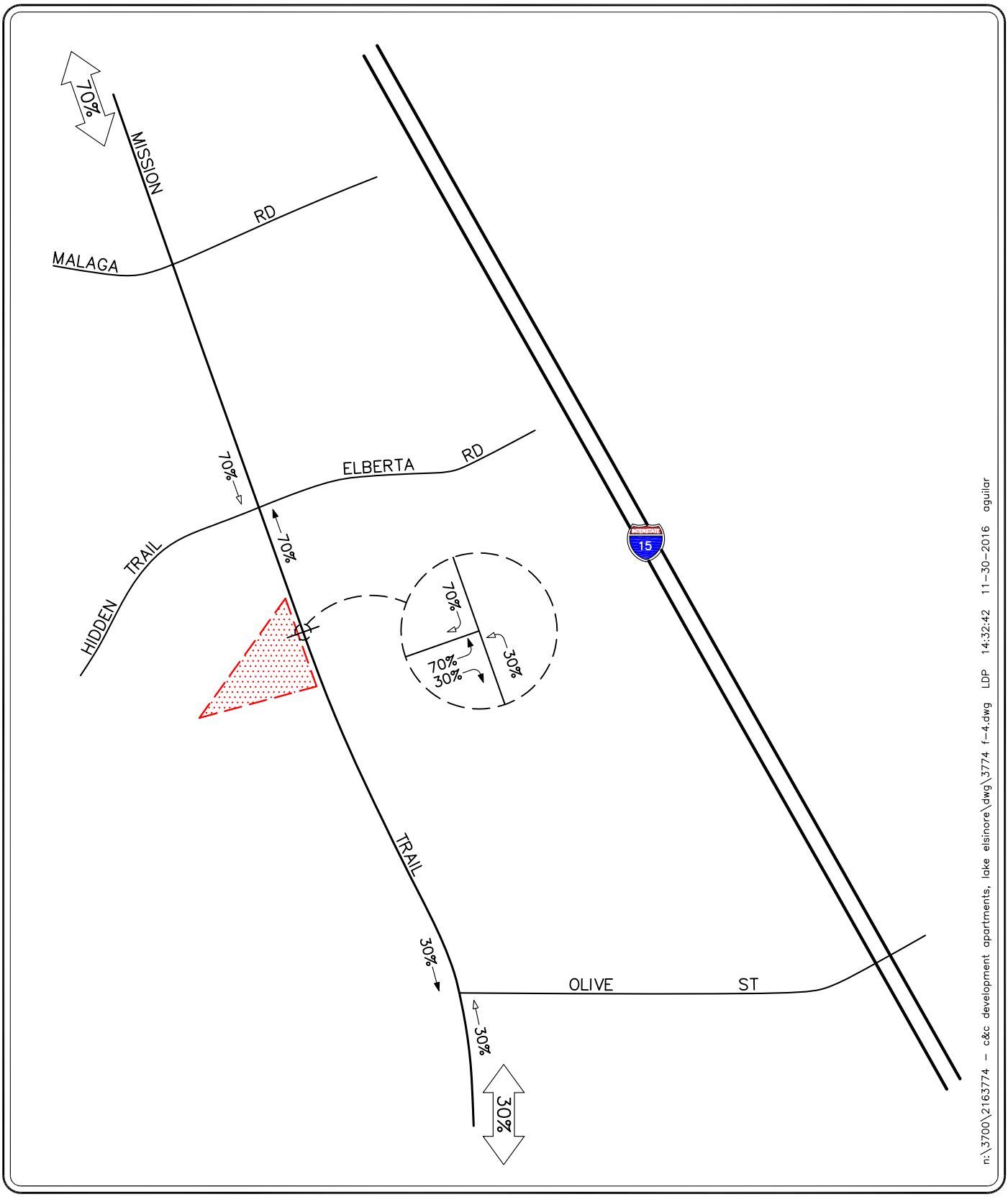
The anticipated AM and PM peak hour Project traffic volumes at the two (2) key study intersections are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignments presented in the above mentioned figures reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in the lower portion of *Table 5-1*.

TABLE 5-1

PROJECT TRAFFIC GENERATION RATES AND FORECAST[5]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
▪ 220: Apartment (TE/DU)	6.65	20%	80%	0.51	65%	35%	0.62
Proposed Project Generation Forecasts:							
▪ Mission Trail Apartments (81 DU)	539	8	33	41	33	17	50
Project Trip Generation	***539***	***8***	***33***	***41***	***33***	***17***	***50***

5 Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)].



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N NO SCALE

KEY

= INBOUND PERCENTAGE

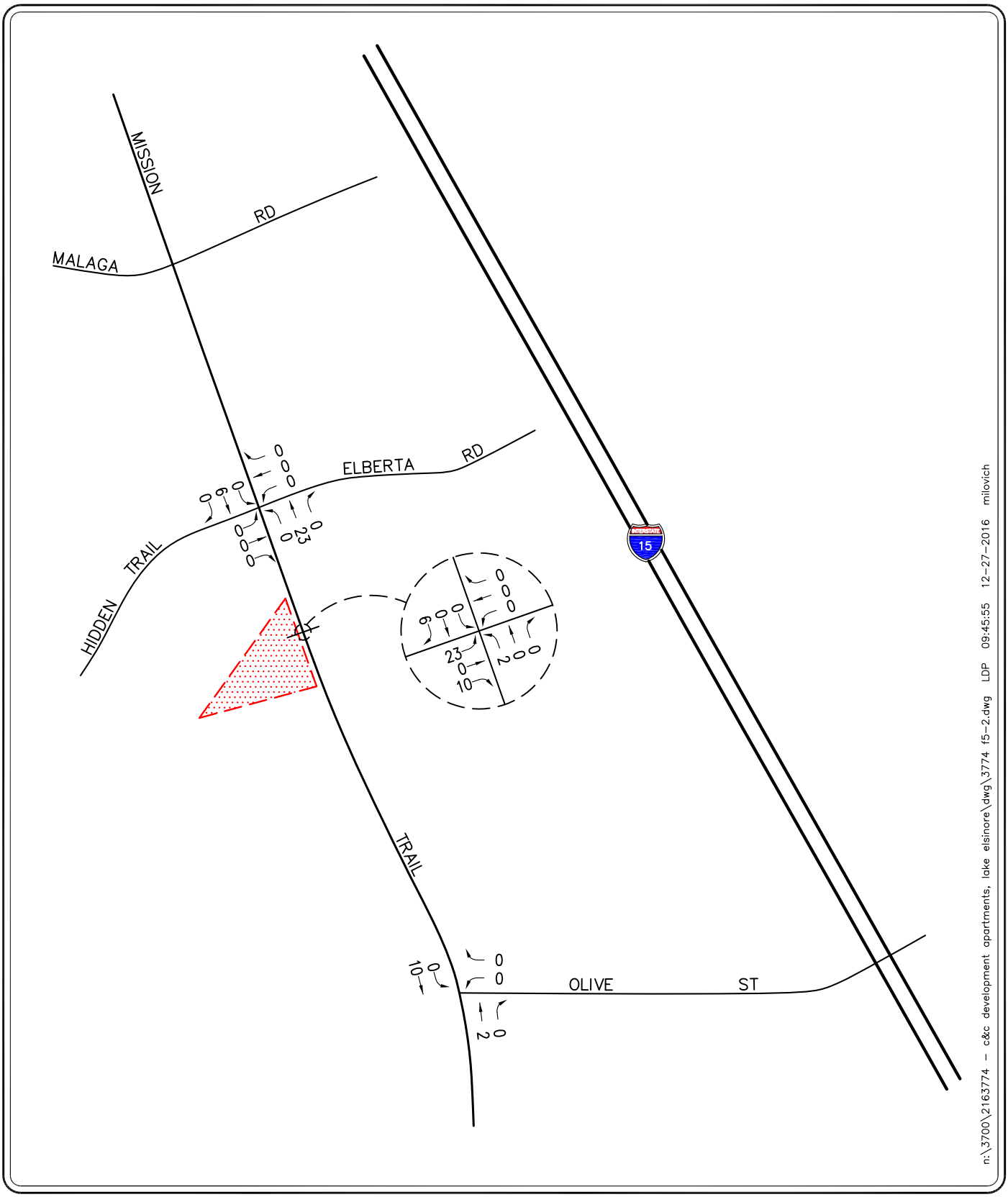
= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 5-1

PROJECT TRIP DISTRIBUTION PATTERN

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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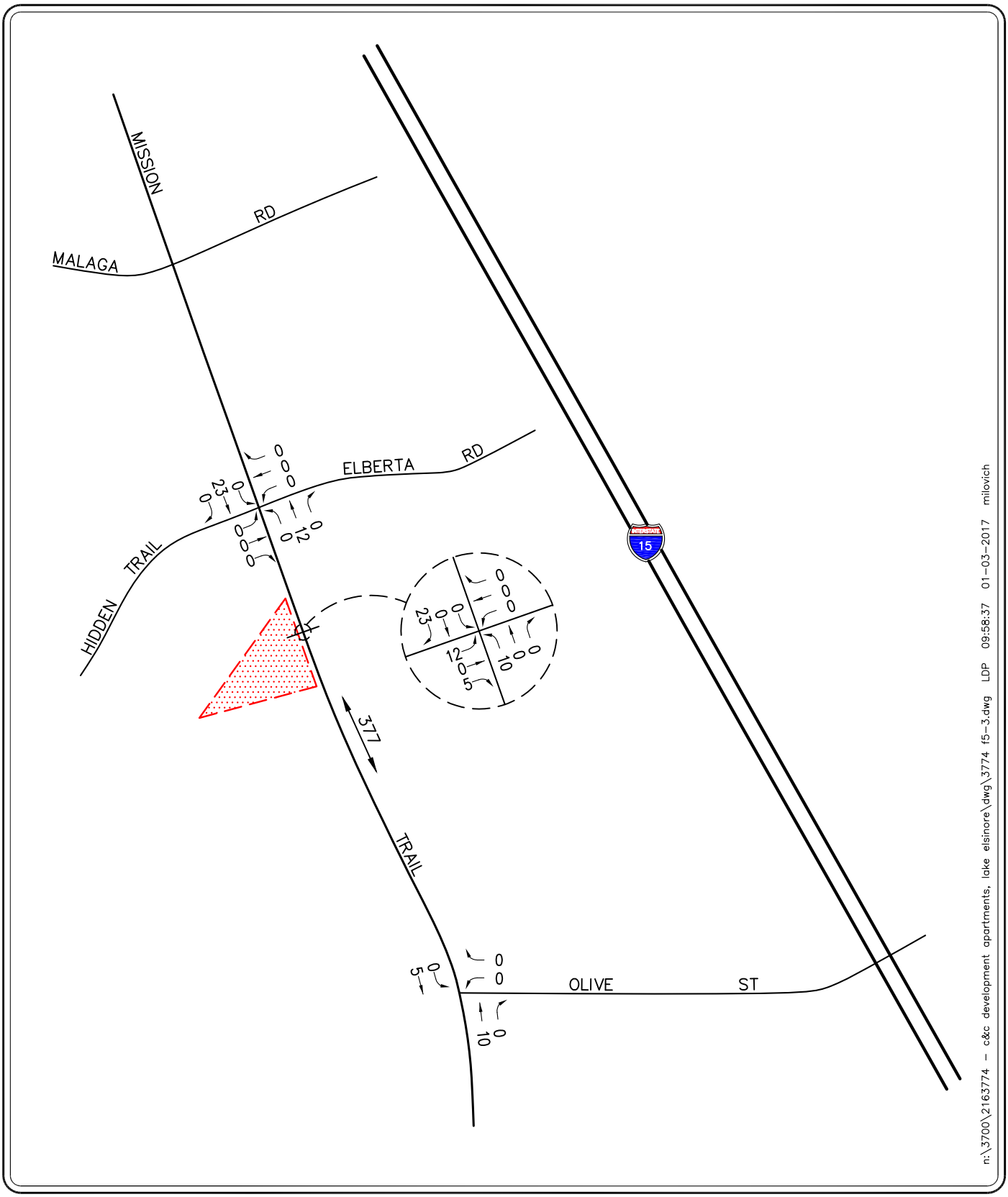
N NO SCALE

KEY
= PROJECT SITE

FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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N NO SCALE

KEY

= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR AND DAILY PROJECT TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Existing With Project Traffic Volumes

The estimates of Project generated traffic volumes were added to the Existing traffic conditions to develop traffic projections for the Existing With Project traffic conditions. ***Figures 6-1*** and ***6-2*** present the anticipated AM and PM peak hour Existing With Project traffic volumes, respectively, at the two (2) key study intersections. *Figure 6-2* also presents the Existing With Project daily traffic volumes for the key study roadway segment.

6.2 Year 2019 Traffic Volumes

6.2.1 *Ambient Traffic Growth*

Near-term horizon year traffic growth estimates have been calculated using an ambient growth factor. The ambient growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The application of the two percent (2%) annual growth rate to baseline Year 2016 traffic volumes results in a six percent (6%) growth in existing baseline volumes at the key study intersections to horizon year 2019.

6.2.2 *Cumulative Projects Traffic Characteristics*

In order to make a realistic estimate of future on-street conditions prior to implementation of the Project, the status of other known development projects (cumulative projects) has been researched at the City of Lake Elsinore and the City of Wildomar. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development. Based on our research, there are fourteen (14) cumulative projects in the City of Lake Elsinore and four (4) cumulative projects in the City of Wildomar within a three mile radius of the subject site that have either been built, but not yet fully occupied, or are being processed for approval. These eighteen (18) cumulative projects have been included as part of the cumulative background setting.

Table 6-1 provides the location and a brief description for each of the eighteen (18) cumulative projects. ***Figure 6-3*** graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the eighteen (18) cumulative projects. As shown in *Table 6-2*, the eighteen (18) cumulative projects are forecast to generate a combined total of 42,625 daily trips, with 2,112 trips (989 inbound and 1,123 outbound) forecast during the AM peak hour and 3,490 trips (1,907 inbound and 1,583 outbound) forecast during the PM peak hour.

The AM and PM peak hour traffic volumes associated with the eighteen (18) cumulative projects in the Year 2019 are presented in ***Figures 6-4*** and ***6-5***, respectively. In addition, *Figure 6-5* also presents the cumulative projects daily traffic volumes for the key study roadway segment.

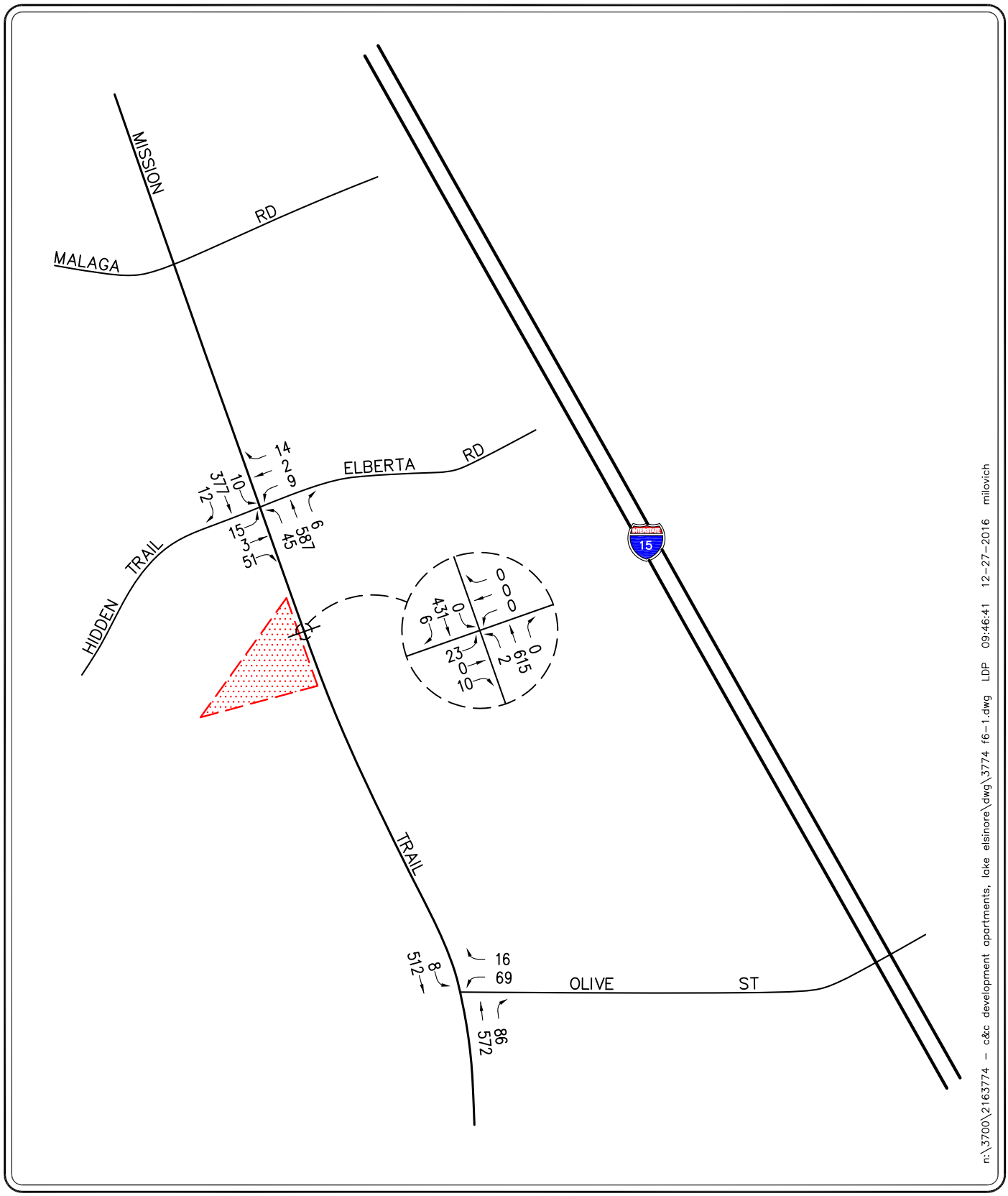
Cumulative project trips were developed using the rates/equations contained within the 9th Edition of *Trip Generation* and distributed to the study area using traffic engineering judgment and/or available traffic studies.

6.2.3 *Existing With Ambient Growth (Year 2019) With Project Traffic Volumes*

Figures 6-6 and ***6-7*** illustrate the Year 2019 forecast weekday AM and PM peak hour Existing With Ambient Growth traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively. In addition, *Figure 6-7* also presents the Existing With Ambient Growth With Project daily traffic volumes for the key study roadway segment.

6.2.4 *Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project Traffic Volumes*

Figures 6-8 and ***6-9*** illustrate the Year 2019 cumulative forecast AM and PM peak hour traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively. In addition, *Figure 6-9* also present the Existing With Ambient Growth With Project With Cumulative daily traffic volumes for the key study roadway segment.



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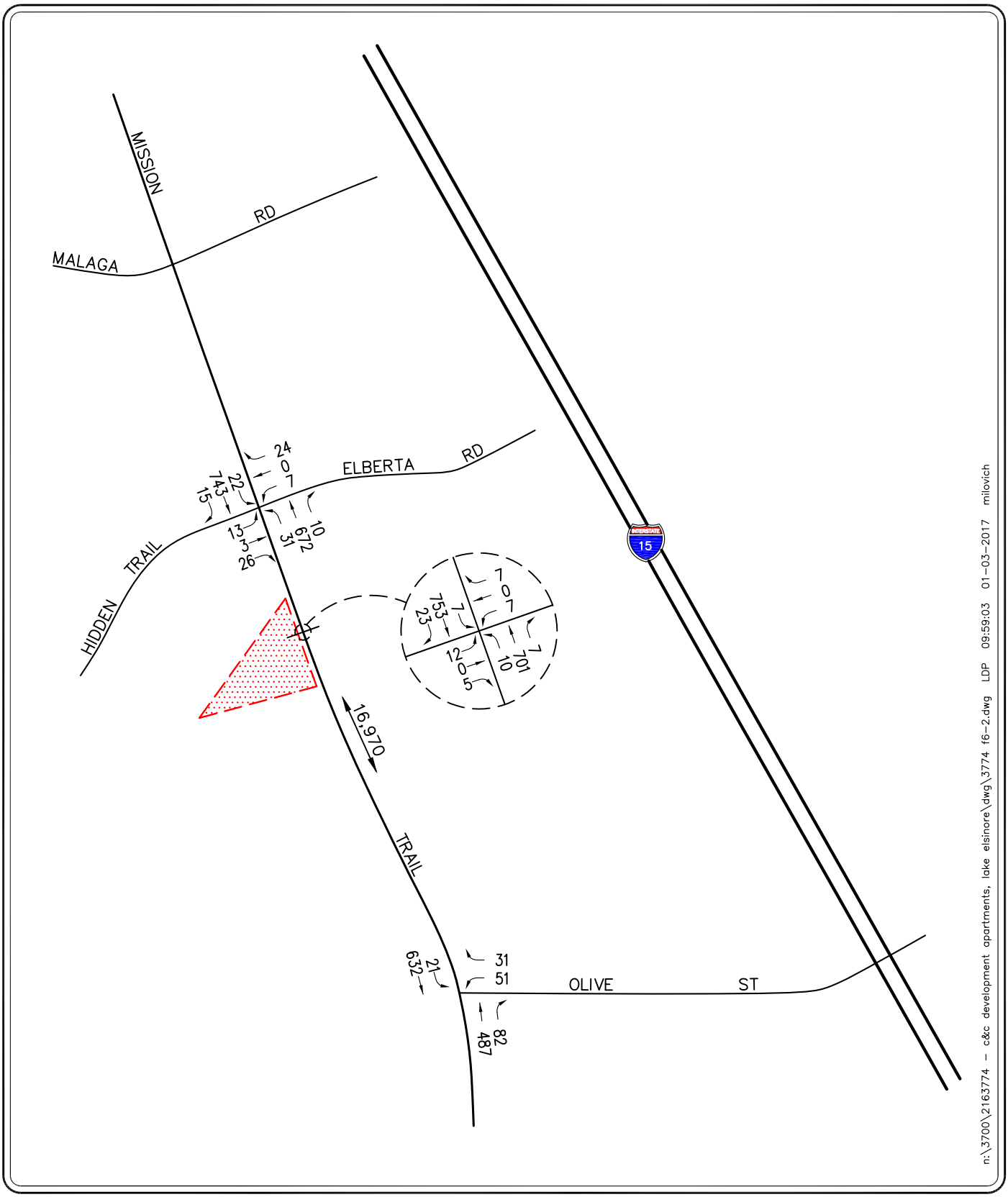
N NO SCALE

KEY
= PROJECT SITE

FIGURE 6-1

EXISTING WITH PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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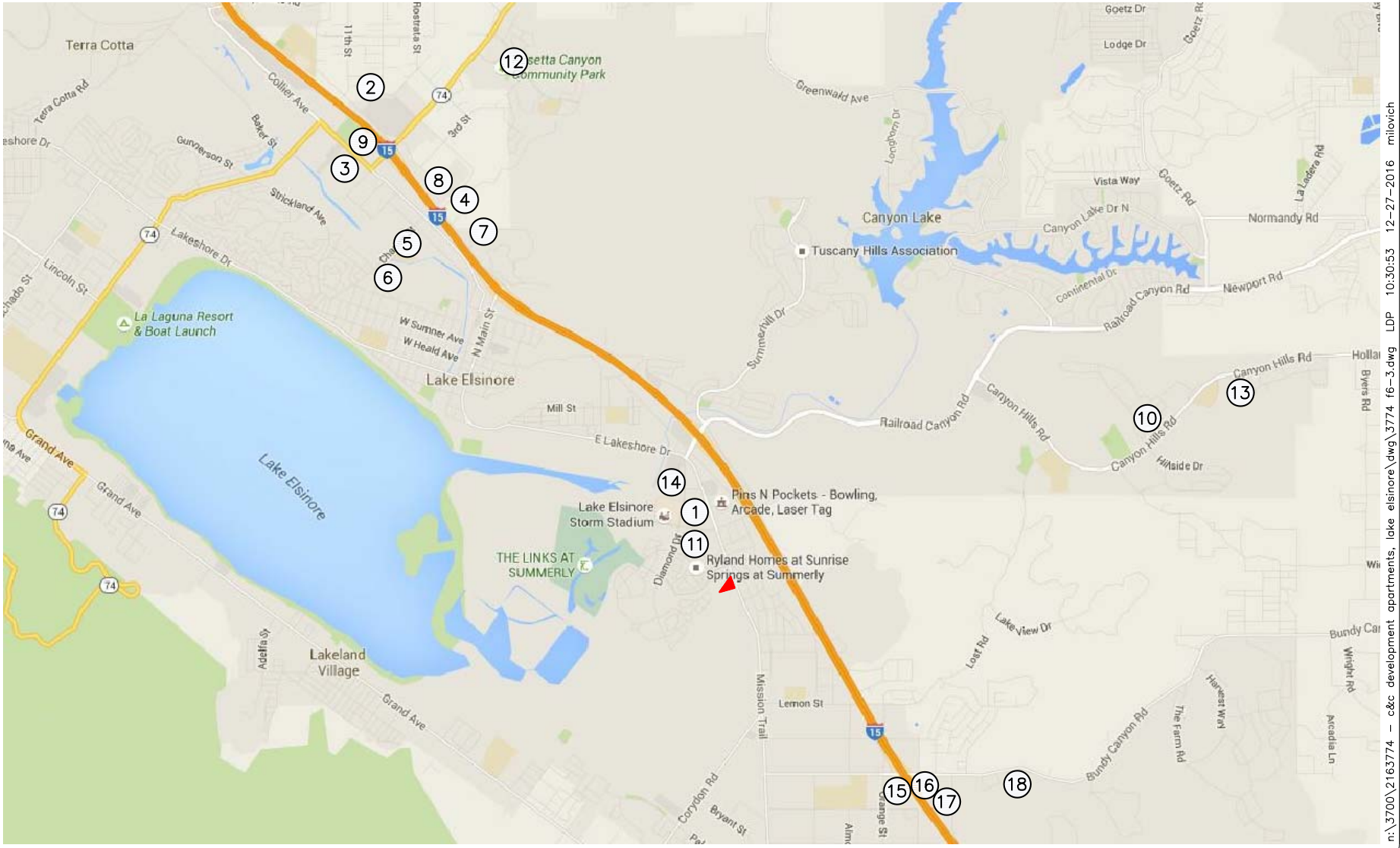
N NO SCALE

KEY
= PROJECT SITE

FIGURE 6-2

EXISTING WITH PROJECT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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KEY

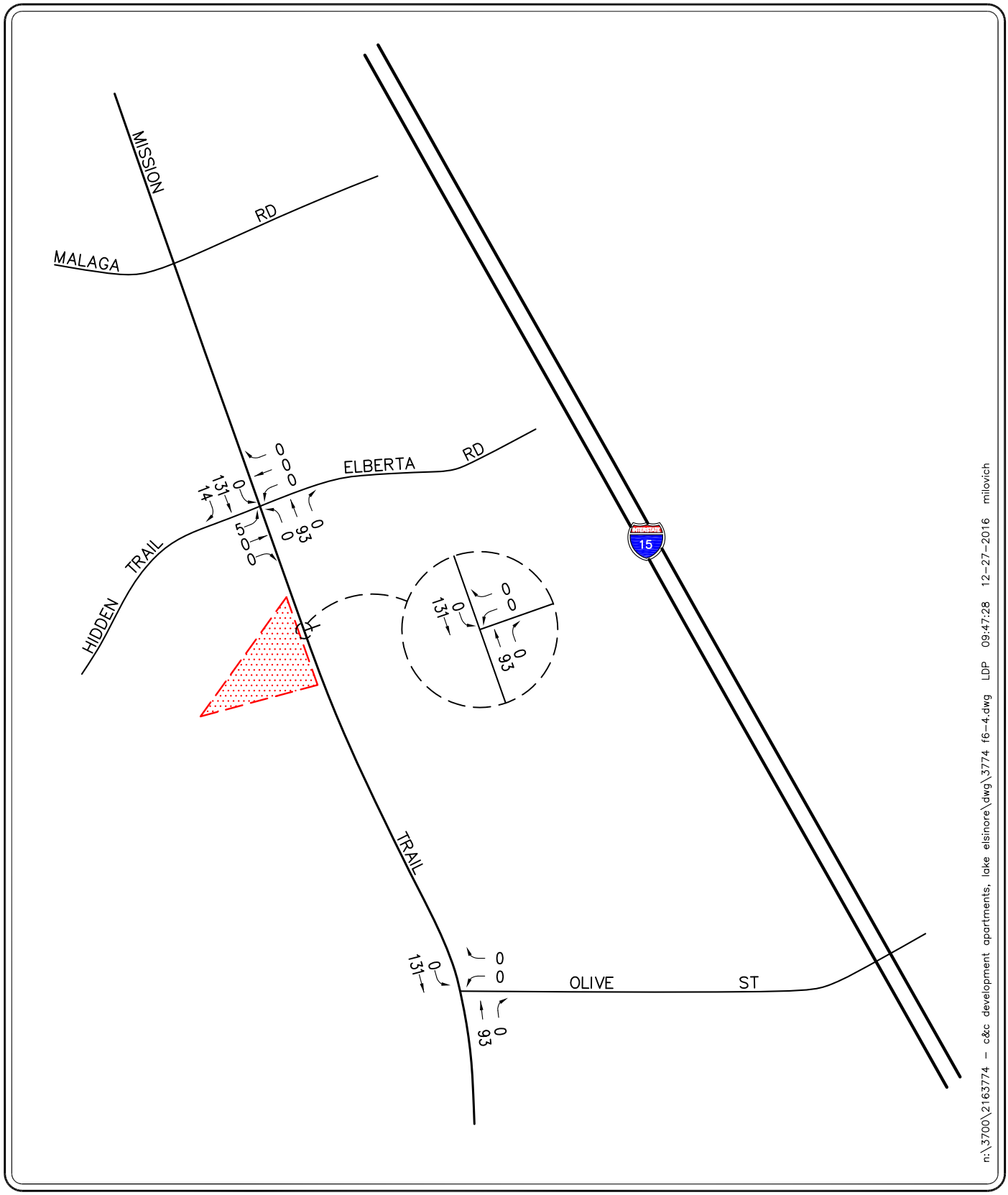
(#) = CUMULATIVE PROJECT LOCATION

= PROJECT SITE

FIGURE 6-3

LOCATION OF CUMULATIVE PROJECTS

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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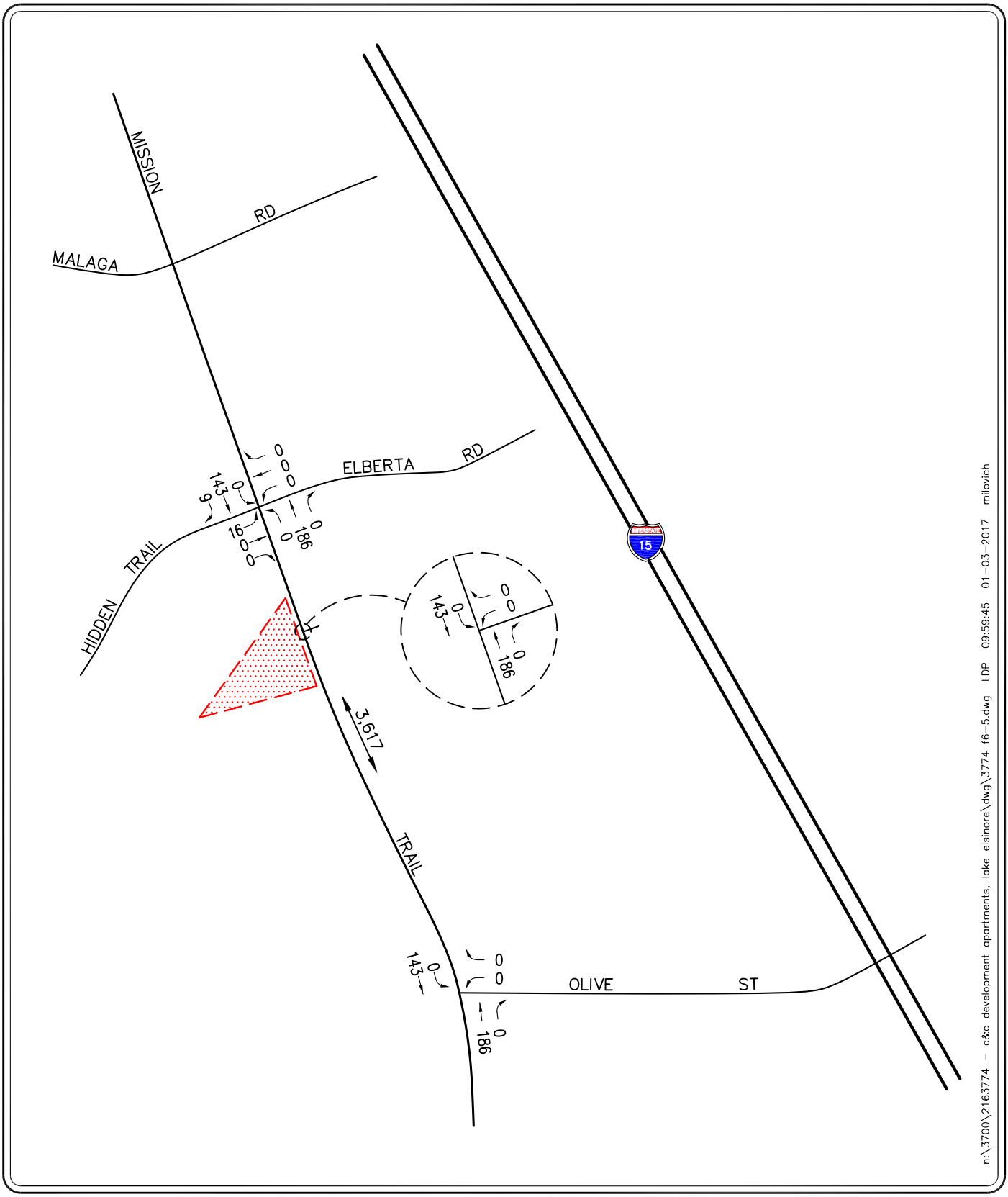
N NO SCALE

KEY

= PROJECT SITE

FIGURE 6-4

CUMULATIVE PROJECTS
AM PEAK HOUR TRAFFIC VOLUMES
MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



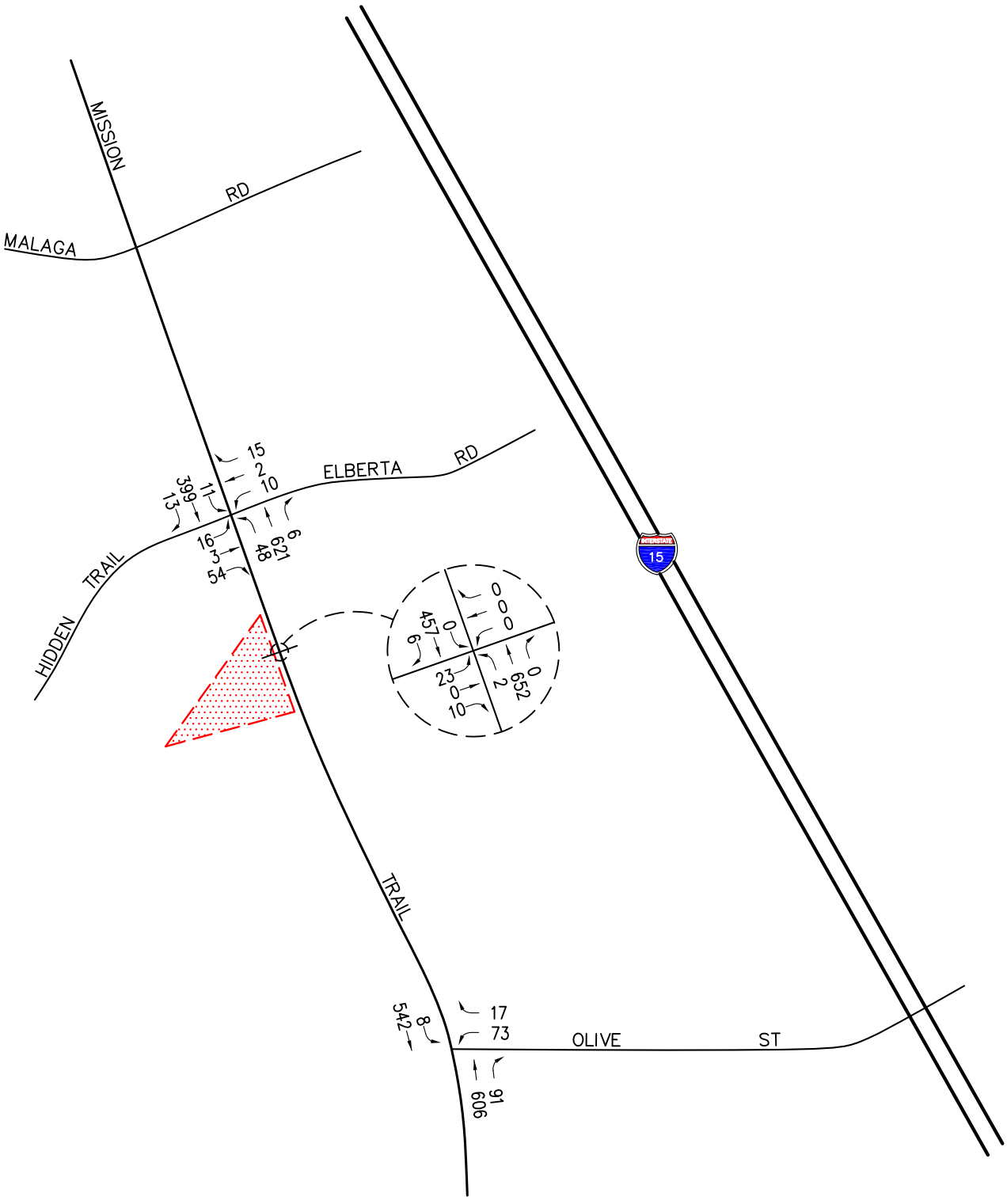
LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
= PROJECT SITE

FIGURE 6-5

CUMULATIVE PROJECTS
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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N NO SCALE

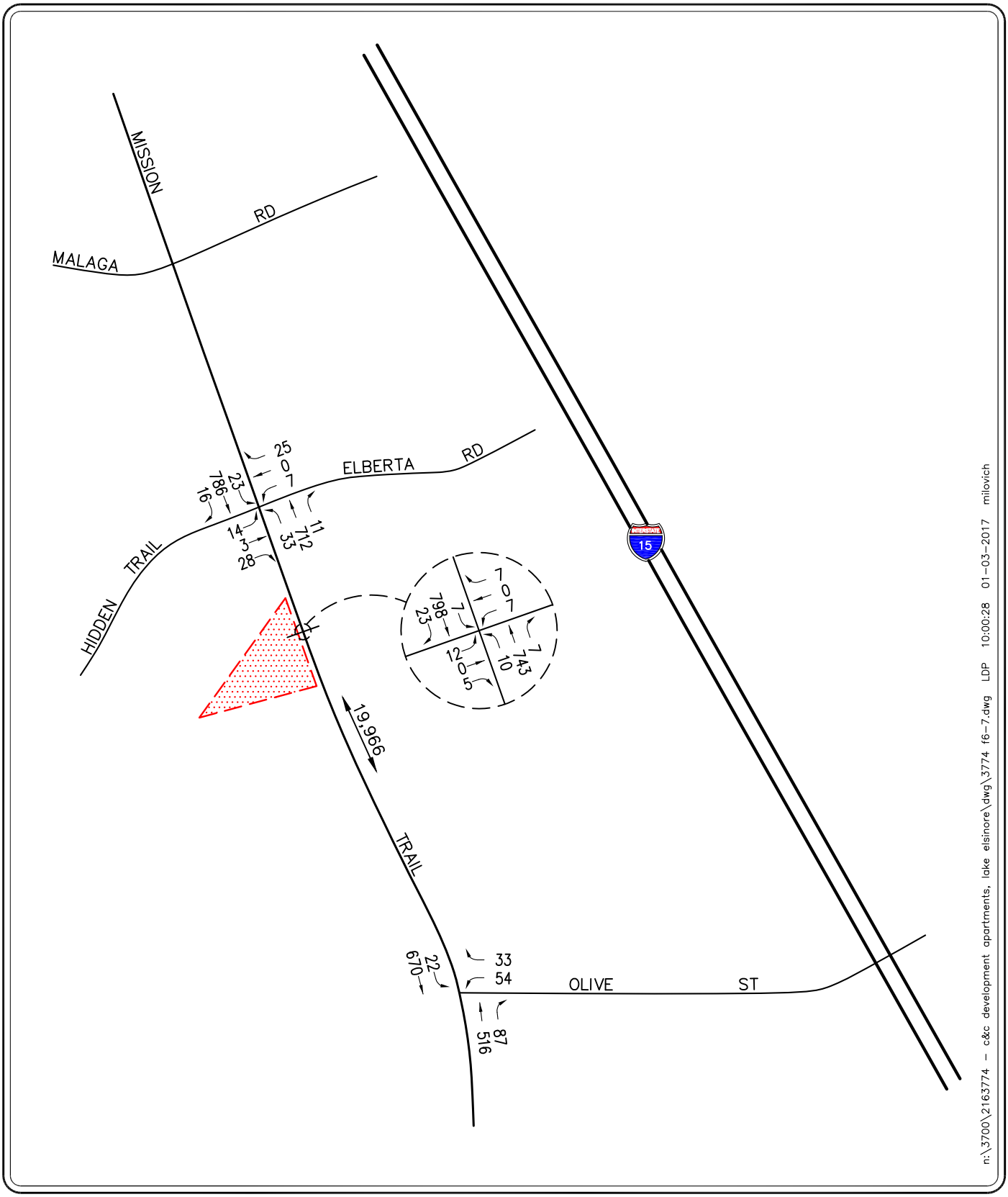
KEY

= PROJECT SITE

FIGURE 6-6

YEAR 2019 EXISTING WITH AMBIENT GROWTH WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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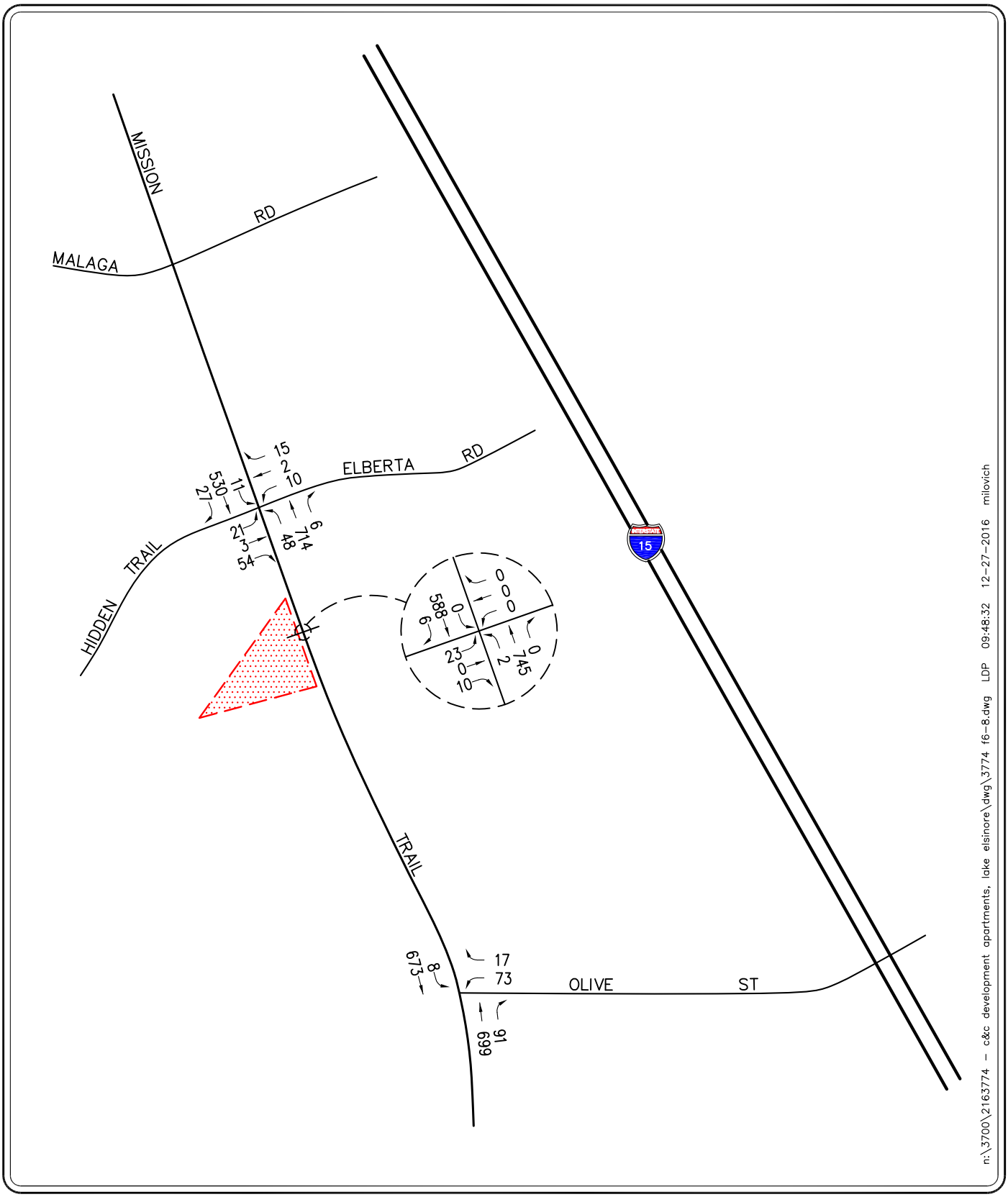
N NO SCALE

KEY
= PROJECT SITE

FIGURE 6-7

YEAR 2019 EXISTING
WITH AMBIENT GROWTH WITH PROJECT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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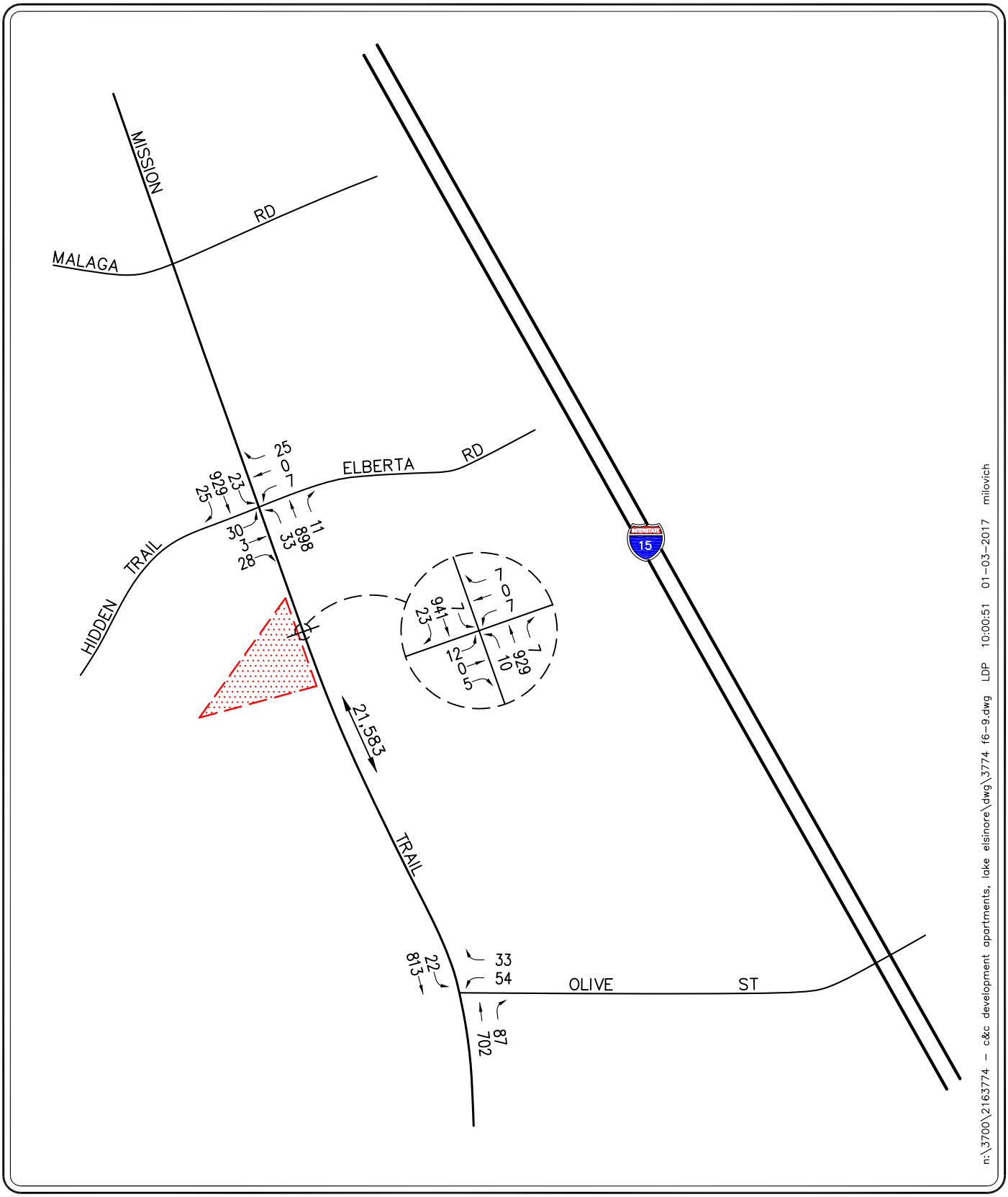
KEY

= PROJECT SITE

FIGURE 6-8

YEAR 2019 EXISTING WITH AMBIENT GROWTH WITH CUMULATIVE PROJECTS WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE



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N NO SCALE

KEY

= PROJECT SITE

FIGURE 6-9

YEAR 2019 EXISTING WITH AMBIENT GROWTH WITH CUMULATIVE PROJECTS WITH PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

MISSION TRAIL APARTMENTS PROJECT, LAKE ELSINORE

TABLE 6-1

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[6]

No.	Cumulative Project	Location/Address	Description
City of Lake Elsinore			
1.	Artisan Alley Mixed Use Commercial Center	Diamond Drive between Malaga Road and Campbell Street	24.500 TSF Brewery, 17.000 TSF Restaurant, 53.600 TSF Retail, 140 Room Hotel
2.	Walmart Superstore & Incidental Commercial	SEC of Central Avenue and Cambern Avenue	154.000 TSF Walmart and 10.000 TSF Retail
3.	Pasadena Industrial Park	Pasadena Street and Hunco Way	142.805 TSF General Light Industrial
4.	Golden Corral Restaurant	SEC of Dexter Avenue and 3rd Street	7.712 TSF Restaurant
5.	Ness Industrial	SWC of Collier Avenue and Birch Street	13.000 TSF General Light Industrial
6.	Fairway Business Park	SWC of Chaney Street and Temescal Wash Channel	19.000 TSF General Light Industrial
7.	Air Stream RV Dealership	NWC of Camino Del Norte and Ohanna Circle	6.120 TSF RV Sales Building
8.	La Quinta Inn Hotel	NWC of Dexter Avenue and 3rd Street	63 Room Hotel
9.	Central Plaza Shopping Center	NEC of Central Avenue and Collier Avenue	72.000 TSF Shopping Center
10.	Canyon Hills Phase 8	NWC of Canyon Hills Road and Railroad Canyon Drive	456 DU Condominium
11.	Summerly (McMillan Homes)	Diamond Drive and Malaga Road	500 DU Single Family Detached
12.	Rosetta Canyon Trieste Homes	SEC of Central Avenue and Rosetta Canyon Drive	74 DU Single-Family Detached
13.	Meadowridge II (Pardee)	Canyon Hills Road near Menifee Border	82 DU Single-Family Detached
14.	Diamond Stadium Indoor Sports Park	NWC of Diamond Drive and Pete Lehr Drive	600 TSF sports center
City of Wildomar			
15.	Orange Bundy/Parcel Map	SEC of Bundy Canyon Road and Orange Street	3.280 TSF Fast-Food Restaurant with Drive-Thru and 12 VHP Gas Station with Convenience Market
16.	Bundy Canyon Plaza	SWC of Monte Vista Drive and Bundy Canyon Road	36.990 TSF Shopping Center

[6] Source: *Cities of Lake Elsinore and Wildomar*.

TABLE 6-1 (CONTINUED)

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[7]

No.	Cumulative Project	Location/Address	Description
17.	Wal-Mart Retail	SWC of Monte Vista Drive and Bundy Canyon Road	185.992 TSF Walmart and 7.800 TSF Retail
18.	Darling/Bundy Canyon Residential	SEC of Valley Vista Circle and Bundy Canyon Road	140 DU Apartment

[7] Source: *Cities of Lake Elsinore and Wildomar*.

TABLE 6-2

CUMULATIVE PROJECTS TRIP GENERATION FORECAST[8]

Cumulative Project Description	Daily 2-Way	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
1. Artisan Alley Mixed Use	5,543	135	105	240	283	174	457
2. Walmart Superstore[9]	8,424	166	125	291	280	295	575
3. Pasadena Industrial Park	995	115	16	131	17	122	139
4. Golden Corral Restaurant	736	41	34	75	26	17	43
5. Ness Industrial	91	11	1	12	2	11	13
6. Fairway Business Park	132	15	2	17	2	16	18
7. Air Stream RV Dealership	155	0	0	0	6	10	16
8. La Quinta Inn Hotel	515	19	14	33	19	19	38
9. Central Plaza Shopping Center	2,767	39	23	62	84	92	176
10. Canyon Hills Phase 8	2,649	34	167	201	159	78	237
11. Summerly (McMillan Homes)	4,760	94	281	375	315	185	500
12. Rosetta Canyon Trieste Homes	704	14	42	56	47	27	74
13. Meadowridge II (Pardee)	781	16	46	62	52	30	82
14. Diamond Stadium Indoor Sports Park	1,537	16	0	16	152	59	211
15. Orange Bundy/Parcel Map[10]	1,689	62	60	122	64	60	124
16. Bundy Canyon Plaza	1,421	20	12	32	44	46	90
17. Wal-Mart Retail	8,795	178	138	316	298	312	610
18. Darling/Bundy Canyon Res.	931	14	57	71	57	30	87
Cumulative Projects Trip Generation Potential	**42,625**	**989**	**1,123**	**2,112**	**1,907**	**1,583**	**3,490**

8 Unless otherwise noted; Source: *Trip Generation, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012).* Where applicable, pass-by adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.

9 Source: *Traffic Impact Analysis Lake Elsinore Walmart*, prepared by Urban Crossroads, dated November 13, 2013.

10 Source: *Traffic Impact Analysis Menifee Town Center*, prepared by Kunzman Associates, Inc., dated May 29, 2012.

7.0 EXISTING WITH PROJECT CONDITIONS TRAFFIC IMPACT ANALYSIS

Table 7-1 summarizes the peak hour Level of Service results at the key study intersections for existing with project traffic conditions. The first column (1) of Delay/LOS values in *Table 7-1* presents a summary of Existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-3*). The second column (2) presents forecast Existing With Project traffic conditions. The third column (3) shows whether the traffic associated with the Project will have a significant impact based on the LOS standards and the significant impact criteria defined in this report. The fourth column (4) indicates the anticipated level of service with planned and/or recommended improvements, if necessary.

7.1 Existing Conditions Intersection Capacity Analysis

Review of column (1) of *Table 7-1* indicates that for Existing traffic conditions, all of the existing key study intersections currently operate at acceptable levels of service (i.e., LOS D or better) during the AM and PM peak hours.

Appendix C contains the Delay/LOS calculation worksheets for the two (2) key study intersections for Existing Traffic Conditions.

7.2 Existing With Project Conditions Intersection Capacity Analysis

Review of columns (2) and (3) of *Table 7-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact either of the key study intersections when compared to the LOS standards and significant impact criteria specified in this report. All of the key study intersections currently operate and are forecast to continue to operate at acceptable LOS D or better during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

Appendix C contains the Delay/LOS calculation worksheets for the two (2) key study intersections for Existing With Project Traffic Conditions.

TABLE 7-1

EXISTING WITH PROJECT CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[11]

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Adverse	(4) Existing With Project With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1. Mission Trail at Hidden Trail/Elberta Road	D	AM	8.7	A	8.7	A	No	--	--
		PM	6.7	A	6.7	A	No	--	--
2. Mission Trail at Olive Street	D	AM	5.5	A	5.5	A	No	--	--
		PM	5.6	A	5.6	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[11] *Appendix C* contains the Delay/LOS calculation worksheets for all study intersections.

7.3 Existing Conditions Roadway Segment Analysis

Table 7-2 summarizes the daily level of service results at the key study roadway segment during a "typical" weekday for the existing traffic conditions. The first column (1) lists the existing number of travel lanes. The second column (2) presents the LOS E daily roadway segment capacities from the *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011)*. The third column (3) indicates the Existing daily traffic volumes, V/C ratio, and LOS. The fourth column (4) presents the Existing With Project daily traffic volumes, V/C ratio, and LOS. The fifth column (5) indicates whether the Project traffic will significantly impact the location.

Review of column (3) of *Table 7-2* indicates that the key study roadway segment currently operates at an acceptable level of service (LOS A).

7.4 Existing With Project Conditions Roadway Segment Analysis

Review of column (4) of *Table 7-2* indicates that the key study roadway segment is forecast to operate at an acceptable level of service. Therefore, as indicated in column (5), this location is not forecast to have a significant impact.

TABLE 7-2

EXISTING WITH PROJECT CONDITIONS DAILY ROADWAY SEGMENT CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	Roadway Classification	(1) Existing Lanes	(2) LOS E Capacity[12] (VPD)	(3) Existing Traffic Conditions			(4) Existing With Project Traffic Conditions			(5) Significant Impact	
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Impact?
1. Mission Trail *between* Hidden Trail and Sedco Boulevard	Major	4D	34,100	16,593	0.487	A	16,970	0.498	A	0.011	No

Notes:

- VPD = Vehicles Per Day
- V/C = Volume to Capacity Ratio
- D = Divided, U = Undivided
- LOS = Level of Service, please refer to *Table 3-3* for the LOS definitions
- **Bold "V/C"/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[12] Source: *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011).*

8.0 EXISTING WITH AMBIENT GROWTH WITH PROJECT CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the weekday AM and PM peak hours, was evaluated based on analysis of future ambient growth operating conditions at the key study intersections and roadway segment with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay/ V/C relationships and service level characteristics at each study intersection and roadway segment. The significance of the potential impacts of the Project at each key intersection and roadway segment was then evaluated using the traffic impact criteria mentioned in this report.

8.1 Existing With Ambient Growth (Year 2019) With Project Conditions Intersection Capacity Analysis

Review of ***Table 8-1*** indicates that for the Existing With Ambient Growth (Year 2019) With Project traffic conditions, none of the key study intersections are forecast to operate at adverse levels of service during with the addition of Project traffic during the AM or PM peak hours for the Existing With Ambient Growth (Year 2019) With Project traffic conditions, based on the LOS impact criteria mentioned in this report. All of the key study intersections are forecast to continue to operate at acceptable service levels during the AM and PM peak hours.

Appendix D contains the Delay/LOS calculation worksheets for the Existing With Ambient Growth (Year 2019) With Project Traffic Conditions.

TABLE 8-1

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[13]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Ambient With Project Traffic Conditions		(3) Adverse	(4) Existing With Ambient With Project With Improvements	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1.	Mission Trail at Hidden Trail/Elberta Road	D	AM	8.7	A	8.8	A	No	--	--
			PM	6.7	A	6.8	A	No	--	--
2.	Mission Trail at Olive Street	D	AM	5.5	A	5.6	A	No	--	--
			PM	5.6	A	5.7	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[13] *Appendices C and D* contain the Delay/LOS calculation worksheets for all study intersections.

8.2 Existing With Ambient Growth (Year 2019) With Project Conditions Roadway Segment Analysis

Table 8-2 summarizes the daily level of service results at the key study roadway segments during a "typical" weekday for the Existing With Ambient Growth (Year 2019) With Project traffic conditions. The first column (1) lists the existing number of travel lanes. The second column (2) presents the LOS E daily roadway segment capacities from the *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011)*. The third column (3) lists the Existing daily traffic volumes, V/C ratio, and LOS, and the fourth column (4) indicates the Existing With Ambient Growth With Project daily traffic volumes, V/C ratio, and LOS. The fifth column (5) indicates whether the Project traffic will significantly impact the location.

Review of column (4) of *Table 8-2* indicates that the key study roadway segment is forecast to operate at an acceptable level of service for the Existing With Ambient Growth (Year 2019) With Project conditions. Therefore, as indicated in column (5), this location is not forecast to have a significant impact.

TABLE 8-2

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT CONDITIONS DAILY ROADWAY SEGMENT CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	Roadway Classification	(1) Existing Lanes	(2) LOS E Capacity[14] (VPD)	(3) Existing Traffic Conditions			(4) Existing With Ambient Growth With Project Traffic Conditions			(5) Significant Impact	
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Impact?
1. Mission Trail *between* Hidden Trail and Sedco Boulevard	Major	4D	34,100	16,593	0.487	A	17,966	0.527	A	0.040	No

Notes:

- VPD = Vehicles Per Day
- V/C = Volume to Capacity Ratio
- D = Divided, U = Undivided
- LOS = Level of Service, please refer to *Table 3-3* for the LOS definitions
- **Bold "V/C"/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[14] Source: *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011).*

9.0 EXISTING WITH AMBIENT GROWTH WITH CUMULATIVE PROJECTS WITH PROJECT CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM and PM peak hours, were evaluated based on analysis of future ambient growth with cumulative operating conditions at the key study intersections and roadway segments with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay/ V/C relationships and service level characteristics at each study intersection and roadway segment. The significance of the potential impacts of the Project at each key intersection and roadway segment was then evaluated using the traffic impact criteria mentioned in this report.

9.1 Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project Conditions Intersection Capacity Analysis

Review of ***Table 9-1*** indicates that for the Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project traffic conditions, none of the key study intersections are forecast to operate at adverse levels of service during with the addition of Project traffic during the AM or PM peak hours, based on the LOS impact criteria mentioned in this report. All of the key study intersections are forecast to continue to operate at acceptable service levels during the AM and PM peak hours.

Appendix E contains the Delay/LOS calculation worksheets for the Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project Traffic Conditions.

TABLE 9-1

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[15]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Ambient With Cumulative With Project Traffic Conditions		(3) Adverse	(4) Existing With Ambient With Cumulative With Project With Improvements	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1.	Mission Trail at Hidden Trail/Elberta Road	D	AM	8.7	A	8.7	A	No	--	--
			PM	6.7	A	7.0	A	No	--	--
2.	Mission Trail at Olive Street	D	AM	5.5	A	5.5	A	No	--	--
			PM	5.6	A	5.6	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[15] *Appendices C and E* contain the Delay/LOS calculation worksheets for all study intersections.

9.2 Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project Conditions Roadway Segment Analysis

Table 9-2 summarizes the daily level of service results at the key study roadway segment during a "typical" weekday for the Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project traffic conditions. The first column (1) lists the existing number of travel lanes. The second column (2) presents the LOS E daily roadway segment capacities from the *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011)*. The third column (3) lists the Existing daily traffic volumes, V/C ratio, and LOS, and the fourth column (4) indicates the Existing With Ambient Growth With Cumulative Projects With Project daily traffic volumes, V/C ratio, and LOS. The fifth column (5) indicates whether the Project traffic will significantly impact the location.

Review of column (4) of *Table 9-2* indicates that the key study roadway segment is forecast to operate at an acceptable level of service for the Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project conditions. Therefore, as indicated in column (5), this location is not forecast to have a significant impact.

TABLE 9-2

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT CONDITIONS

DAILY ROADWAY SEGMENT CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	Roadway Classification	(1) Existing Lanes	(2) LOS E Capacity[16] (VPD)	(3) Existing Traffic Conditions			(4) Existing With Ambient Growth With Cumulative With Project Traffic Conditions			(5) Significant Impact	
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Impact?
1. Mission Trail *between* Hidden Trail and Sedco Boulevard	Major	4D	34,100	16,593	0.487	A	21,583	0.633	B	0.146	No

Notes:

- VPD = Vehicles Per Day
- V/C = Volume to Capacity Ratio
- D = Divided, U = Undivided
- LOS = Level of Service, please refer to *Table 3-3* for the LOS definitions
- **Bold "V/C"/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

[16] Source: *City of Lake Elsinore General Plan Update Draft Program EIR (August 2011).*

10.0 RECOMMENDED IMPROVEMENTS

10.1 Intersections

As previously presented in *Tables 7-1*, *8-1*, and *9-1*, the results of the intersection capacity analysis indicate that the proposed Project will not impact any of the key study intersections. As such, no improvements are recommended.

10.2 Roadway Segments

As previously presented in *Tables 7-2*, *8-2*, and *9-2*, the results of the roadway segment analysis indicate that the proposed Project is not forecast to result in an adverse level of service at the key roadway segment. As there is no adverse level of service, no traffic improvements are recommended for the roadway segment.

10.3 Project Specific Improvements

Subject to the review and approval of the City of Lake Elsinore, the following Project design features are to be implemented in conjunction with development of the proposed Project to ensure adequate access and egress to the site is provided:

- Mission Trail at Project Driveway: Add a west leg with an eastbound shared left-turn/right-turn outbound lane and one inbound lane to the intersection. Install "STOP" sign and "STOP" bar on the eastbound approach. Restripe the northbound approach to provide an exclusive northbound left-turn lane. Improve the southwesterly side of Mission Trail to the ultimate half-width along the Project boundary.

11.0 SITE ACCESS EVALUATION

As previously shown in *Figure 2-2*, vehicular access to the Project site will be provided via one (1) unsignalized driveway along Mission Trail. The future driveway operates as a full access driveway.

Table 11-1 summarizes the intersection operations at the Project driveway for Existing With Project traffic conditions. The operations analysis for the Project driveway is based on the *Highway Capacity Manual 2010* (HCM 2010) methodology for unsignalized intersections. Review of column (2) of *Table 11-1* shows that the Project driveway is forecast to operate at an unacceptable level of service during the PM peak hour for Existing With Project traffic conditions.

To improve the unacceptable LOS during the PM peak hour, it is recommended that the eastbound left-turn (outbound) movement and the westbound left-turn (outbound) movement be restricted during the PM peak period (4:00 – 6:00 PM). The PM peak period restriction will be implemented through the use of proper signage and resident notification. As shown in column (3) of *Table 11-1*, with the recommended improvements the Project driveway is forecast to operate at an acceptable level of service under Existing With Project traffic conditions.

Table 11-2 summarizes the intersection operations at the Project driveway for Existing With Ambient Growth (Year 2019) With Project traffic conditions. The operations analysis for the Project driveway is based on the *Highway Capacity Manual 2010* (HCM 2010) methodology for unsignalized intersections. Review of column (2) of *Table 11-2* shows that the Project driveway is forecast to operate at an unacceptable level of service during the PM peak hour for Existing With Project traffic conditions.

To improve the unacceptable LOS during the PM peak hour, it is recommended that the eastbound left-turn movement and the westbound left-turn movement be restricted during the PM peak period (4:00 – 6:00 PM). The PM peak period restriction will be implemented through the use of proper signage and resident notification. As shown in column (3) of *Table 11-2*, with the recommended improvements the Project driveway is forecast to operate at an acceptable level of service under Existing With Ambient Growth (Year 2019) With Project traffic conditions.

Table 11-3 summarizes the intersection operations at the Project driveway for Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project traffic conditions. The operations analysis for the Project driveway is based on the *Highway Capacity Manual 2010* (HCM 2010) methodology for unsignalized intersections. Review of column (2) of *Table 11-3* shows that the Project driveway is forecast to operate at an unacceptable level of service during the PM peak hour for Existing With Project traffic conditions.

To improve the unacceptable LOS during the PM peak hour, it is recommended that the eastbound left-turn movement and the westbound left-turn movement be restricted during the PM peak period (4:00 – 6:00 PM). The PM peak period restriction will be implemented through the use of proper signage and resident notification. As shown in column (3) of *Table 11-3*, with the recommended improvements the Project driveway is forecast to operate at an acceptable level of service under

Existing With Ambient Growth (Year 2019) With Cumulative Projects With Project traffic conditions.

Appendix F contains Delay/LOS calculation worksheets for the Project driveway.

11.1 Gate Stacking Evaluation

The following section summarizes the required storage reservoir for the Project's gated entry to the site using the Crommelin Methodology.

11.1.1 *Crommelin Methodology*

The Crommelin Methodology determines the minimum storage reservoir required to provide adequate access and control at gated entries. Experience has proven that poorly designed gated entries with inadequate storage capacities often times create an adverse effect on the operating characteristics of the street network. The Crommelin Methodology virtually eliminates this scenario as it ensures the design of an efficient, well-working access system with minimum impacts upon the surrounding street system.

The methodology is based on a Poisson distribution, peak hour traffic volumes, gate control strategies, processing rates at a control point, and the number of travel lanes. These characteristics are used to calculate a traffic intensity factor value (IF), which is derived by dividing the peak hour traffic volumes by the design processing rate. The IF value is then plotted on the 99% confidence level curve (where storage capacity will not be exceeded 99 times of 100) per the Crommelin Reservoir Needs nomograph (See *Appendix F*). This process ultimately estimates the maximum number of queuing vehicles that will store behind the service position vehicle at the control point. This number is rounded up to the nearest vehicle and added to the single service position vehicle, resulting in the total number of vehicles stored behind the control point. The required storage capacity, in vehicles, is converted into a length (feet) by multiplying the number of expected vehicles by a vehicle length of 22 feet.

11.1.2 *Vehicular Stacking Analysis*

Table 11-4 presents a summary of the vehicular stacking analysis for inbound visitor/guest traffic at the proposed Project's gated entry to the site. Please note that this queuing analysis conservatively assumes that 25% of inbound project traffic during the AM and PM peak hours will be visitors/ guests. In addition, a conservative design service/processing rate of 60 vehicles per hour was assumed (which is equivalent to a processing rate of one vehicle every 60 seconds) for visitors/ guests to the site.

As shown in column (5) of *Table 11-4*, the proposed Project's gated entry to the site is expected to have a maximum queue of two (2) "visitor/guest" vehicles during the AM and PM peak hours. As shown in column (6), these queues will require a storage reservoir length of approximately 44 feet from the nose of the call box median to satisfy the maximum vehicle queue. Review of the proposed Project site plan shows that the storage reservoir length from the call box can sufficiently

accommodate more than two vehicles. Therefore adequate storage will be provided on site and vehicles will not queue back onto Mission Trail or block resident access to the gate.

TABLE 11-1

EXISTING WITH PROJECT PEAK HOUR DRIVEWAY CAPACITY ANALYSIS SUMMARY[17]

Project Driveway	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Existing With Project With Improvements	
		Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS
A. Mission Trail at Project Driveway 1/ U Wash Driveway	AM	18.0	C	20.8	C	--	--
	PM	25.1	D	**36.5**	**E**	11.4	B

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Table 3-1* for the LOS definitions

[17] *Appendix F* contains Delay/LOS calculation worksheets for the Project Driveway.

TABLE 11-2

EXISTING WITH AMBIENT GROWTH WITH PROJECT

PEAK HOUR DRIVEWAY CAPACITY ANALYSIS SUMMARY[18]

	Project Driveway	Time Period	(1) Existing Traffic Conditions		(2) Existing With Ambient Growth With Project Traffic Conditions		(3) Existing With Ambient Growth With Project With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS
A.	Mission Trail at Project Driveway 1/ U Wash Driveway	AM	18.0	C	22.4	C	--	--
		PM	25.1	D	**41.1**	**E**	11.6	B

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Table 3-1* for the LOS definitions

[18] *Appendix F* contains Delay/LOS calculation worksheets for the Project Driveway.

TABLE 11-3

EXISTING WITH AMBIENT GROWTH WITH CUMULATIVE PROJECTS WITH PROJECT PEAK HOUR DRIVEWAY CAPACITY ANALYSIS SUMMARY[19]

Project Driveway	Time Period	(1) Existing Traffic Conditions		(2) Existing With Ambient Growth With Cumulative Projects With Project Traffic Conditions		(3) Existing With Ambient Growth With Cumulative Projects With Project With Improvements	
		Delay (s/v)	**LOS**	**Delay (s/v)**	**LOS**	**Delay (s/v)**	**LOS**
A. Mission Trail at Project Driveway 1/ U Wash Driveway	AM	18.0	C	28.3	D	--	--
	PM	25.1	D	**64.9**	**F**	12.5	B

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Table 3-1* for the LOS definitions

[19] *Appendix F* contains Delay/LOS calculation worksheets for the Project Driveway.

TABLE 11-4

VEHICULAR QUEUING ANALYSIS SUMMARY

Project Driveway	Time Period	(1) Entering Traffic Volumes (veh/hr)[20]	(2) Service Rate (veh/hr)	(3) Traffic Intensity Factor (IF)	(4) Required Reservoir Behind Service Position	(5) Add Vehicle Waiting at Call Box (4) + 1 vehicle	(6) Required Storage Capacity (5) * 22 feet
• Residential Parking Gated Entry	AM	2	60	0.033	1 vehicle	2 vehicles	44 ft
	PM	9	60	0.150	1 vehicle	2 vehicles	44 ft

[20] Conservatively assumes that 25% of the inbound AM and PM peak hour traffic volume at the proposed parking lot is associated with visitors/guests.

APPENDIX A

TRAFFIC STUDY SCOPE OF WORK

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

Case No. _____
Related Cases: _____
SP No. _____
EIR No. _____
GPA No. _____
CZ No. _____
Project Name: C&C Development Apartments, Lake Elsinore
Project Address: West side of Mission Trail, south of Hidden Trail
Project Description: 81 Apartment dwelling units

	Consultant	Applicant
Name:	Linscott, Law & Greenspan, Engineers	VCS Environmental
Address:	2 Executive Circle, Suite 250	30900 Rancho Viejo Road, Suite 100
	Irvine, CA 92614	San Juan Capistrano, CA 92675
Telephone:	(949) 825-6175	(949) 489-2700
Fax:	(949) 825-6173	

A. Trip Generation Source: ITE 9th Edition

Current GP Land Use _____ Proposed Lane Use _____
Current Zoning _____ Proposed Zoning _____

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	--	--	--	8	33	41
PM Trips	--	--	--	33	17	50

Internal Trip Allowance [ ] Yes [x] No (_____ % Trip Discount)
Pass-By Trip Allowance [ ] Yes [x] No (_____ % Trip Discount)

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.

B. Trip Geographic Distribution: N 70 % S 30 % E 0 % W 0 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Buildout-Out Year: 2019 Annual Ambient Growth Rate: 2 %

Phase Year(s): _____
Other area projects to be analyzed: List of potential cumulative projects to be provided by City of Lake Elsinore and City of Wildomar
Model/Forecast Methodology: N/A

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

1. Mission Trail at Hidden Trail/Elberta Road
2. Mission Trail at Olive Street
3. Mission Trail at Project Driveway
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

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

1. Mission Trail, b/w Hidden Trail and Sedco Blvd
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

F. Other Jurisdictional Impacts

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

If so, name the City Jurisdiction: Wildomar

G. Site Plan (please attach reduced copy)

H. 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.)

Site Access and Internal Circulation Analyses

I. Existing Conditions

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

Date of counts new counts to be conducted

***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:

Consultant's Representative	11/30/2016 Date	**Approved Scoping Agreement:** City of Lake Elsinore	Date

Scoping Agreement Submitted on 11/30/2016

Revised on 12.08.16

LINSCOTT LAW & GREENSPAN engineers

TABLE 5-1

PROJECT TRAFFIC GENERATION RATES AND FORECAST[1]

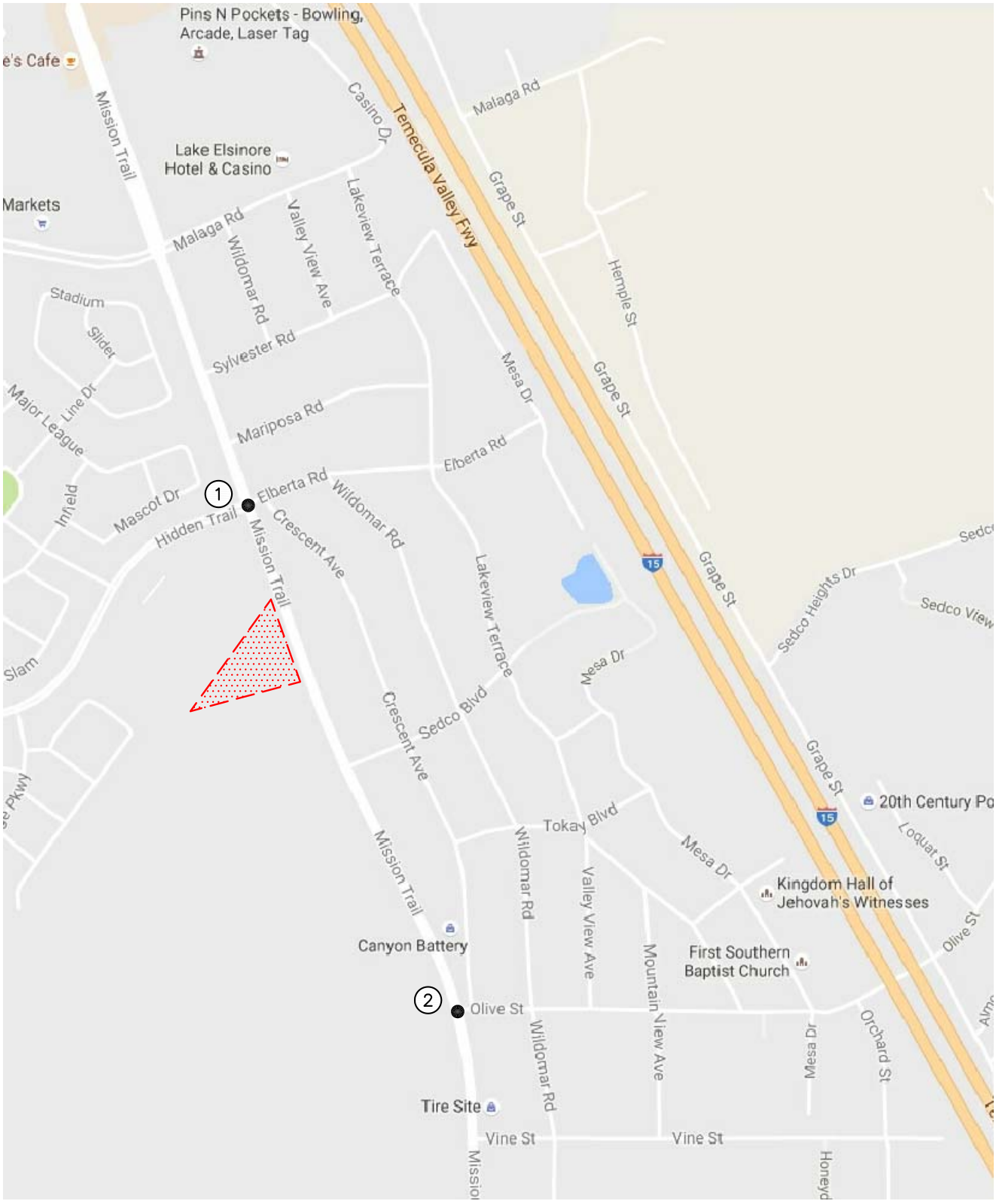
C&C DEVELOPMENT APARTMENTS, LAKE ELSINORE

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
▪ 220: Apartment (TE/DU)	6.65	20%	80%	0.51	65%	35%	0.62
Proposed Project Generation Forecasts:							
▪ C&C Development Apartments (81 DU)	539	8	33	41	33	17	50
Project Trip Generation	***539***	***8***	***33***	***41***	***33***	***17***	***50***

Notes:

- TE/DU = trip ends per dwelling unit

[1] Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)].



n:\3700\2163774 - c&c development apartments, lake elsinore\dwg\3774 f1-1.dwg LDP 15:48:31 11-29-2016 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1

VICINTY MAP

C&C DEVELOPMENT APARTMENTS, LAKE ELSINORE

n:\3700\2163774 - c&c development apartments, lake elsinore\dwg\3774 f-2.dwg LDP 14:31:26 11-30-2016 aguilar

LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

SOURCE: GOOGLE

KEY

= PROJECT SITE

FIGURE 2

EXISTING AERIAL SITE

C&C DEVELOPMENT APARTMENTS, LAKE ELSINORE

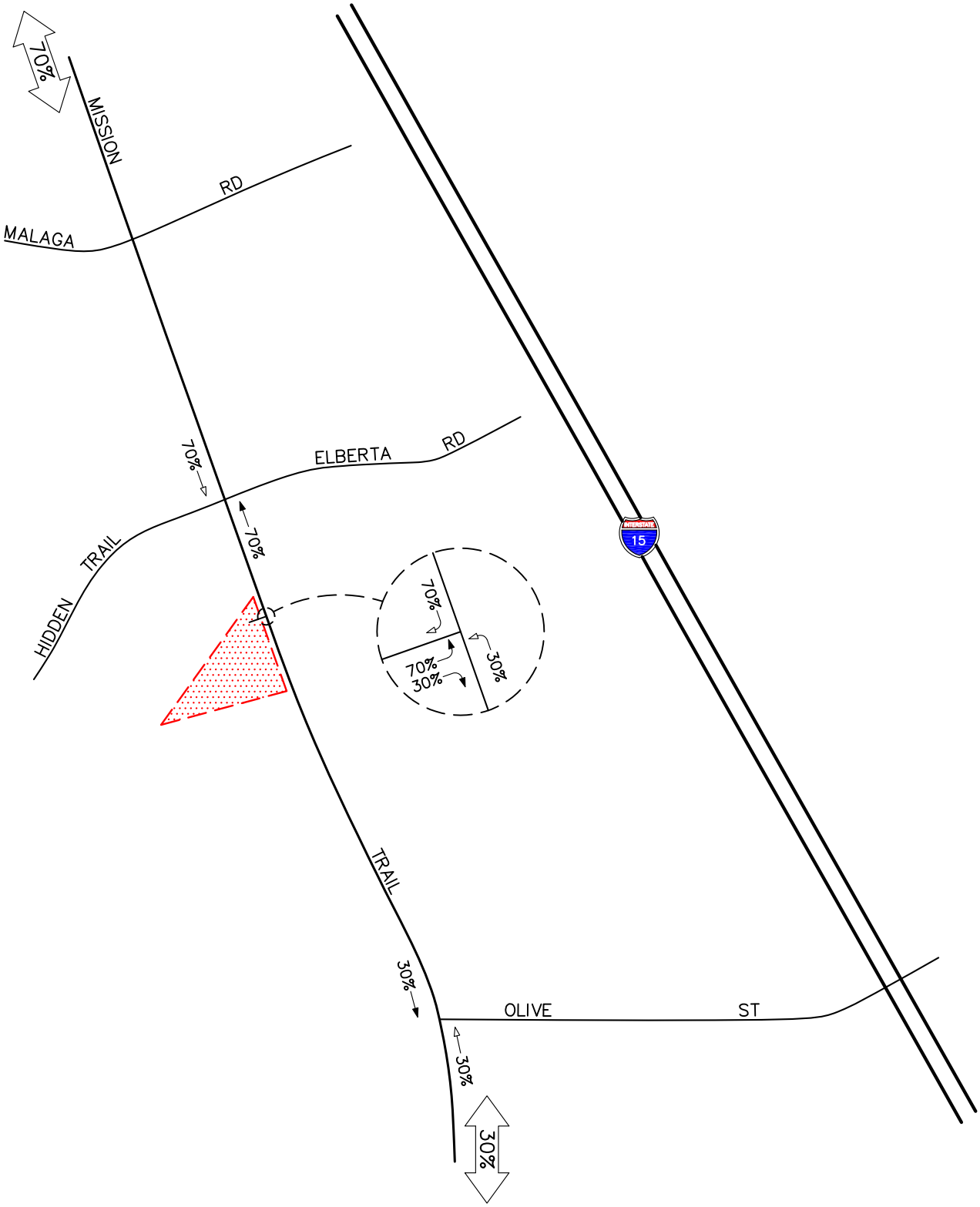
n:\3700\2163774 - c&c development apartments, lake elsinore\dwg\3774 f2-2.dwg LDP 16:14:21 11-29-2016 aguilar

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

FIGURE 3

PROPOSED SITE PLAN
C&C DEVELOPMENT APARTMENTS, LAKE ELSINORE



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 4

PROJECT TRAFFIC DISTRIBUTION PATTERN

C&C DEVELOPMENT APARTMENTS, LAKE ELSINORE

APPENDIX B

EXISTING TRAFFIC COUNT DATA

APPENDIX B-I

INTERSECTION COUNTS

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

City of Lake Elsinore
N/S: Mission Trail
E/W: Hidden Trail / Elberta Road
Weather: Clear

File Name : LKEMIHIAM
Site Code : 05716681
Start Date : 12/13/2016
Page No : 1

Groups Printed- Total Volume

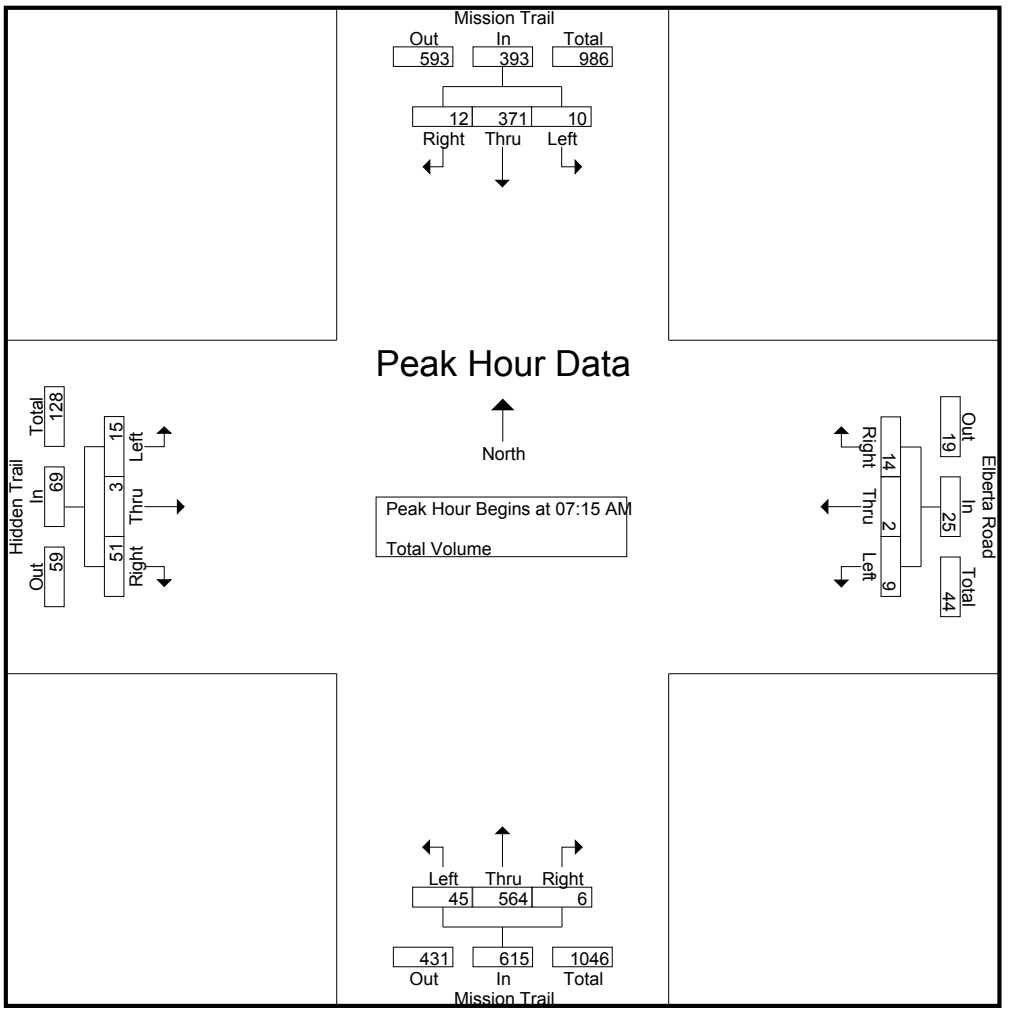
	Mission Trail Southbound				Elberta Road Westbound				Mission Trail Northbound				Hidden Trail Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	92	6	100	2	0	3	5	6	95	0	101	7	0	20	27	233
07:15 AM	1	108	5	114	4	0	6	10	10	134	1	145	2	1	17	20	289
07:30 AM	2	80	2	84	0	1	2	3	9	145	1	155	3	1	17	21	263
07:45 AM	2	99	2	103	4	1	3	8	19	153	1	173	6	1	11	18	302
Total	7	379	15	401	10	2	14	26	44	527	3	574	18	3	65	86	1087
08:00 AM	5	84	3	92	1	0	3	4	7	132	3	142	4	0	6	10	248
08:15 AM	2	108	3	113	0	0	3	3	4	95	1	100	4	1	5	10	226
08:30 AM	2	77	1	80	1	0	2	3	4	112	1	117	3	0	10	13	213
08:45 AM	2	92	1	95	1	0	2	3	5	135	0	140	7	0	4	11	249
Total	11	361	8	380	3	0	10	13	20	474	5	499	18	1	25	44	936
Grand Total	18	740	23	781	13	2	24	39	64	1001	8	1073	36	4	90	130	2023
Apprch %	2.3	94.8	2.9		33.3	5.1	61.5		6	93.3	0.7		27.7	3.1	69.2		
Total %	0.9	36.6	1.1	38.6	0.6	0.1	1.2	1.9	3.2	49.5	0.4	53	1.8	0.2	4.4	6.4	

	Mission Trail Southbound				Elberta Road Westbound				Mission Trail Northbound				Hidden Trail Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	**108**	**5**	**114**	**4**	0	**6**	**10**	10	134	1	145	2	**1**	**17**	20	289
07:30 AM	2	80	2	84	0	**1**	2	3	9	145	1	155	3	1	17	**21**	263
07:45 AM	2	99	2	103	4	1	3	8	**19**	**153**	1	**173**	**6**	1	11	18	**302**
08:00 AM	**5**	84	3	92	1	0	3	4	7	132	**3**	142	4	0	6	10	248
Total Volume	10	371	12	393	9	2	14	25	45	564	6	615	15	3	51	69	1102
% App. Total	2.5	94.4	3.1		36	8	56		7.3	91.7	1		21.7	4.3	73.9		
PHF	.500	.859	.600	.862	.563	.500	.583	.625	.592	.922	.500	.889	.625	.750	.750	.821	.912

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

City of Lake Elsinore
N/S: Mission Trail
E/W: Hidden Trail / Elberta Road
Weather: Clear

File Name : LKEMIHIAM
Site Code : 05716681
Start Date : 12/13/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:15 AM				07:00 AM			
+0 mins.	**2**	92	**6**	100	2	0	3	5	10	134	1	145	**7**	0	**20**	**27**
+15 mins.	1	**108**	5	**114**	**4**	0	**6**	**10**	9	145	1	155	2	**1**	17	20
+30 mins.	2	80	2	84	0	**1**	2	3	**19**	**153**	1	**173**	3	1	17	21
+45 mins.	2	99	2	103	4	1	3	8	7	132	**3**	142	6	1	11	18
Total Volume	7	379	15	401	10	2	14	26	45	564	6	615	18	3	65	86
% App. Total	1.7	94.5	3.7		38.5	7.7	53.8		7.3	91.7	1		20.9	3.5	75.6	
PHF	.875	.877	.625	.879	.625	.500	.583	.650	.592	.922	.500	.889	.643	.750	.813	.796

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

City of Lake Elsinore
N/S: Mission Trail
E/W: Hidden Trail / Elberta Road
Weather: Clear

File Name : LKEMIHIPM
Site Code : 05716681
Start Date : 12/13/2016
Page No : 1

Groups Printed- Total Volume

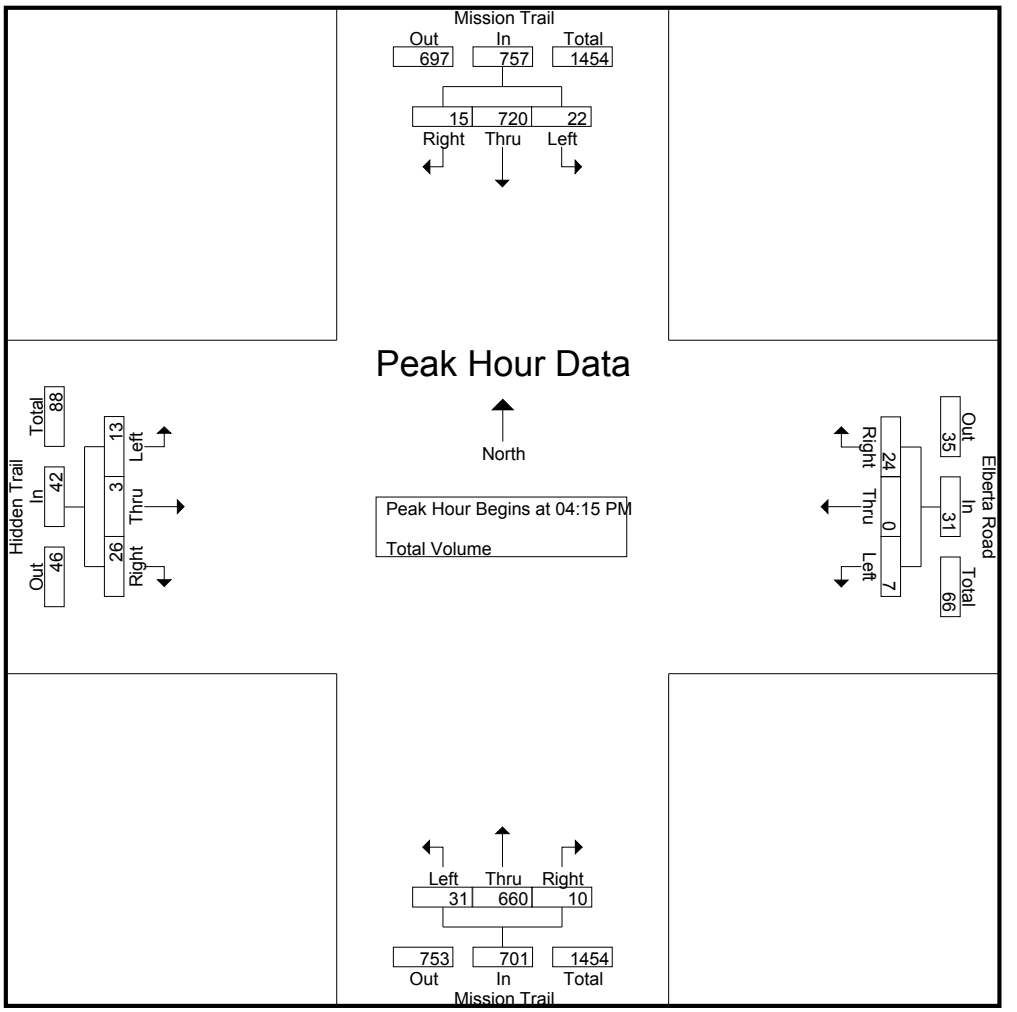
	Mission Trail Southbound				Elberta Road Westbound				Mission Trail Northbound				Hidden Trail Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	161	4	169	3	0	5	8	7	164	3	174	5	0	6	11	362
04:15 PM	2	154	6	162	0	0	6	6	8	156	1	165	4	1	7	12	345
04:30 PM	5	179	3	187	2	0	3	5	6	177	4	187	2	0	6	8	387
04:45 PM	5	203	5	213	2	0	8	10	5	160	3	168	5	0	11	16	407
Total	16	697	18	731	7	0	22	29	26	657	11	694	16	1	30	47	1501
05:00 PM	10	184	1	195	3	0	7	10	12	167	2	181	2	2	2	6	392
05:15 PM	9	154	4	167	2	0	2	4	12	142	0	154	3	0	10	13	338
05:30 PM	3	159	3	165	1	0	3	4	7	157	1	165	5	0	5	10	344
05:45 PM	7	150	3	160	3	0	8	11	7	151	1	159	3	0	3	6	336
Total	29	647	11	687	9	0	20	29	38	617	4	659	13	2	20	35	1410
Grand Total	45	1344	29	1418	16	0	42	58	64	1274	15	1353	29	3	50	82	2911
Apprch %	3.2	94.8	2		27.6	0	72.4		4.7	94.2	1.1		35.4	3.7	61		
Total %	1.5	46.2	1	48.7	0.5	0	1.4	2	2.2	43.8	0.5	46.5	1	0.1	1.7	2.8	

	Mission Trail Southbound				Elberta Road Westbound				Mission Trail Northbound				Hidden Trail Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	2	154	**6**	162	0	0	6	6	8	156	1	165	4	1	7	12	345
04:30 PM	5	179	3	187	2	0	3	5	6	**177**	**4**	**187**	2	0	6	8	387
04:45 PM	5	**203**	5	**213**	2	0	**8**	**10**	5	160	3	168	**5**	0	**11**	**16**	**407**
05:00 PM	**10**	184	1	195	**3**	0	7	10	**12**	167	2	181	2	**2**	2	6	392
Total Volume	22	720	15	757	7	0	24	31	31	660	10	701	13	3	26	42	1531
% App. Total	2.9	95.1	2		22.6	0	77.4		4.4	94.2	1.4		31	7.1	61.9		
PHF	.550	.887	.625	.888	.583	.000	.750	.775	.646	.932	.625	.937	.650	.375	.591	.656	.940

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

City of Lake Elsinore
N/S: Mission Trail
E/W: Hidden Trail / Elberta Road
Weather: Clear

File Name : LKEMIHIPM
Site Code : 05716681
Start Date : 12/13/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:15 PM				04:15 PM				04:00 PM			
+0 mins.	5	179	3	187	0	0	6	6	8	156	1	165	**5**	0	6	11
+15 mins.	5	**203**	**5**	**213**	2	0	3	5	6	**177**	**4**	**187**	4	**1**	7	12
+30 mins.	**10**	184	1	195	2	0	**8**	**10**	5	160	3	168	2	0	6	8
+45 mins.	9	154	4	167	**3**	0	7	10	**12**	167	2	181	5	0	**11**	**16**
Total Volume	29	720	13	762	7	0	24	31	31	660	10	701	16	1	30	47
% App. Total	3.8	94.5	1.7		22.6	0	77.4		4.4	94.2	1.4		34	2.1	63.8	
PHF	.725	.887	.650	.894	.583	.000	.750	.775	.646	.932	.625	.937	.800	.250	.682	.734

Counts Unlimited
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Corona, CA 92878
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City of Lake Elsinore
N/S: Mission Trail
E/W: Olive Street
Weather: Clear

File Name : LKEMTOLAM
Site Code : 05716654
Start Date : 12/8/2016
Page No : 1

Groups Printed- Total Volume

	Mission Trail Southbound			Olive Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	2	105	107	19	0	19	96	9	105	231
07:15 AM	1	143	144	23	2	25	124	15	139	308
07:30 AM	1	129	130	18	3	21	167	22	189	340
07:45 AM	5	125	130	19	5	24	134	26	160	314
Total	9	502	511	79	10	89	521	72	593	1193
08:00 AM	1	105	106	9	6	15	145	23	168	289
08:15 AM	7	76	83	9	3	12	95	13	108	203
08:30 AM	1	79	80	5	6	11	102	9	111	202
08:45 AM	3	82	85	7	9	16	119	15	134	235
Total	12	342	354	30	24	54	461	60	521	929
Grand Total	21	844	865	109	34	143	982	132	1114	2122
Apprch %	2.4	97.6		76.2	23.8		88.2	11.8		
Total %	1	39.8	40.8	5.1	1.6	6.7	46.3	6.2	52.5	

	Mission Trail Southbound			Olive Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	**143**	**144**	**23**	2	**25**	124	15	139	308
07:30 AM	1	129	130	18	3	21	**167**	22	**189**	**340**
07:45 AM	**5**	125	130	19	5	24	134	**26**	160	314
08:00 AM	1	105	106	9	**6**	15	145	23	168	289
Total Volume	8	502	510	69	16	85	570	86	656	1251
% App. Total	1.6	98.4		81.2	18.8		86.9	13.1		
PHF	.400	.878	.885	.750	.667	.850	.853	.827	.868	.920

Counts Unlimited
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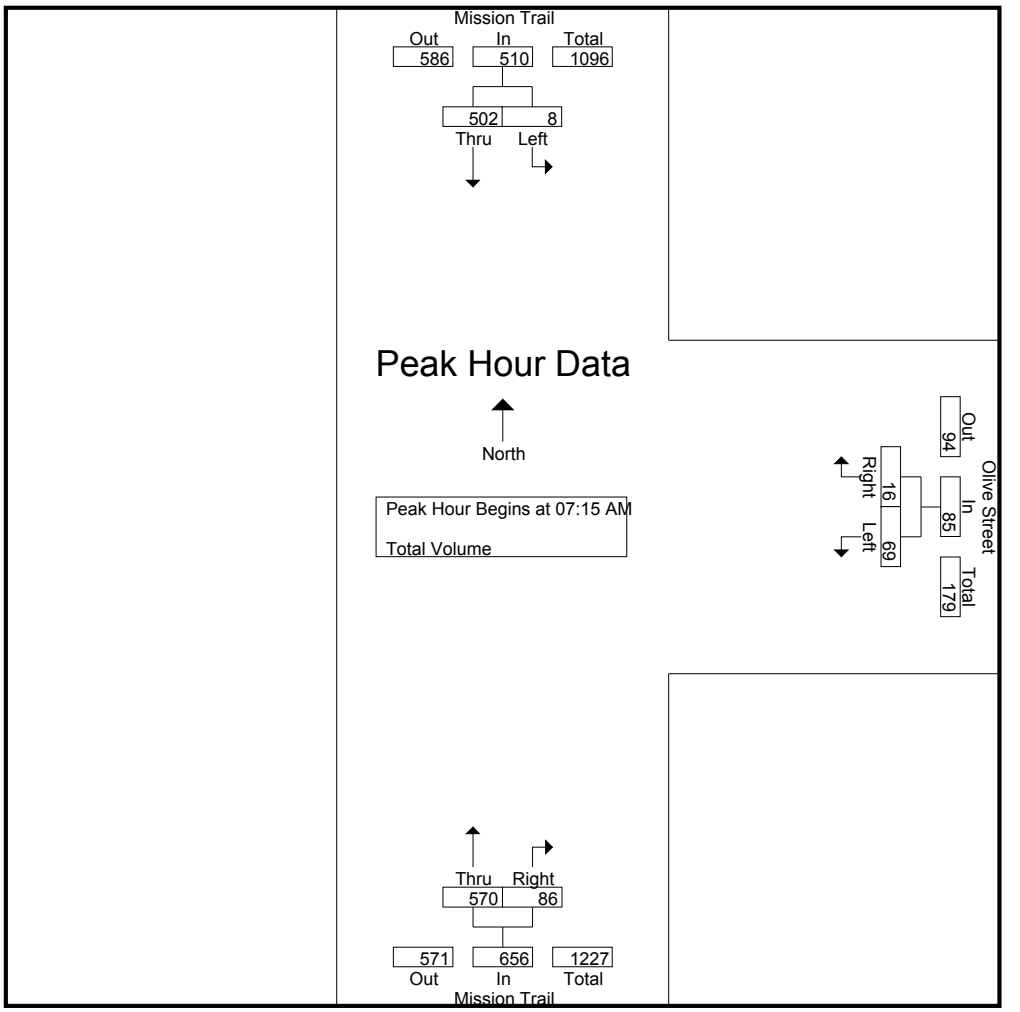
City of Lake Elsinore
N/S: Mission Trail
E/W: Olive Street
Weather: Clear

File Name : LKEMTOLAM
Site Code : 05716654
Start Date : 12/8/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:15 AM		
+0 mins.	2	105	107	19	0	19	124	15	139
+15 mins.	1	**143**	**144**	**23**	2	**25**	**167**	22	**189**
+30 mins.	1	129	130	18	3	21	134	**26**	160
+45 mins.	**5**	125	130	19	**5**	24	145	23	168
Total Volume	9	502	511	79	10	89	570	86	656
% App. Total	1.8	98.2		88.8	11.2		86.9	13.1	
PHF	.450	.878	.887	.859	.500	.890	.853	.827	.868

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(951) 268-6268

City of Lake Elsinore
N/S: Mission Trail
E/W: Olive Street
Weather: Clear

File Name : LKEMTOLMD
Site Code : 05716654
Start Date : 12/8/2016
Page No : 1

Groups Printed- Total Volume

	Mission Trail Southbound			Olive Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:00 AM	6	121	127	6	5	11	96	13	109	247
11:15 AM	4	130	134	11	3	14	104	9	113	261
11:30 AM	7	122	129	16	7	23	116	16	132	284
11:45 AM	3	142	145	11	8	19	139	19	158	322
Total	20	515	535	44	23	67	455	57	512	1114
12:00 PM	4	115	119	14	6	20	133	13	146	285
12:15 PM	9	131	140	8	8	16	128	16	144	300
12:30 PM	2	136	138	19	8	27	116	12	128	293
12:45 PM	3	128	131	10	5	15	151	16	167	313
Total	18	510	528	51	27	78	528	57	585	1191
01:00 PM	7	174	181	12	10	22	105	15	120	323
01:15 PM	2	133	135	12	7	19	121	19	140	294
01:30 PM	3	180	183	15	6	21	118	22	140	344
01:45 PM	9	140	149	12	8	20	133	26	159	328
Total	21	627	648	51	31	82	477	82	559	1289
Grand Total	59	1652	1711	146	81	227	1460	196	1656	3594
Apprch %	3.4	96.6		64.3	35.7		88.2	11.8		
Total %	1.6	46	47.6	4.1	2.3	6.3	40.6	5.5	46.1	

	Mission Trail Southbound			Olive Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 01:00 PM										
01:00 PM	7	174	181	12	**10**	**22**	105	15	120	323
01:15 PM	2	133	135	12	7	19	121	19	140	294
01:30 PM	3	**180**	**183**	**15**	6	21	118	22	140	**344**
01:45 PM	**9**	140	149	12	8	20	**133**	**26**	**159**	328
Total Volume	21	627	648	51	31	82	477	82	559	1289
% App. Total	3.2	96.8		62.2	37.8		85.3	14.7		
PHF	.583	.871	.885	.850	.775	.932	.897	.788	.879	.937

Counts Unlimited
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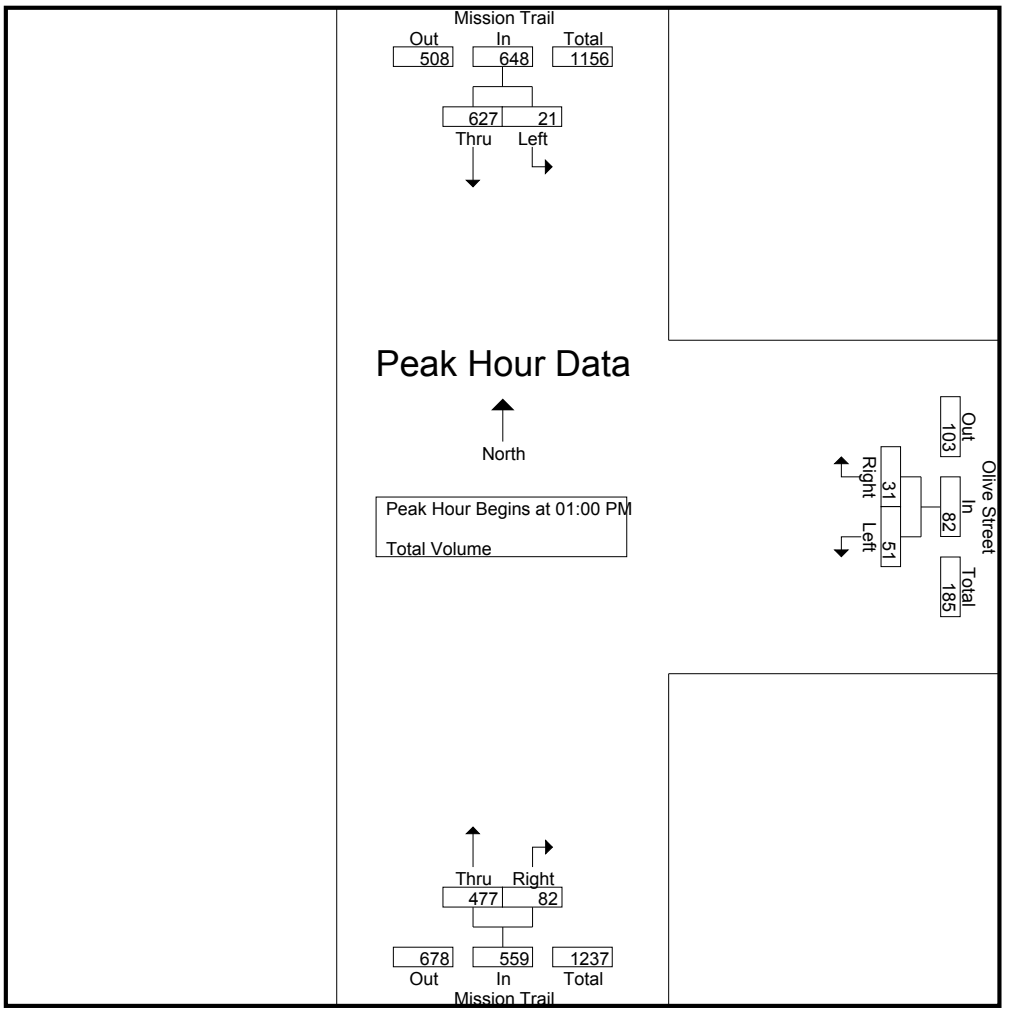
City of Lake Elsinore
N/S: Mission Trail
E/W: Olive Street
Weather: Clear

File Name : LKEMTOLMD
Site Code : 05716654
Start Date : 12/8/2016
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM			12:30 PM			12:00 PM		
+0 mins.	7	174	181	**19**	8	**27**	133	13	146
+15 mins.	2	133	135	10	5	15	128	**16**	144
+30 mins.	3	**180**	**183**	12	**10**	22	116	12	128
+45 mins.	**9**	140	149	12	7	19	**151**	16	**167**
Total Volume	21	627	648	53	30	83	528	57	585
% App. Total	3.2	96.8		63.9	36.1		90.3	9.7	
PHF	.583	.871	.885	.697	.750	.769	.874	.891	.876

APPENDIX B-II

ROADWAY SEGMENT COUNTS

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Lake Elsinore
Mission Trail
B/ Malaga Road - Olive Street
24 Hour Directional Volume Count

LKE009
Site Code: 057-16654

Start Time	12/8/2016 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		10	134			17	140				
12:15		4	132			9	128				
12:30		1	147			8	144				
12:45		6	115	21	528	7	175	41	587	62	1115
01:00		7	125			9	138				
01:15		6	115			4	165				
01:30		1	134			6	158				
01:45		5	**193**	19	567	12	151	31	612	50	1179
02:00		4	**156**			6	**193**				
02:15		3	**180**			5	**183**				
02:30		7	**186**			8	**166**				
02:45		6	189	20	711	3	**199**	22	741	42	1452
03:00		9	157			1	156				
03:15		11	181			4	154				
03:30		13	183			4	199				
03:45		28	179	61	700	9	166	18	675	79	1375
04:00		25	144			13	176				
04:15		29	153			20	187				
04:30		27	150			35	183				
04:45		33	160	114	607	29	165	97	711	211	1318
05:00		32	156			24	178				
05:15		34	172			30	158				
05:30		49	122			54	142				
05:45		52	134	167	584	54	131	162	609	329	1193
06:00		66	110			68	125				
06:15		69	106			50	137				
06:30		78	116			99	122				
06:45		91	99	304	431	94	126	311	510	615	941
07:00		**130**	79			134	113				
07:15		**168**	84			115	94				
07:30		**129**	61			120	100				
07:45		**142**	72	569	296	102	65	471	372	1040	668
08:00		84	69			80	77				
08:15		108	77			76	88				
08:30		124	66			86	77				
08:45		136	49	452	261	89	90	331	332	783	593
09:00		123	51			83	67				
09:15		125	43			100	61				
09:30		109	32			137	52				
09:45		109	23	466	149	101	47	421	227	887	376
10:00		132	24			108	38				
10:15		116	16			119	22				
10:30		124	14			121	35				
10:45		95	14	467	68	**126**	31	474	126	941	194
11:00		119	15			**133**	24				
11:15		120	12			**122**	18				
11:30		137	7			**149**	22				
11:45		125	8	501	42	120	19	524	83	1025	125
Total		3161	4944	3161	4944	2903	5585	2903	5585	6064	10529
Combined Total		8105		8105		8488		8488		16593	
AM Peak	-	07:00	-	-	-	10:45	-	-	-	-	-
Vol.	-	569	-	-	-	530	-	-	-	-	-
P.H.F.		0.847				0.889					
PM Peak	-	-	01:45	-	-	-	02:00	-	-	-	-
Vol.	-	-	715	-	-	-	741	-	-	-	-
P.H.F.			0.926				0.931				
Percentage		39.0%	61.0%			34.2%	65.8%				
ADT/AADT		ADT 16,593		AADT 16,593							

APPENDIX C

EXISTING TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX C-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.244

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	564	6	10	371	12	15	3	51	9	2	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	564	6	10	371	12	15	3	51	9	2	14
Peak Hour Factor	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	155	2	3	102	3	4	1	14	2	1	4
Total Analysis Volume [veh/h]	49	618	7	11	407	13	16	3	56	10	2	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	46	0	11	43	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	70	70	2	67	67	6	6	6	6
g / C, Green / Cycle	0.06	0.78	0.78	0.02	0.74	0.74	0.07	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.17	0.01	0.11	0.01	0.01	0.04	0.01	0.01
s, saturation flow rate [veh/h]	1774	1863	1855	1774	3547	1583	1390	1596	1338	1612
c, Capacity [veh/h]	100	1453	1447	35	2638	1178	133	107	98	108
d1, Uniform Delay [s]	41.25	2.62	2.62	43.51	3.34	2.98	42.11	40.70	44.18	39.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.73	0.34	0.34	4.86	0.12	0.02	0.40	4.40	0.46	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

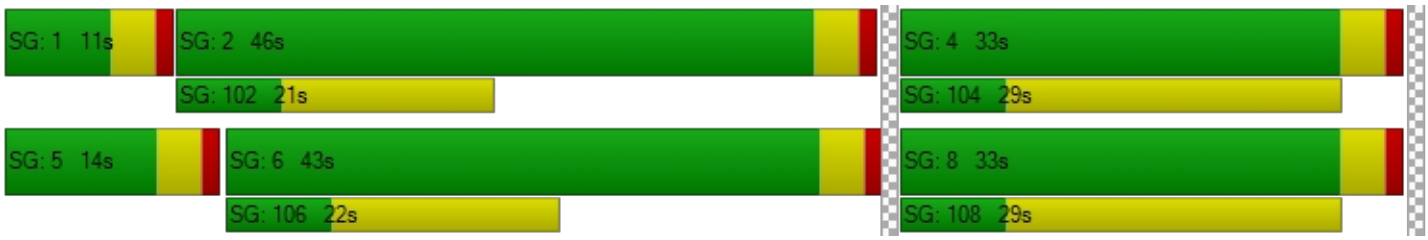
X, volume / capacity	0.49	0.22	0.22	0.31	0.15	0.01	0.12	0.55	0.10	0.16
d, Delay for Lane Group [s/veh]	44.98	2.96	2.97	48.37	3.47	3.00	42.50	45.10	44.63	40.29
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.15	1.11	1.11	0.29	0.85	0.05	0.36	1.38	0.23	0.37
50th-Percentile Queue Length [ft]	28.70	27.83	27.74	7.18	21.24	1.29	8.94	34.60	5.80	9.29
95th-Percentile Queue Length [veh]	2.07	2.00	2.00	0.52	1.53	0.09	0.64	2.49	0.42	0.67
95th-Percentile Queue Length [ft]	51.66	50.09	49.94	12.93	38.24	2.31	16.08	62.28	10.44	16.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.98	2.96	2.97	48.37	3.47	3.00	42.50	45.10	45.10	44.63	40.29	40.29
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.02			4.60			44.55			41.90		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.71											
Intersection LOS	A											
Intersection V/C	0.244											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.5
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.279

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	570	86	8	502	69	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	570	86	8	502	69	16
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	152	23	2	134	18	4
Total Analysis Volume [veh/h]	606	91	9	534	73	17
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	1	76	6	6
g / C, Green / Cycle	0.78	0.78	0.02	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.19	0.20	0.01	0.15	0.04	0.01
s, saturation flow rate [veh/h]	1863	1781	1774	3547	1774	1583
c, Capacity [veh/h]	1451	1387	30	2981	125	112
d1, Uniform Delay [s]	2.70	2.73	43.73	1.35	40.56	39.31
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	0.43	5.43	0.13	4.23	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.25	0.30	0.18	0.58	0.15
d, Delay for Lane Group [s/veh]	3.09	3.17	49.16	1.48	44.79	39.93
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.28	1.30	0.24	0.40	1.70	0.37
50th-Percentile Queue Length [ft]	31.92	32.47	6.04	9.94	42.45	9.23
95th-Percentile Queue Length [veh]	2.30	2.34	0.44	0.72	3.06	0.66
95th-Percentile Queue Length [ft]	57.46	58.44	10.88	17.89	76.42	16.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.12	3.17	49.16	1.48	44.79	39.93
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.13		2.27		43.87	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.54					
Intersection LOS	A					
Intersection V/C	0.279					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	6.7
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.299

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	660	10	22	720	15	13	3	26	7	0	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	660	10	22	720	15	13	3	26	7	0	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	179	3	6	196	4	4	1	7	2	0	7
Total Analysis Volume [veh/h]	34	717	11	24	783	16	14	3	28	8	0	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	42	0	15	46	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	70	70	3	69	69	5	5	5	5
g / C, Green / Cycle	0.05	0.78	0.78	0.04	0.77	0.77	0.05	0.05	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.20	0.01	0.22	0.01	0.01	0.02	0.01	0.02
s, saturation flow rate [veh/h]	1774	1863	1853	1774	3547	1583	1379	1607	1373	1583
c, Capacity [veh/h]	81	1447	1439	64	2721	1215	107	86	103	85
d1, Uniform Delay [s]	41.80	2.79	2.79	42.38	3.13	2.46	43.71	41.11	43.76	40.99
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.41	0.42	0.42	3.54	0.27	0.02	0.54	2.51	0.32	2.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

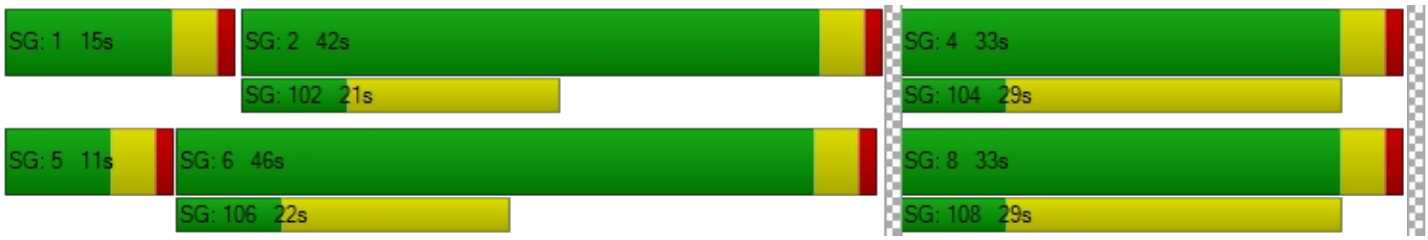
X, volume / capacity	0.42	0.25	0.25	0.37	0.29	0.01	0.13	0.36	0.08	0.31
d, Delay for Lane Group [s/veh]	45.21	3.21	3.21	45.92	3.40	2.48	44.25	43.62	44.08	42.99
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.80	1.38	1.37	0.58	1.56	0.05	0.32	0.72	0.18	0.60
50th-Percentile Queue Length [ft]	20.12	34.51	34.36	14.49	39.03	1.34	8.06	17.93	4.59	14.92
95th-Percentile Queue Length [veh]	1.45	2.48	2.47	1.04	2.81	0.10	0.58	1.29	0.33	1.07
95th-Percentile Queue Length [ft]	36.21	62.12	61.85	26.09	70.25	2.41	14.50	32.28	8.27	26.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.21	3.21	3.21	45.92	3.40	2.48	44.25	43.62	43.62	44.08	42.99	42.99
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.09			4.62			43.81			43.25		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.68											
Intersection LOS	A											
Intersection V/C	0.299											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.253

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	477	82	21	627	51	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	477	82	21	627	51	31
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	127	22	6	167	14	8
Total Analysis Volume [veh/h]	509	88	22	669	54	33
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	3	76	6	6
g / C, Green / Cycle	0.76	0.76	0.03	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.16	0.17	0.01	0.19	0.03	0.02
s, saturation flow rate [veh/h]	1863	1771	1774	3547	1774	1583
c, Capacity [veh/h]	1420	1350	61	2983	124	111
d1, Uniform Delay [s]	3.02	3.05	42.53	1.40	40.16	39.77
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.38	3.61	0.17	2.39	1.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.22	0.36	0.22	0.43	0.30
d, Delay for Lane Group [s/veh]	3.36	3.43	46.14	1.57	42.55	41.25
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.21	1.23	0.53	0.52	1.22	0.73
50th-Percentile Queue Length [ft]	30.21	30.70	13.37	12.89	30.44	18.32
95th-Percentile Queue Length [veh]	2.17	2.21	0.96	0.93	2.19	1.32
95th-Percentile Queue Length [ft]	54.37	55.25	24.07	23.20	54.80	32.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.39	3.43	46.14	1.57	42.55	41.25
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.39		2.99		42.06	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.64					
Intersection LOS	A					
Intersection V/C	0.253					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C-II

EXISTING WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	8.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.252

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	587	6	10	377	12	15	3	51	9	2	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	587	6	10	377	12	15	3	51	9	2	14
Peak Hour Factor	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	161	2	3	103	3	4	1	14	2	1	4
Total Analysis Volume [veh/h]	49	644	7	11	413	13	16	3	56	10	2	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	46	0	11	43	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	70	70	2	67	67	6	6	6	6
g / C, Green / Cycle	0.06	0.78	0.78	0.02	0.74	0.74	0.07	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.18	0.18	0.01	0.12	0.01	0.01	0.04	0.01	0.01
s, saturation flow rate [veh/h]	1774	1863	1856	1774	3547	1583	1390	1596	1338	1612
c, Capacity [veh/h]	100	1453	1447	35	2638	1178	133	107	98	108
d1, Uniform Delay [s]	41.25	2.65	2.65	43.51	3.35	2.98	42.11	40.70	44.18	39.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.73	0.36	0.36	4.86	0.13	0.02	0.40	4.40	0.46	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

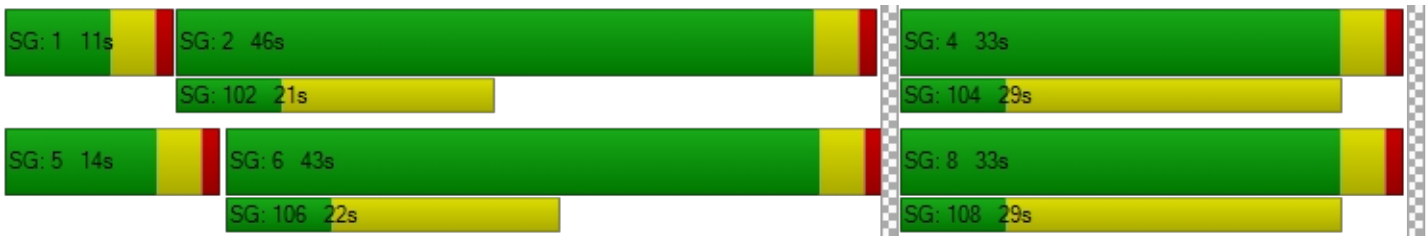
X, volume / capacity	0.49	0.22	0.22	0.31	0.16	0.01	0.12	0.55	0.10	0.16
d, Delay for Lane Group [s/veh]	44.98	3.00	3.01	48.37	3.47	3.00	42.50	45.10	44.63	40.29
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.15	1.17	1.17	0.29	0.86	0.05	0.36	1.38	0.23	0.37
50th-Percentile Queue Length [ft]	28.70	29.24	29.15	7.18	21.60	1.29	8.94	34.60	5.80	9.29
95th-Percentile Queue Length [veh]	2.07	2.11	2.10	0.52	1.56	0.09	0.64	2.49	0.42	0.67
95th-Percentile Queue Length [ft]	51.66	52.63	52.48	12.93	38.88	2.31	16.08	62.28	10.44	16.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.98	3.01	3.01	48.37	3.47	3.00	42.50	45.10	45.10	44.63	40.29	40.29
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.94			4.59			44.55			41.90		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.59											
Intersection LOS	A											
Intersection V/C	0.252											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.5
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.280

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	572	86	8	512	69	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	572	86	8	512	69	16
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	152	23	2	136	18	4
Total Analysis Volume [veh/h]	609	91	9	545	73	17
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	1	76	6	6
g / C, Green / Cycle	0.78	0.78	0.02	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.19	0.20	0.01	0.15	0.04	0.01
s, saturation flow rate [veh/h]	1863	1781	1774	3547	1774	1583
c, Capacity [veh/h]	1451	1388	30	2981	125	112
d1, Uniform Delay [s]	2.70	2.73	43.73	1.35	40.56	39.31
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	0.44	5.43	0.14	4.23	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.25	0.30	0.18	0.58	0.15
d, Delay for Lane Group [s/veh]	3.10	3.17	49.16	1.49	44.79	39.93
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.28	1.31	0.24	0.41	1.70	0.37
50th-Percentile Queue Length [ft]	32.09	32.64	6.04	10.18	42.45	9.23
95th-Percentile Queue Length [veh]	2.31	2.35	0.44	0.73	3.06	0.66
95th-Percentile Queue Length [ft]	57.77	58.75	10.88	18.33	76.42	16.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.13	3.17	49.16	1.49	44.79	39.93
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.13		2.26		43.87	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.50					
Intersection LOS	A					
Intersection V/C	0.280					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	6.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.307

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	672	10	22	743	15	13	3	26	7	0	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	672	10	22	743	15	13	3	26	7	0	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	183	3	6	202	4	4	1	7	2	0	7
Total Analysis Volume [veh/h]	34	730	11	24	808	16	14	3	28	8	0	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	41	0	16	46	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	70	70	3	69	69	5	5	5	5
g / C, Green / Cycle	0.05	0.78	0.78	0.04	0.77	0.77	0.05	0.05	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.20	0.01	0.23	0.01	0.01	0.02	0.01	0.02
s, saturation flow rate [veh/h]	1774	1863	1853	1774	3547	1583	1379	1607	1373	1583
c, Capacity [veh/h]	81	1447	1439	64	2721	1215	107	86	103	85
d1, Uniform Delay [s]	41.80	2.80	2.80	42.38	3.16	2.46	43.71	41.11	43.76	40.99
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.41	0.43	0.43	3.54	0.28	0.02	0.54	2.51	0.32	2.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

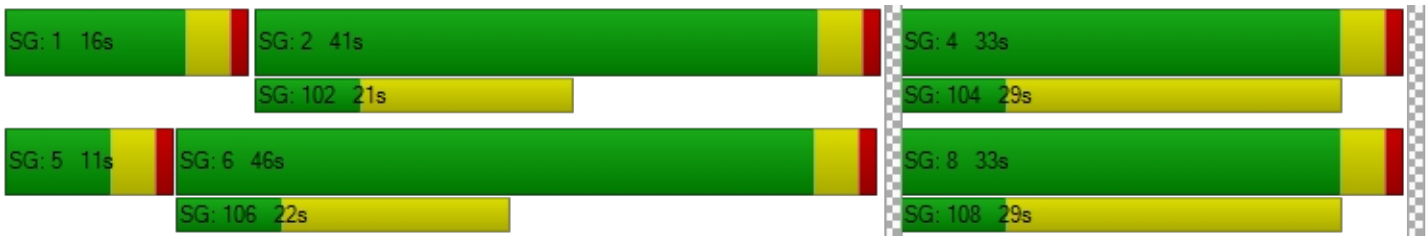
X, volume / capacity	0.42	0.26	0.26	0.37	0.30	0.01	0.13	0.36	0.08	0.31
d, Delay for Lane Group [s/veh]	45.21	3.23	3.24	45.92	3.44	2.48	44.25	43.62	44.08	42.99
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.80	1.41	1.41	0.58	1.63	0.05	0.32	0.72	0.18	0.60
50th-Percentile Queue Length [ft]	20.12	35.29	35.14	14.49	40.65	1.34	8.06	17.93	4.59	14.92
95th-Percentile Queue Length [veh]	1.45	2.54	2.53	1.04	2.93	0.10	0.58	1.29	0.33	1.07
95th-Percentile Queue Length [ft]	36.21	63.52	63.24	26.09	73.17	2.41	14.50	32.28	8.27	26.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.21	3.23	3.24	45.92	3.44	2.48	44.25	43.62	43.62	44.08	42.99	42.99
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.08			4.62			43.81			43.25		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.64											
Intersection LOS	A											
Intersection V/C	0.307											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.254

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	487	82	21	632	51	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	487	82	21	632	51	31
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	130	22	6	169	14	8
Total Analysis Volume [veh/h]	520	88	22	674	54	33
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	3	76	6	6
g / C, Green / Cycle	0.76	0.76	0.03	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.16	0.17	0.01	0.19	0.03	0.02
s, saturation flow rate [veh/h]	1863	1772	1774	3547	1774	1583
c, Capacity [veh/h]	1420	1351	61	2983	124	111
d1, Uniform Delay [s]	3.03	3.06	42.53	1.40	40.16	39.77
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.39	3.61	0.18	2.39	1.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.22	0.36	0.23	0.43	0.30
d, Delay for Lane Group [s/veh]	3.38	3.45	46.14	1.58	42.55	41.25
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.24	1.26	0.53	0.52	1.22	0.73
50th-Percentile Queue Length [ft]	30.88	31.38	13.37	13.01	30.44	18.32
95th-Percentile Queue Length [veh]	2.22	2.26	0.96	0.94	2.19	1.32
95th-Percentile Queue Length [ft]	55.58	56.48	24.07	23.42	54.80	32.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.41	3.45	46.14	1.58	42.55	41.25
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.41		2.99		42.06	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.62					
Intersection LOS	A					
Intersection V/C	0.254					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX D-I

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.266

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	48	621	6	11	399	13	16	3	54	10	2	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	621	6	11	399	13	16	3	54	10	2	15
Peak Hour Factor	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	170	2	3	109	4	4	1	15	3	1	4
Total Analysis Volume [veh/h]	53	681	7	12	438	14	18	3	59	11	2	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	46	0	11	43	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	70	70	2	67	67	6	6	6	6
g / C, Green / Cycle	0.06	0.78	0.78	0.02	0.74	0.74	0.07	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.18	0.19	0.01	0.12	0.01	0.01	0.04	0.01	0.01
s, saturation flow rate [veh/h]	1774	1863	1856	1774	3547	1583	1389	1595	1335	1610
c, Capacity [veh/h]	103	1447	1442	38	2625	1172	135	109	97	110
d1, Uniform Delay [s]	41.16	2.75	2.75	43.41	3.47	3.07	42.10	40.66	44.25	39.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.89	0.39	0.39	4.65	0.14	0.02	0.45	4.60	0.51	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

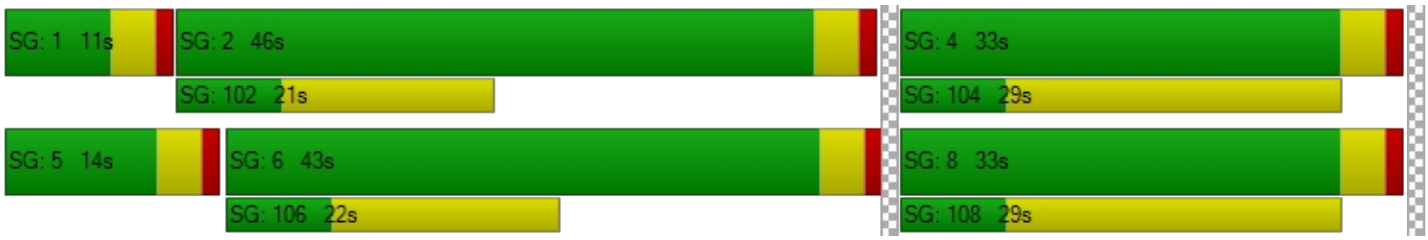
X, volume / capacity	0.51	0.24	0.24	0.32	0.17	0.01	0.13	0.57	0.11	0.16
d, Delay for Lane Group [s/veh]	45.05	3.14	3.14	48.05	3.61	3.09	42.54	45.26	44.77	40.21
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.24	1.28	1.28	0.31	0.95	0.06	0.40	1.46	0.26	0.39
50th-Percentile Queue Length [ft]	31.04	32.07	31.97	7.75	23.66	1.42	10.06	36.42	6.40	9.82
95th-Percentile Queue Length [veh]	2.23	2.31	2.30	0.56	1.70	0.10	0.72	2.62	0.46	0.71
95th-Percentile Queue Length [ft]	55.87	57.72	57.55	13.95	42.58	2.55	18.11	65.56	11.51	17.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.05	3.14	3.14	48.05	3.61	3.09	42.54	45.26	45.26	44.77	40.21	40.21
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.13			4.74			44.65			41.94		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.78											
Intersection LOS	A											
Intersection V/C	0.266											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.297

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	606	91	8	542	73	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	606	91	8	542	73	17
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	24	2	144	19	5
Total Analysis Volume [veh/h]	645	97	9	577	78	18
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	1	76	6	6
g / C, Green / Cycle	0.78	0.78	0.02	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.20	0.21	0.01	0.16	0.04	0.01
s, saturation flow rate [veh/h]	1863	1781	1774	3547	1774	1583
c, Capacity [veh/h]	1449	1385	30	2977	127	114
d1, Uniform Delay [s]	2.77	2.80	43.73	1.39	40.58	39.24
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.43	0.47	5.43	0.15	4.70	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.27	0.30	0.19	0.61	0.16
d, Delay for Lane Group [s/veh]	3.20	3.28	49.16	1.53	45.28	39.88
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.39	1.42	0.24	0.45	1.83	0.39
50th-Percentile Queue Length [ft]	34.86	35.48	6.04	11.15	45.65	9.77
95th-Percentile Queue Length [veh]	2.51	2.55	0.44	0.80	3.29	0.70
95th-Percentile Queue Length [ft]	62.75	63.87	10.88	20.07	82.16	17.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.23	3.28	49.16	1.53	45.28	39.88
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.24		2.26		44.27	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.60					
Intersection LOS	A					
Intersection V/C	0.297					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	6.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	712	11	23	786	16	14	3	28	7	0	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	712	11	23	786	16	14	3	28	7	0	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	193	3	6	214	4	4	1	8	2	0	7
Total Analysis Volume [veh/h]	36	774	12	25	854	17	15	3	30	8	0	27
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	41	0	16	46	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	70	70	3	69	69	5	5	5	5
g / C, Green / Cycle	0.05	0.77	0.77	0.04	0.76	0.76	0.05	0.05	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.01	0.24	0.01	0.01	0.02	0.01	0.02
s, saturation flow rate [veh/h]	1774	1863	1853	1774	3547	1583	1378	1605	1370	1583
c, Capacity [veh/h]	84	1441	1434	66	2709	1209	109	89	104	88
d1, Uniform Delay [s]	41.71	2.92	2.92	42.32	3.31	2.54	43.63	41.01	43.71	40.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.43	0.47	0.47	3.50	0.31	0.02	0.57	2.54	0.31	1.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

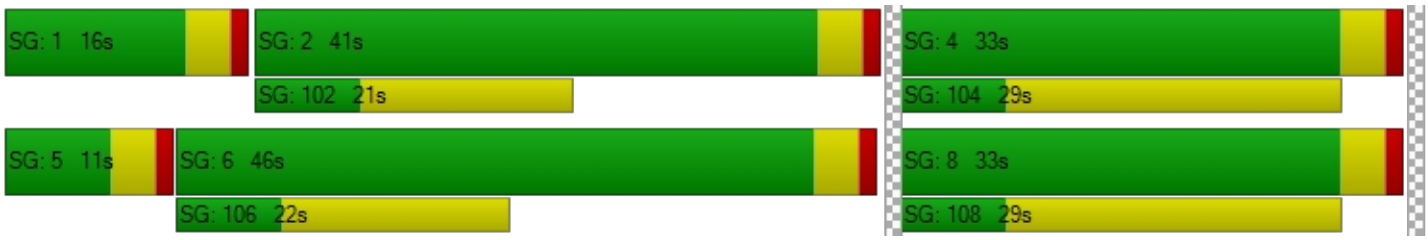
X, volume / capacity	0.43	0.27	0.27	0.38	0.32	0.01	0.14	0.37	0.08	0.31
d, Delay for Lane Group [s/veh]	45.13	3.39	3.39	45.82	3.61	2.56	44.20	43.55	44.02	42.81
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.85	1.56	1.55	0.60	1.80	0.06	0.35	0.76	0.18	0.62
50th-Percentile Queue Length [ft]	21.25	38.96	38.78	15.06	44.95	1.46	8.63	19.05	4.59	15.44
95th-Percentile Queue Length [veh]	1.53	2.81	2.79	1.08	3.24	0.11	0.62	1.37	0.33	1.11
95th-Percentile Queue Length [ft]	38.24	70.13	69.81	27.10	80.91	2.63	15.53	34.29	8.26	27.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.13	3.39	3.39	45.82	3.61	2.56	44.20	43.55	43.55	44.02	42.81	42.81
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.22			4.77			43.75			43.09		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.76											
Intersection LOS	A											
Intersection V/C	0.325											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.7
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.270

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	516	87	22	670	54	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	516	87	22	670	54	33
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	138	23	6	179	14	9
Total Analysis Volume [veh/h]	551	93	23	715	58	35
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	3	76	6	6
g / C, Green / Cycle	0.76	0.76	0.03	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.17	0.18	0.01	0.20	0.03	0.02
s, saturation flow rate [veh/h]	1863	1772	1774	3547	1774	1583
c, Capacity [veh/h]	1416	1347	63	2979	126	113
d1, Uniform Delay [s]	3.13	3.16	42.46	1.44	40.15	39.72
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.42	3.57	0.19	2.58	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.24	0.37	0.24	0.46	0.31
d, Delay for Lane Group [s/veh]	3.50	3.58	46.03	1.64	42.73	41.26
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	1.35	1.37	0.56	0.57	1.31	0.78
50th-Percentile Queue Length [ft]	33.68	34.25	13.93	14.35	32.78	19.42
95th-Percentile Queue Length [veh]	2.43	2.47	1.00	1.03	2.36	1.40
95th-Percentile Queue Length [ft]	60.63	61.65	25.08	25.84	59.00	34.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.54	3.58	46.03	1.64	42.73	41.26
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.54		3.02		42.18	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.72					
Intersection LOS	A					
Intersection V/C	0.270					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX E

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX E-I

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	48	714	6	11	530	27	21	3	54	10	2	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	714	6	11	530	27	21	3	54	10	2	15
Peak Hour Factor	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120	0.9120
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	196	2	3	145	7	6	1	15	3	1	4
Total Analysis Volume [veh/h]	53	783	7	12	581	30	23	3	59	11	2	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	46	0	11	45	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	70	70	2	67	67	6	6	6	6
g / C, Green / Cycle	0.06	0.78	0.78	0.02	0.74	0.74	0.07	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.21	0.01	0.16	0.02	0.02	0.04	0.01	0.01
s, saturation flow rate [veh/h]	1774	1863	1857	1774	3547	1583	1389	1595	1335	1610
c, Capacity [veh/h]	103	1445	1441	38	2621	1170	136	111	99	112
d1, Uniform Delay [s]	41.16	2.87	2.87	43.41	3.67	3.13	42.15	40.55	44.14	39.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.89	0.47	0.47	4.65	0.20	0.04	0.58	4.35	0.50	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

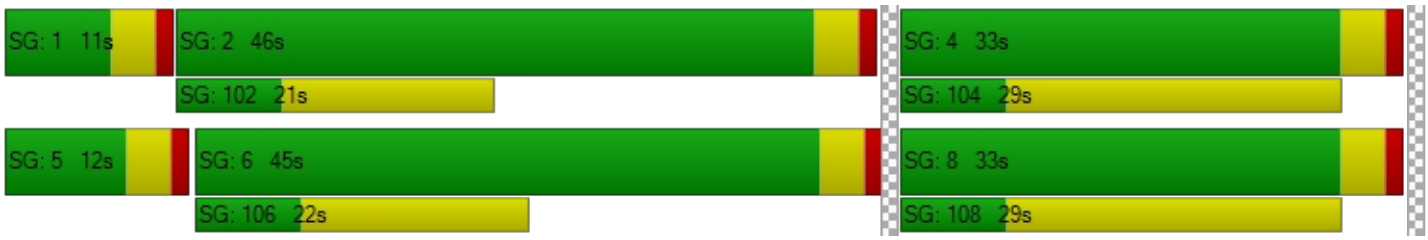
X, volume / capacity	0.51	0.27	0.27	0.32	0.22	0.03	0.17	0.56	0.11	0.16
d, Delay for Lane Group [s/veh]	45.05	3.34	3.35	48.05	3.87	3.17	42.72	44.90	44.64	40.08
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.24	1.54	1.54	0.31	1.33	0.12	0.52	1.45	0.26	0.39
50th-Percentile Queue Length [ft]	31.04	38.55	38.45	7.75	33.20	3.09	12.90	36.24	6.38	9.80
95th-Percentile Queue Length [veh]	2.23	2.78	2.77	0.56	2.39	0.22	0.93	2.61	0.46	0.71
95th-Percentile Queue Length [ft]	55.87	69.39	69.21	13.95	59.76	5.57	23.22	65.23	11.48	17.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.05	3.34	3.35	48.05	3.87	3.17	42.72	44.90	44.90	44.64	40.08	40.08
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.97			4.68			44.31			41.81		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.18											
Intersection LOS	A											
Intersection V/C	0.298											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.3
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.328

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	699	91	8	673	73	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	699	91	8	673	73	17
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	24	2	179	19	5
Total Analysis Volume [veh/h]	744	97	9	716	78	18
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	1	76	6	6
g / C, Green / Cycle	0.78	0.78	0.02	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.23	0.23	0.01	0.20	0.04	0.01
s, saturation flow rate [veh/h]	1863	1790	1774	3547	1774	1583
c, Capacity [veh/h]	1449	1393	30	2977	127	114
d1, Uniform Delay [s]	2.87	2.90	43.73	1.46	40.58	39.24
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.56	5.43	0.19	4.70	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.30	0.30	0.24	0.61	0.16
d, Delay for Lane Group [s/veh]	3.37	3.46	49.16	1.65	45.28	39.88
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.64	1.67	0.24	0.58	1.83	0.39
50th-Percentile Queue Length [ft]	40.93	41.66	6.04	14.53	45.65	9.77
95th-Percentile Queue Length [veh]	2.95	3.00	0.44	1.05	3.29	0.70
95th-Percentile Queue Length [ft]	73.68	74.98	10.88	26.16	82.16	17.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.41	3.46	49.16	1.65	45.28	39.88
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.42		2.24		44.27	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.26					
Intersection LOS	A					
Intersection V/C	0.328					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Mission Trail at Hidden Trail/Elberta Road

Control Type:	Signalized	Delay (sec / veh):	7.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.380

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	898	11	23	929	25	30	3	28	7	0	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	898	11	23	929	25	30	3	28	7	0	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	244	3	6	252	7	8	1	8	2	0	7
Total Analysis Volume [veh/h]	36	976	12	25	1010	27	33	3	30	8	0	27
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	44	0	13	46	0	0	33	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	15	0	0	22	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	69	69	3	68	68	6	6	6	6
g / C, Green / Cycle	0.05	0.76	0.76	0.04	0.75	0.75	0.07	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.02	0.27	0.27	0.01	0.28	0.02	0.02	0.02	0.01	0.02
s, saturation flow rate [veh/h]	1774	1863	1855	1774	3547	1583	1378	1605	1370	1583
c, Capacity [veh/h]	84	1425	1419	66	2678	1195	121	103	116	102
d1, Uniform Delay [s]	41.71	3.39	3.39	42.32	3.78	2.75	43.43	40.24	42.94	40.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.43	0.67	0.67	3.50	0.41	0.03	1.21	1.75	0.25	1.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

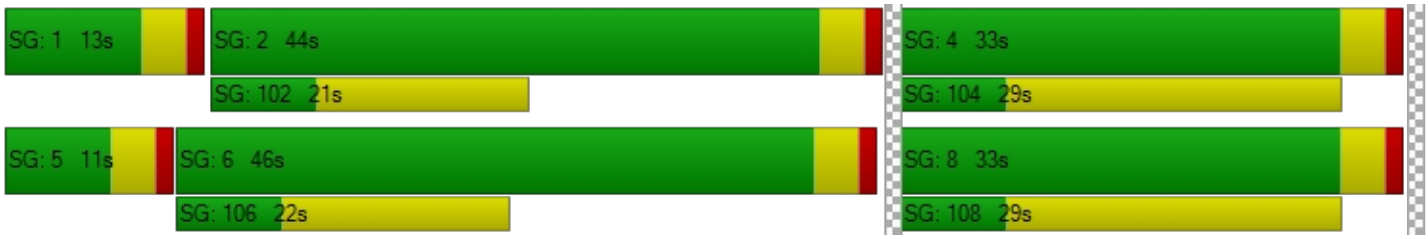
X, volume / capacity	0.43	0.35	0.35	0.38	0.38	0.02	0.27	0.32	0.07	0.26
d, Delay for Lane Group [s/veh]	45.13	4.06	4.06	45.82	4.19	2.79	44.64	41.99	43.18	41.46
Lane Group LOS	D	A	A	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh]	0.85	2.29	2.28	0.60	2.45	0.10	0.76	0.74	0.18	0.60
50th-Percentile Queue Length [ft]	21.25	57.27	57.05	15.06	61.21	2.52	19.06	18.52	4.51	15.04
95th-Percentile Queue Length [veh]	1.53	4.12	4.11	1.08	4.41	0.18	1.37	1.33	0.32	1.08
95th-Percentile Queue Length [ft]	38.24	103.09	102.70	27.10	110.18	4.54	34.31	33.33	8.12	27.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.13	4.06	4.06	45.82	4.19	2.79	44.64	41.99	41.99	43.18	41.46	41.46
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.51			5.13			43.31			41.85		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	7.05											
Intersection LOS	A											
Intersection V/C	0.380											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Mission Trail at Olive Street

Control Type:	Signalized	Delay (sec / veh):	5.4
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.324

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	702	87	22	813	54	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	702	87	22	813	54	33
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	187	23	6	217	14	9
Total Analysis Volume [veh/h]	749	93	23	868	58	35
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	50	0	11	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	15	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	3	76	6	6
g / C, Green / Cycle	0.76	0.76	0.03	0.84	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.23	0.23	0.01	0.24	0.03	0.02
s, saturation flow rate [veh/h]	1863	1793	1774	3547	1774	1583
c, Capacity [veh/h]	1416	1363	63	2979	126	113
d1, Uniform Delay [s]	3.34	3.38	42.46	1.53	40.15	39.72
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.54	0.59	3.57	0.25	2.58	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.31	0.37	0.29	0.46	0.31
d, Delay for Lane Group [s/veh]	3.88	3.97	46.03	1.78	42.73	41.26
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.89	1.92	0.56	0.74	1.31	0.78
50th-Percentile Queue Length [ft]	47.21	47.99	13.93	18.46	32.78	19.42
95th-Percentile Queue Length [veh]	3.40	3.46	1.00	1.33	2.36	1.40
95th-Percentile Queue Length [ft]	84.98	86.38	25.08	33.22	59.00	34.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.92	3.97	46.03	1.78	42.73	41.26
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.93		2.92		42.18	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.38					
Intersection LOS	A					
Intersection V/C	0.324					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX F

DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX F-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	18.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	615	0	0	431	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	615	0	0	431	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	167	0	0	117	0	0
Total Analysis Volume [veh/h]	668	0	0	468	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	8.92	0.00	17.98	10.44
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		14.21	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	701	0	0	753	7	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	701	0	0	753	7	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	190	0	0	205	2	2
Total Analysis Volume [veh/h]	762	0	0	818	8	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.04	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	9.25	0.00	25.14	11.58
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	4.43	4.43
d_A, Approach Delay [s/veh]	0.00		0.00		18.36	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	D					

APPENDIX F-II

EXISTING WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	615	0	0	431	6	23	0	10	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	615	0	0	431	6	23	0	10	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	167	0	0	117	2	6	0	3	0	0	0
Total Analysis Volume [veh/h]	2	668	0	0	468	7	25	0	11	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00	0.09	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.33	0.00	0.00	8.92	0.00	0.00	19.54	0.00	10.98	20.82	0.00	10.44
Movement LOS	A	A	A	A	A	A	C		B	C		B
95th-Percentile Queue Length [veh]	0.01	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.35	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.14	0.00	0.00	0.00	0.00	0.00	8.86	0.00	8.86	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.02			0.00			16.92			15.63		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.53											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	36.5
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.104

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	701	7	7	753	23	12	0	5	7	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	701	7	7	753	23	12	0	5	7	0	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	190	2	2	205	6	3	0	1	2	0	2
Total Analysis Volume [veh/h]	11	762	8	8	818	25	13	0	5	8	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.10	0.00	0.01	0.06	0.00	0.01
d_M, Delay for Movement [s/veh]	9.63	0.00	0.00	9.33	0.00	0.00	36.53	0.00	14.02	33.14	0.00	12.15
Movement LOS	A	A	A	A	A	A	E		B	D		B
95th-Percentile Queue Length [veh]	0.04	0.00	0.00	0.03	0.00	0.00	0.37	0.00	0.37	0.23	0.00	0.23
95th-Percentile Queue Length [ft]	1.06	0.00	0.00	0.72	0.00	0.00	9.29	0.00	9.29	5.83	0.00	5.83
d_A, Approach Delay [s/veh]	0.14			0.09			30.27			22.64		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	0.65											
Intersection LOS	E											

APPENDIX F-III

EXISTING WITH PROJECT WITH MITIGATION TRAFFIC CONDITIONS

Option 1: Restrict LT

Number	3											
Intersection	Mission Trail at Project Driveway											
Control Type	Two-way stop											
Analysis Method	HCM 2010											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	10	701	7	7	753	23	0	0	17	0	0	14
Total Analysis Volume [veh/h]	11	762	8	8	818	25	0	0	18	0	0	15

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane												
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Capacity Analysis

Calculated Rank	2	1	1	2	1	1	0	0	2	0	0	2
v_c, Conflicting Flow Rate [veh/h]	843	0	0	770	0	0	0	0	422	0	0	385
v_c, Stage 1 [veh/h]	843	0	0	770	0	0	0	0	422	0	0	385
v_c, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_p,x, Potential Capacity [veh/h]	789	0	0	840	0	0	0	0	581	0	0	613
c_p,x, Stage 1 [veh/h]	2060	0	0	2020	0	0	0	0	1303	0	0	1283
c_p,x, Stage 2 [veh/h]	1622	0	0	1622	0	0	0	0	1084	0	0	1084
c_m,x, Movement Capacity [veh/h]	789	100000	100000	840	100000	100000	0	0	581	0	0	613
c_m,x, Stage 1 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_m,x, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_T, Total Capacity [veh/h]	789	100000	100000	840	100000	100000	0	0	581	0	0	613

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	9.63	0.00	0.00	9.33	0.00	0.00	0.00	0.00	11.40	0.00	0.00	11.02
Movement LOS	A	A	A	A	A	A			B			B
Critical Movement	No	No	No	No	No	No			Yes			No
95th-Percentile Queue Length [veh]	0.04	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.08
95th-Percentile Queue Length [ft]	1.06	0.00	0.00	0.72	0.00	0.00	0.00	0.00	2.40	0.00	0.00	1.88
d_A, Approach Delay [s/veh]	0.14			0.09			11.40			11.02		
Approach LOS	A			A			B			B		
V/C_I, Worst Movement V/C Ratio	0.03											
d_I, Worst Movement Control Delay [s/veh]	11.40											
d_I, Intersection Delay [s/veh]	0.33											
Intersection LOS	B											

APPENDIX F-IV

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	22.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	652	0	0	457	6	23	0	10	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	652	0	0	457	6	23	0	10	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	177	0	0	124	2	6	0	3	0	0	0
Total Analysis Volume [veh/h]	2	709	0	0	497	7	25	0	11	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00	0.10	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.41	0.00	0.00	9.06	0.00	0.00	20.90	0.00	11.30	22.37	0.00	10.61
Movement LOS	A	A	A	A	A	A	C		B	C		B
95th-Percentile Queue Length [veh]	0.01	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.14	0.00	0.00	0.00	0.00	0.00	9.62	0.00	9.62	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.02			0.00			17.97			16.49		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.53											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	41.1
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.117

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	10	743	7	7	798	23	12	0	5	7	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	743	7	7	798	23	12	0	5	7	0	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	202	2	2	217	6	3	0	1	2	0	2
Total Analysis Volume [veh/h]	11	808	8	8	867	25	13	0	5	8	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.12	0.00	0.01	0.07	0.00	0.01
d_M, Delay for Movement [s/veh]	9.83	0.00	0.00	9.50	0.00	0.00	41.11	0.00	15.05	36.91	0.00	12.67
Movement LOS	A	A	A	A	A	A	E		C	E		B
95th-Percentile Queue Length [veh]	0.04	0.00	0.00	0.03	0.00	0.00	0.42	0.00	0.42	0.26	0.00	0.26
95th-Percentile Queue Length [ft]	1.11	0.00	0.00	0.75	0.00	0.00	10.55	0.00	10.55	6.52	0.00	6.52
d_A, Approach Delay [s/veh]	0.13			0.08			33.87			24.79		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	0.68											
Intersection LOS	E											

APPENDIX F-V

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH PROJECT WITH MITIGATION TRAFFIC CONDITIONS

Option 1: Restrict LT

Number	3											
Intersection	Mission Trail at Project Driveway											
Control Type	Two-way stop											
Analysis Method	HCM 2010											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	10	743	7	7	798	23	0	0	17	0	0	14
Total Analysis Volume [veh/h]	11	808	8	8	867	25	0	0	18	0	0	15

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane												
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Capacity Analysis

Calculated Rank	2	1	1	2	1	1	0	0	2	0	0	2
v_c, Conflicting Flow Rate [veh/h]	892	0	0	816	0	0	0	0	446	0	0	408
v_c, Stage 1 [veh/h]	892	0	0	816	0	0	0	0	446	0	0	408
v_c, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_p,x, Potential Capacity [veh/h]	756	0	0	807	0	0	0	0	560	0	0	593
c_p,x, Stage 1 [veh/h]	2088	0	0	2045	0	0	0	0	1316	0	0	1295
c_p,x, Stage 2 [veh/h]	1622	0	0	1622	0	0	0	0	1084	0	0	1084
c_m,x, Movement Capacity [veh/h]	756	100000	100000	807	100000	100000	0	0	560	0	0	593
c_m,x, Stage 1 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_m,x, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_T, Total Capacity [veh/h]	756	100000	100000	807	100000	100000	0	0	560	0	0	593

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	9.83	0.00	0.00	9.50	0.00	0.00	0.00	0.00	11.64	0.00	0.00	11.23
Movement LOS	A	A	A	A	A	A			B			B
Critical Movement	No	No	No	No	No	No			Yes			No
95th-Percentile Queue Length [veh]	0.04	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.08
95th-Percentile Queue Length [ft]	1.11	0.00	0.00	0.75	0.00	0.00	0.00	0.00	2.49	0.00	0.00	1.95
d_A, Approach Delay [s/veh]	0.13			0.08			11.64			11.23		
Approach LOS	A			A			B			B		
V/C_I, Worst Movement V/C Ratio	0.03											
d_I, Worst Movement Control Delay [s/veh]	11.64											
d_I, Intersection Delay [s/veh]	0.32											
Intersection LOS	B											

APPENDIX F-VI

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	28.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	745	0	0	588	6	23	0	10	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	745	0	0	588	6	23	0	10	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	202	0	0	160	2	6	0	3	0	0	0
Total Analysis Volume [veh/h]	2	810	0	0	639	7	25	0	11	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.01	0.00	0.14	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.86	0.00	0.00	9.44	0.00	0.00	27.74	0.00	13.16	28.27	0.00	11.05
Movement LOS	A	A	A	A	A	A	D		B	D		B
95th-Percentile Queue Length [veh]	0.01	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.54	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.16	0.00	0.00	0.00	0.00	0.00	13.43	0.00	13.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.02			0.00			23.28			19.66		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.57											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Mission Trail at Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	64.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	929	7	7	941	23	12	0	5	7	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	929	7	7	941	23	12	0	5	7	0	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	252	2	2	256	6	3	0	1	2	0	2
Total Analysis Volume [veh/h]	11	1010	8	8	1023	25	13	0	5	8	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.01	0.01	0.00	0.18	0.00	0.01	0.11	0.00	0.02
d_M, Delay for Movement [s/veh]	10.55	0.00	0.00	10.38	0.00	0.00	64.85	0.00	21.29	58.20	0.00	16.05
Movement LOS	B	A	A	B	A	A	F		C	F		C
95th-Percentile Queue Length [veh]	0.05	0.00	0.00	0.04	0.00	0.00	0.67	0.00	0.67	0.42	0.00	0.42
95th-Percentile Queue Length [ft]	1.27	0.00	0.00	0.90	0.00	0.00	16.79	0.00	16.79	10.41	0.00	10.41
d_A, Approach Delay [s/veh]	0.11			0.08			52.75			37.13		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	0.82											
Intersection LOS	F											

APPENDIX F-VII

EXISTING WITH AMBIENT GROWTH (YEAR 2019) WITH CUMULATIVE PROJECTS WITH PROJECT WITH MITIGATION TRAFFIC CONDITIONS

Option 1: Restrict LT

Number	3											
Intersection	Mission Trail at Project Driveway											
Control Type	Two-way stop											
Analysis Method	HCM 2010											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	10	929	7	7	941	23	0	0	17	0	0	14
Total Analysis Volume [veh/h]	11	1010	8	8	1023	25	0	0	18	0	0	15

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane												
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Capacity Analysis

Calculated Rank	2	1	1	2	1	1	0	0	2	0	0	2
v_c, Conflicting Flow Rate [veh/h]	1048	0	0	1018	0	0	0	0	524	0	0	509
v_c, Stage 1 [veh/h]	1048	0	0	1018	0	0	0	0	524	0	0	509
v_c, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_p,x, Potential Capacity [veh/h]	660	0	0	677	0	0	0	0	498	0	0	509
c_p,x, Stage 1 [veh/h]	2176	0	0	2159	0	0	0	0	1359	0	0	1351
c_p,x, Stage 2 [veh/h]	1622	0	0	1622	0	0	0	0	1084	0	0	1084
c_m,x, Movement Capacity [veh/h]	660	100000	100000	677	100000	100000	0	0	498	0	0	509
c_m,x, Stage 1 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_m,x, Stage 2 [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
c_T, Total Capacity [veh/h]	660	100000	100000	677	100000	100000	0	0	498	0	0	509

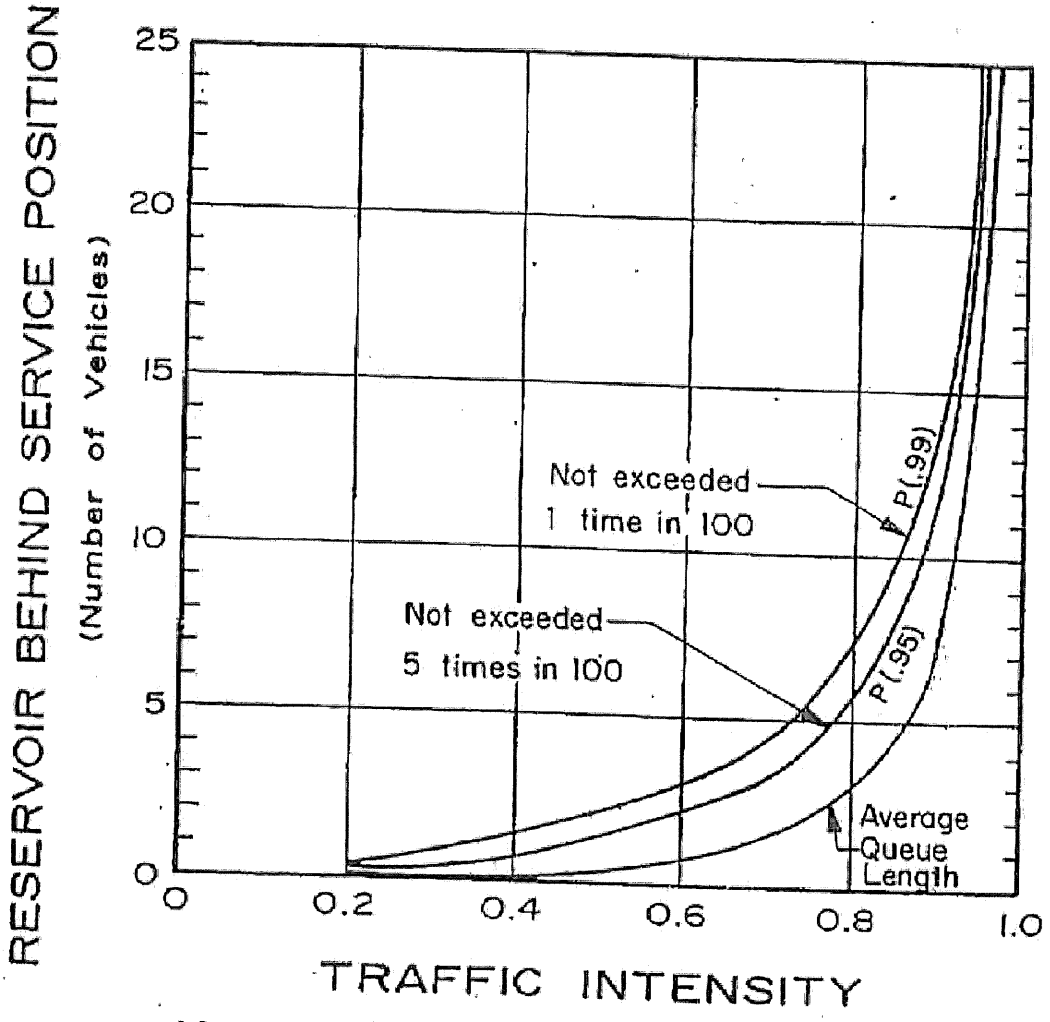
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	10.55	0.00	0.00	10.38	0.00	0.00	0.00	0.00	12.50	0.00	0.00	12.28
Movement LOS	B	A	A	B	A	A			B			B
Critical Movement	No	No	No	No	No	No			Yes			No
95th-Percentile Queue Length [veh]	0.05	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.09
95th-Percentile Queue Length [ft]	1.27	0.00	0.00	0.90	0.00	0.00	0.00	0.00	2.81	0.00	0.00	2.27
d_A, Approach Delay [s/veh]	0.11			0.08			12.50			12.28		
Approach LOS	A			A			B			B		
V/C_I, Worst Movement V/C Ratio	0.04											
d_I, Worst Movement Control Delay [s/veh]	12.50											
d_I, Intersection Delay [s/veh]	0.29											
Intersection LOS	B											

APPENDIX F-VIII

CROMMELIN RESERVOIR NEEDS NOMOGRAPH

RESERVOIR NEEDS VS TRAFFIC INTENSITY



1

Assumptions:

1. Arrivals follow a Poisson Distribution
2. Service rate can be represented by an exponential probability function.
3. Flow is equally divided between each lane if more than one is available.

Note: To obtain reservoir length, use 22 feet per vehicle.