APPENDIX H
TRANSPORTATION IMPACT STUDY

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TRANSPORTATION IMPACT STUDY

Casa de Oro Library

Prepared for:
County of San Diego
Development of General Services
5560 Overland Avenue, Ste 410
San Diego, CA 92123

October 13, 2020

5050 Avenida Encinas, Suite 260, Carlsbad, CA 92008
Office: 760.603-6266 | Fax: 760.476.9198
Contact: dwilson@mbakerintl.com
JN 179854

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INTERNATIONAL

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1 EXECUTIVE SUMMARY

This transportation impact study analyzes the forecast traffic conditions associated with the Casa de Oro Library (proposed project) located in the Valle de Oro Community Planning Area of San Diego County. The proposed project would result in replacement of the existing County of San Diego (County) Casa de Oro branch library facility in the community of Spring Valley with a new branch library facility at a different location. The proposed project consists of an approximately 13,000 square-foot (SF) library facility with access off Campo Road, 52 parking spaces, landscaping, and fencing. The existing library is currently located at 9805 Campo Road within an existing retail commercial shopping center, just to the southeast of the proposed project site.

CEQA Analysis Summary

In December 2018, new California Environmental Quality Act (CEQA) guidelines were approved that shift traffic analysis from delay and operations to VMT when evaluating Transportation Impacts under CEQA. This change in methodology is a result of Senate Bill 743 (SB743), which was signed into law in September 2013. The County of San Diego developed their own *Transportation Study Guidelines* (TSG) which were adopted by the Board of Supervisors on June 24, 2020 to include VMT analysis procedures and thresholds for significance. The County's TSG includes screening criteria for all land development projects. The proposed Casa de Oro Library is a locally serving public facility and therefore meets the VMT screening criteria outline in the County's TSG. Therefore, a detailed VMT analysis is not required and the Casa de Oro Library is presumed to have a less than significant VMT impact on the environment.

Level of Service Summary

The results of the analysis show that all three study intersections currently operate at acceptable levels of service (LOS D or better). Under Opening Year 2022 Plus Project conditions, study intersections continue to operate at acceptable levels of service. Therefore, no physical improvements to the study intersections are recommended. Although LOS is not required under CEQA, the LOS Summary in this report is consistent with General Plan Policy M-2.1 that requires projects provide associated road improvements necessary to achieve a LOS "D" or better on all Mobility Element roads except for those where a failing LOS (E or F) has been accepted by the County.

Signal Warrant Summary

The 2014 *California Manual on Uniform Traffic Control Devices* (*CA MUTCD*) contains minimum guidelines regarding traffic volumes, collisions, speeds, visibility and other criteria in order to satisfy the requirements for the recommendation of a traffic signal, multi-way stop, or other traffic control device installation. A Peak Hour Warrant (CA MUTCD Warrant #3) was evaluated at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions. The Peak Hour Signal Warrant analysis shows a traffic signal is not warranted at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions.

Recommended Improvements

The project access should be free and clear of any obstructions to provide adequate sight distance ensuring that exiting vehicles from the new driveway can adequately see pedestrians and bicyclists. Any landscaping and signage at the project driveway should not obstruct the drivers view from exiting the project site.

2 INTRODUCTION

This study analyzes the forecast traffic conditions associated with the Casa de Oro Library (proposed project) located in the Valle de Oro Community Planning Area of San Diego County.

2.1 PROJECT DESCRIPTION

The Casa de Oro Branch Library Project (proposed project) would result in replacement of the existing County of San Diego (County) Casa de Oro branch library facility in the community of Spring Valley with a new branch library facility at a different location. The proposed project consists of an approximately 13,000 square-foot (SF) library facility that aims to achieve "zero net energy," with access off Campo Road, 52 parking spaces, landscaping, and fencing. The existing library is currently located at 9805 Campo Road within an existing retail commercial shopping center, just to the southeast of the proposed project site. The proposed project is intended to enhance the County's regional library system and provide expanded services to its patrons within the Spring Valley community and surrounding areas.

An existing modular building located on the La Mesa Spring Valley School District property would be removed to accommodate the parking lot for the library. Additionally, an existing restaurant fronting onto Campo Road would be demolished to allow for site access. The existing asphaltic surface in the southern portion of the site would also be broken up and removed. Removal of a portion of the existing sports fields abutting the site to the north would also occur with project grading. Project implementation would require acquisition of Real Property from an adjoining private party to the south. The County would lease the affected property from the La Mesa Spring Valley School District; no lands would be purchased from the school.

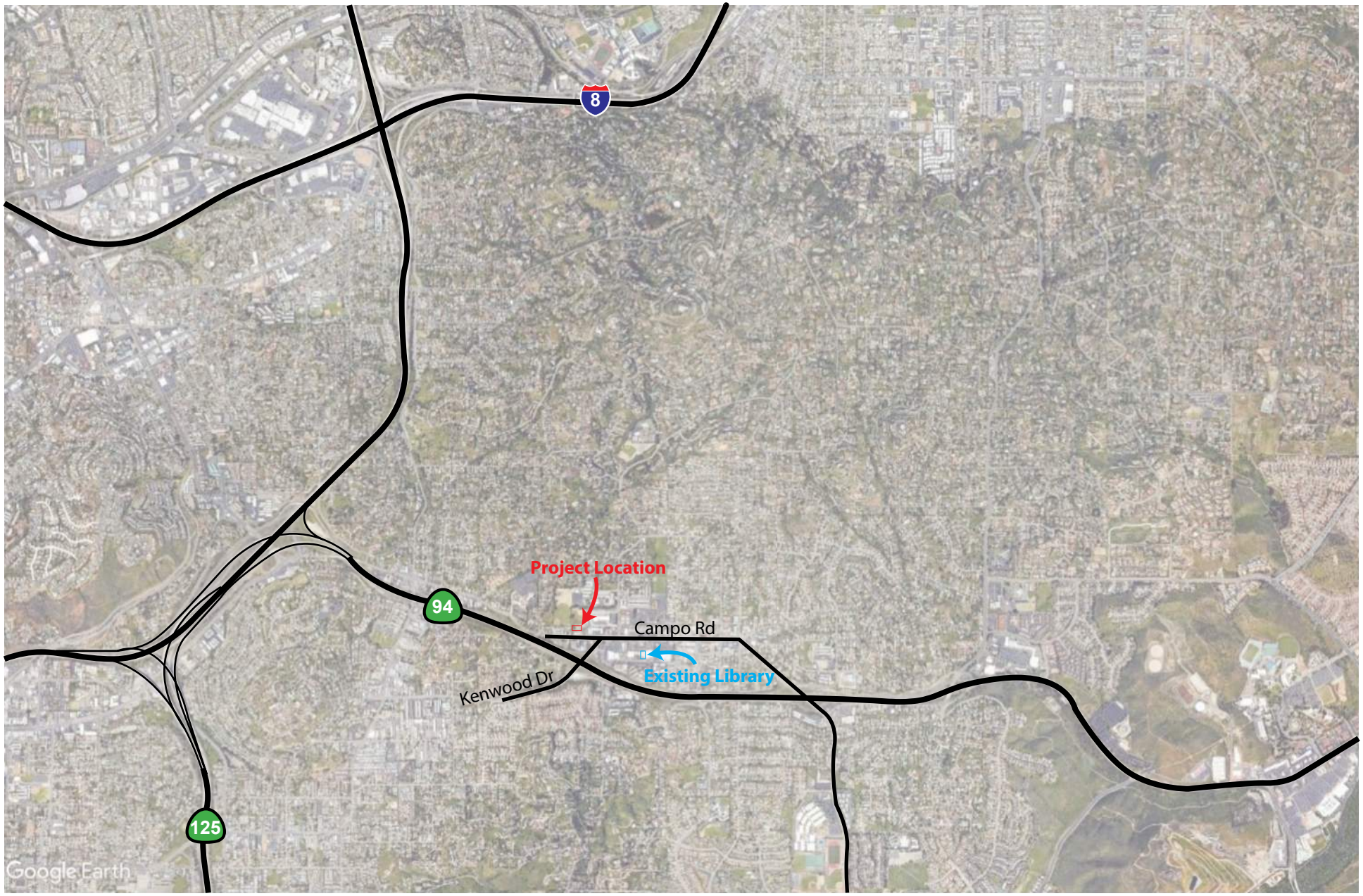
The majority of the new library trips will be trips that are currently travelling to and from the existing library. These trips will be rerouted to the new library site. However, redistribution of these existing trips at the two study intersections would be challenging. Depending on the origins of the existing library trips, some will add traffic to the study area intersections and some origins will subtract trips at the study intersections. For simplicity, the traffic analysis conservatively assumes the library will generate new trips that are added to the study intersections. In addition, the new library may encourage new visitors and therefore the analysis includes all new trips generated by the new library.

2.2 PROJECT LOCATION

The proposed project site is located in the community of Spring Valley in southeastern unincorporated San Diego County, California. The site is within the Valle de Oro Community Plan Area. The affected County Assessor Parcel Numbers (APNs) include APN 500-170-40 and portions of APNs 500-170-10 and -11.

Exhibit 1 shows the location of the new library and the existing library. It may be noted the existing library will be replaced by the new library and most library traffic exists today on nearby streets in the same general study area. **Exhibit 2** provides a site plan of the new library. However, it may be noted the project design has not yet been initiated. This drawing represents the location of the library and anticipated layout of the parking and new driveway.

Direct vehicular access to the project site would be from Campo Drive. It is anticipated that a minimum 24-foot wide access drive would be constructed from the street up to the surface parking area proposed with the project. Construction of this access drive would require a new curb cut within the right-of-way on Campo Road and installation of a commercial driveway.



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Project Location

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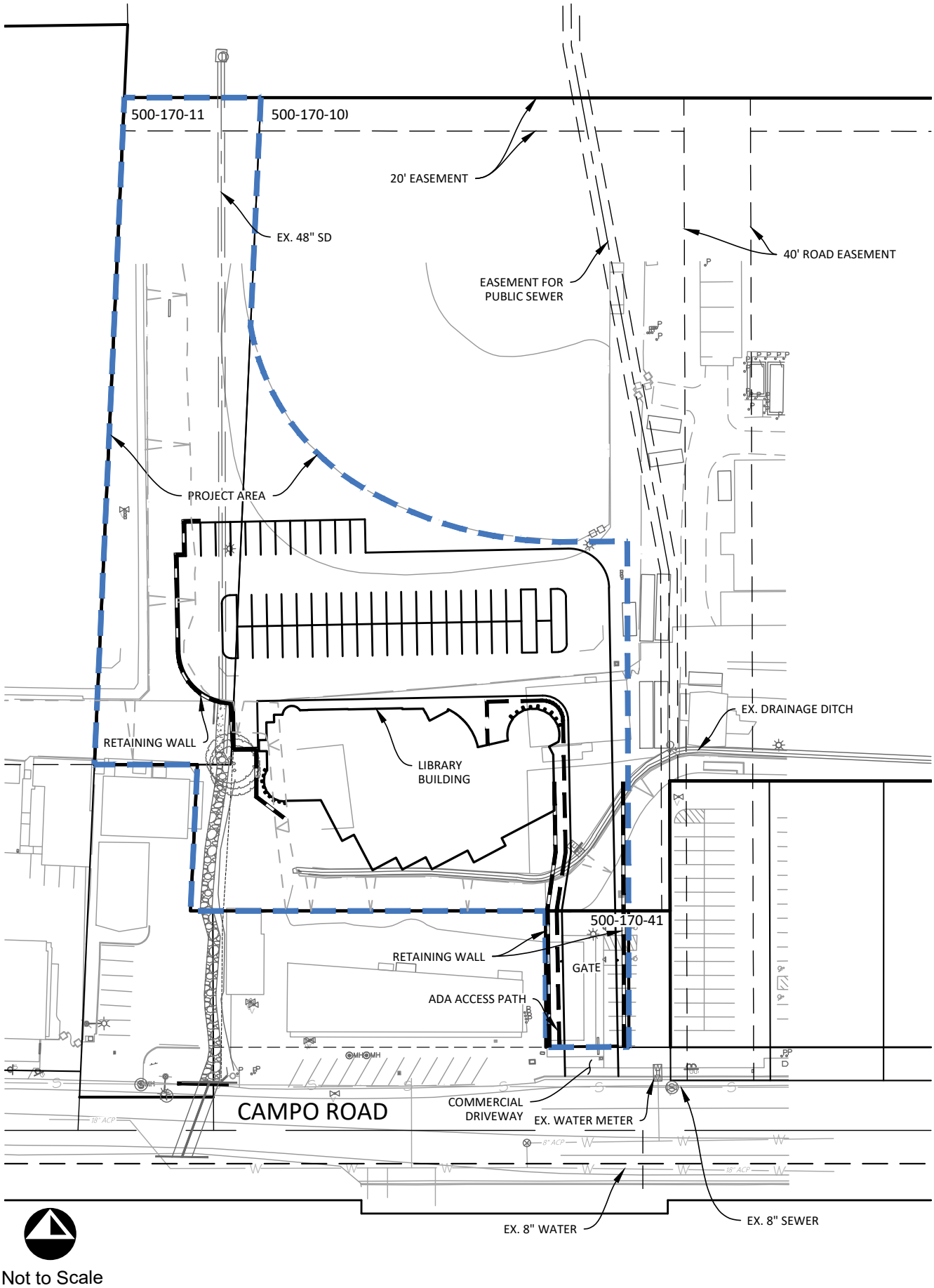
Exhibit 1



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Site Plan

Exhibit 2

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2.3 CEQA VMT ANALYSIS SCOPE

The CEQA transportation analysis scope is based on the County's *Transportation Study Guidelines (TSG)* which were adopted by the County's Board of Supervisors on June 24th, 2020. According to the County's TSG, a project that meets at least one of the screening criteria would not be required to prepare a detailed VMT analysis and would have a less than significant VMT impact. The proposed project is a library which is considered a public facility serving the surrounding community and thus meets the screening criteria for a CEQA VMT analysis. Therefore, the Casa de Oro Library would **not** be required to prepare a detailed CEQA VMT analysis and would also have a less than significant VMT impact on the environment.

2.4 LOCAL MOBILITY ANALSYIS SCOPE

A Local Mobility Analysis (LMA) has been prepared in accordance with the County's TSG. While not part of the CEQA review, the LMA is required to address localized operational and safety concerns for all transportation modes. The proposed project is consistent with the General Plan and is expected to generate approximately 527 daily trips. According to the County's TSG, projects that generate more than 500 daily trips are required to prepare a full LMA. In accordance with the County's TSG, the study area includes the project access off Campo Road and two signalized intersections east of the project site including Campo Road/Kenwood Drive and Campo Road/Conrad Drive. The study locations will be analyzed under Existing, Opening Year 2022 No Project, and Opening Year 2022 Plus Project conditions.

3 CEQA VMT ANALYSIS

In December 2018 new California Environmental Quality Act (CEQA) guidelines were approved that shift traffic analysis from delay and operations to VMT when evaluating Transportation Impacts under CEQA. This change in methodology is a result of Senate Bill 743 (SB743), which was signed into law in September 2013. SB743 "creates a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 requires the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must 'promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.'[1] "[2]

Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." [3] According to SB743, projects should aim to reduce VMT and mitigate potential VMT impacts through the implementation of TDM strategies. As of July 1, 2020, agencies must fully implement the new CEQA guidelines for Transportation.

As part of the development of the new CEQA guidelines, OPR prepared a ***Technical Advisory on Evaluating Transportation Impacts in CEQA*** (Technical Advisory)***.*** The final version of the Technical Advisory is dated December 2018 and provides guidance for local jurisdictions in developing methodologies and thresholds for evaluating VMT. The County of San Diego developed their own *Transportation Study Guidelines* adopted by the Board of Supervisors on June 24, 2020 which generally follows the VMT analysis methodology recommended in OPR's Technical Advisory.

VMT Screening Criteria

The County's TSG includes screening criteria for all land development projects. A project that meets at least one of the screening criteria listed in Section 3.3.1 (Screening Criteria for CEQA VMT Analysis) of the County's TSG would have a less than significant VMT impact due to project characteristics and/or location. Each of the screening criteria have been reviewed to determine if the Casa De Oro Library meets the screening criteria, see **Table 1**.

TABLE 1: VMT SCREENING CRITERIA EVALUATION

ID	VMT Screening Criteria	Description	Criteria Met? (Yes / No)
1	Projects Located in a VMT Efficient Area	Projects that are located within a VMT efficient area (morethan 15% below the Unincorporated Average VMT) according to the County's screening maps.	No
2	Small Residential and Employment Projects	Projects generated less than 110 daily vehicle trips based on ITE trip generation rates.	No
3	Projects Located in a Transit Accessible Area	Projects located within a half mile of an existing major transit stop or an existing stop along a high-quality transit corridor.	No

[1] Public Resources Code Section 21099(b)(1)
[2] Office of Planning and Research, http://www.opr.ca.gov/ceqa/updates/sb-743/
[3] Public Resources Code Section 21099(b)(1)

ID	VMT Screening Criteria	Description	Criteria Met? (Yes / No)
4	Locally Serving Retail/Service Projects	Local serving retail/service projects less than 50,000 square feet.	No
5	Locally Serving Public Facilities and Other Uses	Public facilities that serve the surrounding community such as transit centers, schools, libraries, post offices, park-and-ride lots, local health/medical clinics, law enforcement and fire facilities, and local parks and trailheads.	Yes
6	Redevelopment Projects with Greater VMT Efficiency	Total project VMT is less than existing land use's total VMT. In addition, the existing restaurant is being demolished which will further reduce VMT generated by the site.	No
7	Affordable Housing	100% of residential units are affordable.	No

As shown in Table 1, the Casa de Oro Library meets one of the seven VMT screening criteria. The Casa de Oro Library is considered a locally serving public facility and therefore meets the VMT screening criteria. Since at least one of the VMT screening criteria is satisfied, a detailed VMT analysis is not required and the Casa de Oro Library is presumed to have a less than significant VMT impact on transportation.

4 LOCAL MOBILITY ANALYSIS

4.1 LMA ANALYSIS METHODOLOGY

4.1.1 Intersection Analysis Methodology

Level of Service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the travel lanes approaching the intersection, the volume of traffic using the intersection, and the average vehicle delay. The intersection analysis conforms to the operational analysis methodology outlined the *Highway Capacity Manual (HCM 6th Edition)* and performed utilizing *Synchro 10* traffic analysis software.

The *HCM* analysis methodology describes the operation of an intersection using a range of level of service from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding stopped delay experienced per vehicle for study intersections as shown in **Table 2**.

For signalized intersections, signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. were obtained from the current signal timing data sheets provided by City staff and incorporated into the Synchro model. Synchro reports average vehicle delay for a signalized intersection, which correspond to a particular LOS, to describe the overall operation of an intersection.

Unsignalized intersection LOS for all-way stops and roundabouts is based on the average vehicle delay for all approaches. Average vehicle delay for one-way or two-way stop-controlled intersections is influenced by available gaps in traffic flow on the non-controlled approaches and LOS is based on the approach with the worst delay. The County of San Diego has adopted level of service "D" or better as acceptable operating conditions for intersections.

TABLE 2 - LEVEL OF SERVICE & DELAY RANGE

Level of Service	Control Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10.0	≤ 10.0	Operates with very low delay and most vehicles do not stop.
B	> 10.0 to 20.0	> 10.0 to 15.0	Operates with good progression with some restricted movements.
C	> 20.0 to 35.0	>15.1 to 25.0	Operates with significant number of vehicles stopping with some backup and light congestion.
D	> 35.0 to 55.0	> 25.0 to 35.0	Operates with noticeable congestion, longer delays occur, and many vehicles stop.
E	> 55.0 to 80.0	> 35.1 to 50.0	Operates with significant delay, extensive queuing and unfavorable progression.
F	> 80.0	> 50.0	Operates at a level that is unacceptable to most drivers. Arrival rates exceed capacity of the intersection. Extensive queuing occurs.

Source: Highway Capacity Manual (HCM) 6th Edition.

4.2 THRESHOLDS OF IMPROVEMENTS

As stated previously, the County of San Diego has adopted level of service "D" or better as acceptable operating conditions for intersections and roadway segments, with the exception of the segment of Campo Road between Kenwood Drive and Conrad Drive which is acceptable at LOS "F".

According to the County's TSG, an improvement is required at an intersection if:

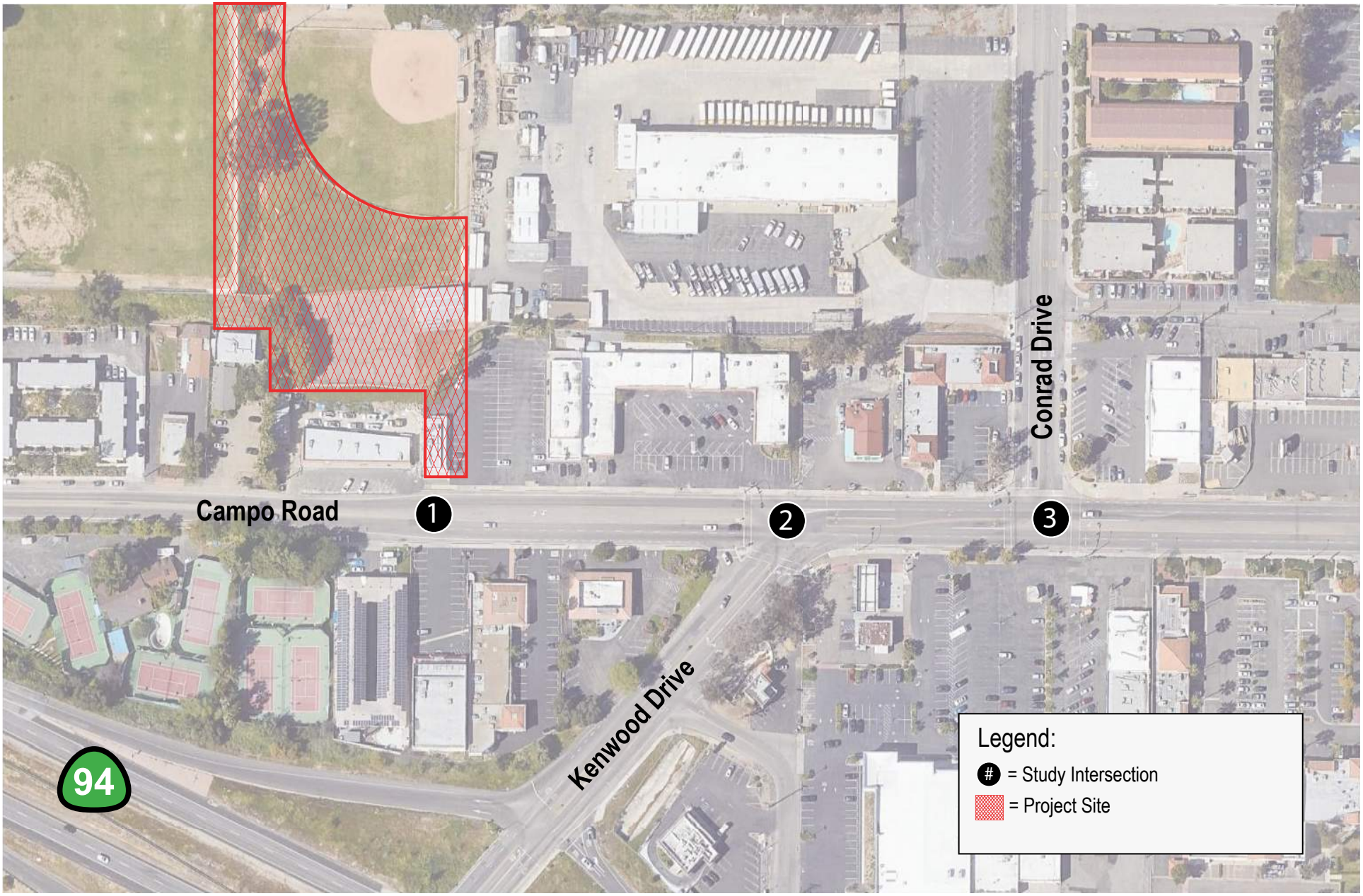
- The addition of project related traffic causes the intersection to degrade to and LOS E or F, improvements are required to improve operations to LOS D or better.
- At any signalized intersection that is operating at LOS E or F without the project, where the addition of project related traffic increases delay by 5 seconds or more, improvements are required to offset the increase in delay.
- At any side-street stop controlled intersection that is operating at LOS E or F without the project, where the addition of project related traffic increases the *overall* intersection delay 5 or more seconds AND the project adds ten (10) or more trips to the worst-case movement or 50 trips to the overall intersection, improvements are required to offset the increase in delay.
- At any all-way stop controlled intersection or roundabout, that is operating at LOS E or F without the project, where the addition of project related traffic increases delay by 5 seconds or more, improvements are required to offset the increase in delay.

4.3 STUDY AREA

The study evaluates the following three (3) intersections during the AM and PM peak hours within the study area:

1. Campo Road / Project Access Road (One-Way Stop)
2. Campo Road / Kenwood Drive (Traffic Signal)
3. Campo Road / Conrad Drive (Traffic Signal)

Exhibit 3 shows the study locations.



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Study Area

Exhibit 3

4.4 EXISTING TRAFFIC CONDITIONS

4.5 SURROUNDING ROADWAY NETWORK

The characteristics of the roadway system in the vicinity of the project site are described below:

Campo Road is oriented in the east-west direction and is classified as a 4-lane Boulevard with Intermittent Turn Lanes (4.2B) per the Valle de Oro Mobility Element. A two-way-left-turn-lane is provided approximately 400 feet west of Kenwood Drive to approximately 230 feet east of Granada Avenue / Casa de Oro Boulevard with left-turn turn lanes at signalized intersections. Within the study area, the posted speed limit is 35 MPH between Kenwood Drive and Granada Avenue / Casa de Oro Boulevard; 40 MPH between Granada Avenue / Casa de Oro Boulevard and Agua Dulce Boulevard and 45 MPH south-east of the SR-94. On-street parallel parking is prohibited in both directions within the study area. Class II bike lanes and sidewalks are provided on both sides of the roadway.

Kenwood Drive is oriented in the northeast-southwest direction and is classified as a 4-lane Major Road with Intermittent Turn Lanes (4.1B) between the SR-94 and Campo Road per the Valle de Oro Mobility Element. On-street parallel parking is prohibited in both directions within the study area. Class II bike lanes are provided on both sides of the roadway. Sidewalks are provided on the east side between the SR-94 eastbound ramps and Kenora Drive only.

Conrad Drive is oriented in the north-south direction and is classified as a 2-lane Light Collector (2.2E) per the Valle de Oro Mobility Element. There are two lanes in the northbound direction immediately north of Campo Road, which taper to a single lane north of San Juan Street (approximately 550') Within the study area, the posted speed limit is 35 MPH. On-street parallel parking is allowed intermittently in both directions between Campo Road and Spring Valley Middle School. There are no bike lanes provided within the study area. Sidewalks are provided on both sides of the roadway between Campo Road and Spring Valley Middle School. There are no sidewalks north of the school.

Exhibit 4 shows the Valle de Oro Community Plan Mobility Element Network. **Appendix A** shows the associated Mobility Element Network Map and Matrix.

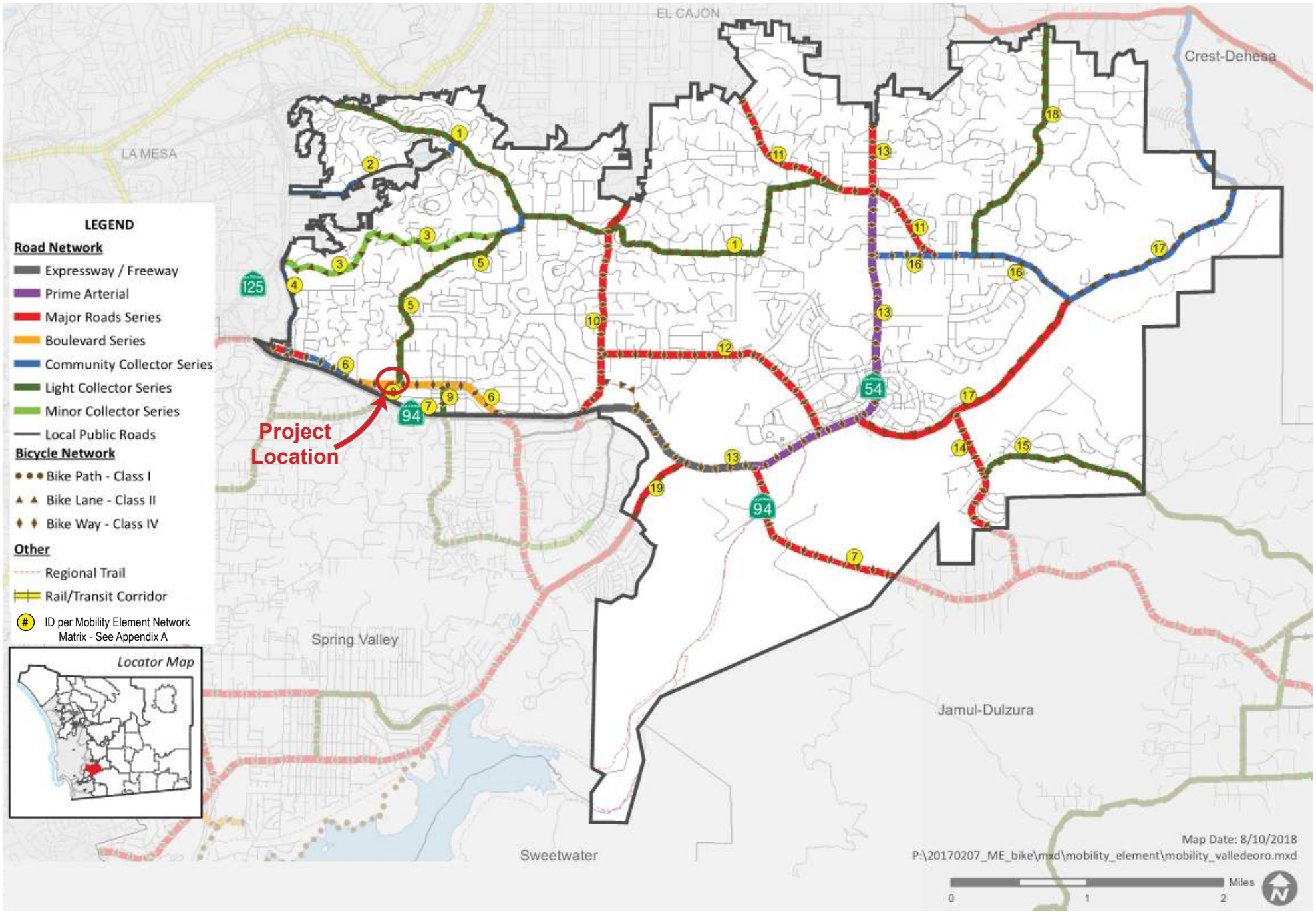
4.6 FIELD WORK AND DATA COLLECTION

A detailed field review was conducted on Tuesday, November 12, 2019 to establish current traffic conditions and included an examination of factors such as lane widths and intersection geometries; intersection traffic control and signal phasing at signalized locations; crosswalk inventory and ADA compliance; posted speed limits; bike and sidewalk facilities and transit facilities

To determine the existing operations of the study intersections, peak hour intersection turn movement counts were collected by National Data Services (NDS).

Morning (AM) peak period counts were generally collected between 7:00 AM to 9:00 AM and evening (PM) peak period counts were generally collected from 4:00 PM to 6:00 PM. The counts used in this analysis represent the highest hour within the peak periods counted for each intersection.

Detailed traffic count data is provided in **Appendix B**.



Valle de Oro Mobility Element Network

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Exhibit 4

4.7 EXISTING PEDESTRIAN FACILITIES

Existing peak hour pedestrian activity was recorded on Tuesday, November 12, 2019. Based on the existing counts, pedestrian activity on Campo Road during the AM peak hour peaks at the Conrad Drive westside crosswalk with 84 pedestrians crossing Campo Road. During the PM Peak hour, pedestrian activity peaks at the Kenwood Drive/ SR-94 Eastbound Ramp intersection where 20 pedestrians cross the on-ramp.

Exhibit 5 illustrate the existing activity as well as the current pedestrian facilities within the study area. The types of facilities shown include the following:

- Sidewalks
- Ped Ramps
- Marked Crosswalks
- Pedestrian Push Buttons (at signalized intersections)
- Pedestrian Signal Heads (at signalized intersections)

Within the study area, there are approximately 18 driveways on the north and south sides of Campo Road between the project driveway and Conrad Drive. The high frequency of driveways along the corridor creates numerous conflict points between motorists, pedestrians, and bicyclists and the excessive curb cuts prevent landscaping, lighting, and parking. All driveways are paved concrete and appear to meet County standards.

In addition to the conflict points caused by the driveways, the existing retaining walls within the shopping centers prevent pedestrian and vehicular connectivity between adjacent properties. These barriers impede access, complicate circulation, and generate additional traffic from the increased turn movements to and from Campo Road.

4.7.1 Sidewalks

Campo Road – Sidewalks are provided on both sides of Campo Road between Kenwood Drive and Casa de Oro Boulevard. On the westerly side of the study area, sidewalks terminate approximately 400' feet west of Kenwood Drive on the north side of Campo Road and approximately 525' west of Kenwood Drive on the south side of Campo Road. To the east, there is a gap in the sidewalk for approximately 0.2 miles between Casa de Oro Boulevard and Agua Dulce Boulevard on the northeast side of Campo Road. On the southwest side of Campo Road, there is a gap in the sidewalk between the SR-94 ramps across the bridge.

Sidewalks are generally 6 feet wide along Campo Road, however they are reduced to as little as 3 feet where transit stops have benches

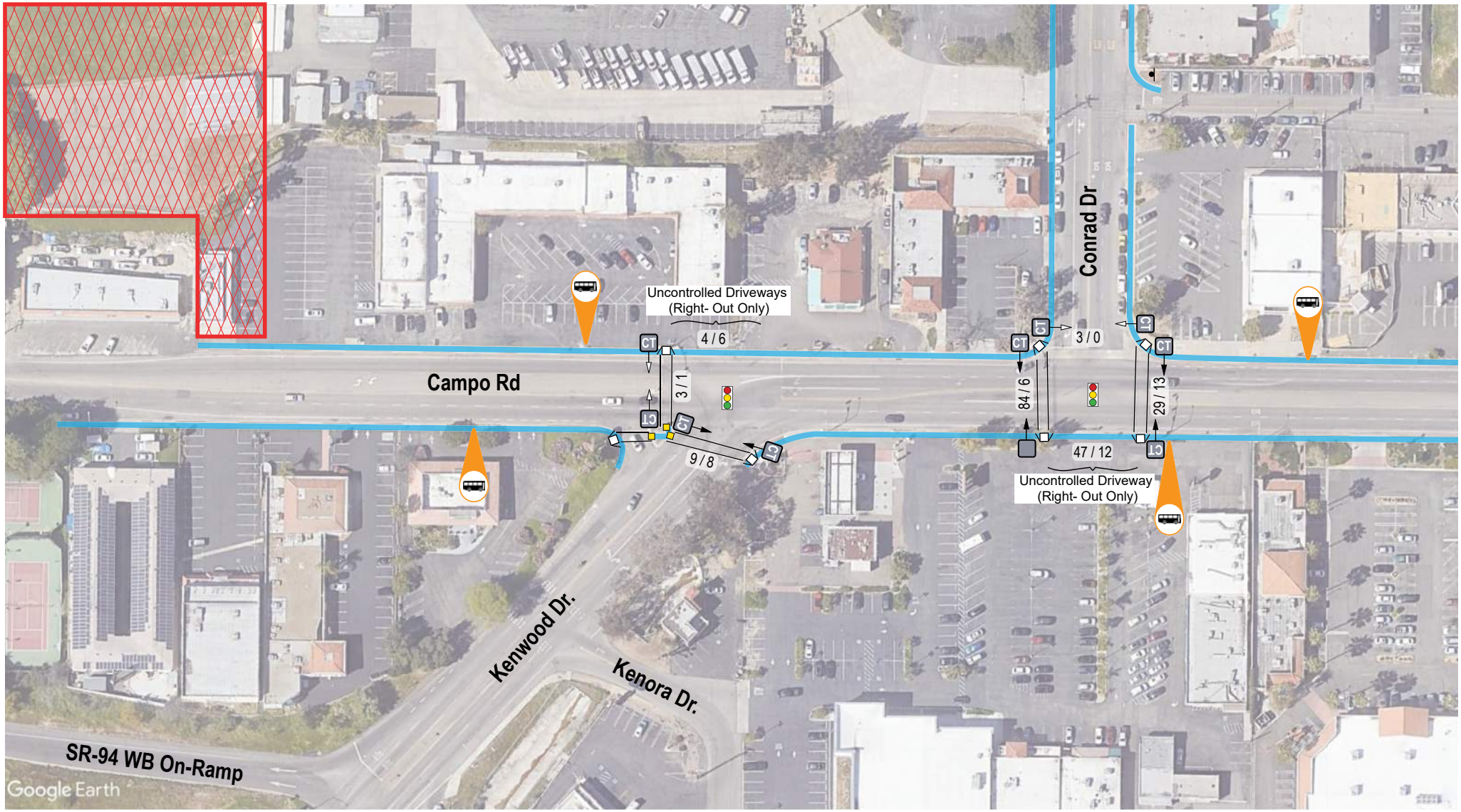
Kenwood Drive – Within the study area, sidewalks are provided on the southeast side of Kenwood Drive. There are no sidewalks on the northwest side of Kenwood Drive.

Conrad Drive – Within the study area, sidewalks are provided on both sides of the street between Campo Road and the north boundary of Spring Valley Middle School. There are no sidewalks on Conrad Drive north of the school.

4.7.2 Crosswalks

Standard marked crosswalks are provided at all signalized intersections. At the intersections of Campo Road at Conrad Drive, marked crosswalks are only provided across Campo Road and do not exist across the minor street. Many of the crosswalk pavement markings are beginning to fade and need to be restriped.

Near Spring Valley Middle School, there are two mid-block, controlled crossings with flashing beacon warnings on Conrad Drive at the north and south limits of the school. These locations are striped as continental crosswalks with pedestrian push buttons that control the overhead flashing beacons as well as ADA compliant ramps with truncated domes.



Legend

- = Existing Sidewalk
- = Ped. Ramp
- = Ped. Ramp with Truncated Domes
- = Marked Crosswalk
- = Signal Controlled Intersection
- = Stop Controlled Intersection
- = Ped.Push Button (non-ADA)
- = Ped. Push Button (ADA)
- = Ped. Signal Head
- CT = Ped. Signal Head with Countdown
- #/# = AM / PM Peak Hour Ped. Volumes
- = Bus Stop
- = Project Site
- = Existing Class II Bike Lanes
- #/# = AM / PM Peak Hour Bike Volumes

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Existing Pedestrian Facilities & AM/PM Peak Hour Volumes

Exhibit 5

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4.7.3 ADA Facilities

The majority of the signalized intersections within the study area have controlled crossings as discussed above; however, these crossings are only partially ADA compliant. It should be noted that none of these crossings have audible cues or any other non-visual indicators.

Table 3 lists the following factors that have been considered in evaluating whether a crossing is considered ADA compliant:

TABLE 3 - ADA FACTORS

ADA Facility	Evaluation Factor
Pedestrian Ramp	Presence of Truncated Domes
Pedestrian Push Button	2" Diameter
Pedestrian Signal Head	Presence of Countdown Timer

Along Campo Road, the following study intersections have truncated domes:

- Campo Road / Kenwood Drive – Pedestrian Refuge (southwest corner) only
- Campo Road / Conrad Drive - None

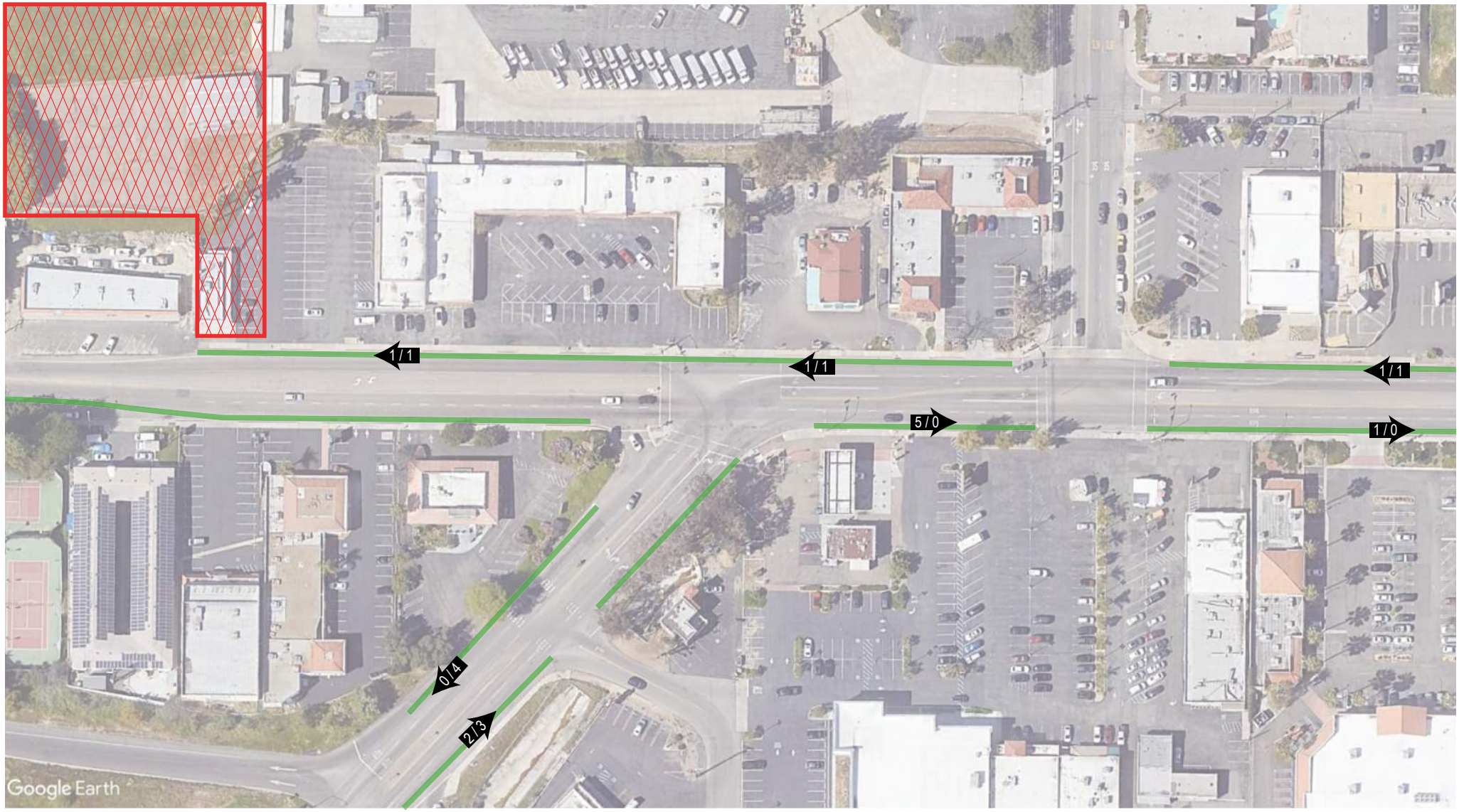
The presence of ADA compliant pedestrian push buttons that are considered "accessible" (2 inches in diameter) are intermittent within the study area. Of the 36 pedestrian push buttons on Campo Road between Kenwood Drive and Granada Avenue / Casa de Oro Boulevard, only 13 buttons are "accessible".

4.8 EXISTING BICYCLE FACILITIES

Existing peak hour bicycle activity was recorded on Tuesday, November 12, 2019. Based on existing counts during the AM peak hour, bicycle activity peaks near the southern extents of study area on Kenwood Drive (5 bicycles northbound). In the PM Peak hour, bicycle activity peaks near Kenora Drive (4 bicycles on westbound Kenora).

Within the study area, Class II bike lanes are provided on Kenwood Drive and on Campo Road on both sides of the street. These bike lanes are consistently 5 feet in width with the exception of a portion of Kenwood Drive between Kenora Drive and Campo Road where the bike lane is reduced to 4 feet on the east side. There are no buffers separating bicyclists from vehicles on Kenwood Drive or Campo Road.

Exhibit 6 shows the existing bicycle facilities as well as the peak hour bicyclist volumes.



Legend

- = Existing Sidewalk
- = Ped. Ramp
- = Ped. Ramp with Truncated Domes
- = Marked Crosswalk
- = Signal Controlled Intersection
- = Stop Controlled Intersection
- = Ped.Push Button (non-ADA)
- = Ped. Push Button (ADA)
- = Ped. Signal Head
- CT = Ped. Signal Head with Countdown
- #/# = AM / PM Peak Hour Ped. Volumes
- = Bus Stop
- = Project Site
- = Existing Class II Bike Lanes
- #/# = AM / PM Peak Hour Bike Volumes

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Existing Bicycle Facilities & AM/PM Peak Hour Volumes

Exhibit 6

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4.9 EXISTING TRANSIT FACILITIES

The Metropolitan Transit System (MTS) operates the local bus service within the Valle de Oro Community. MTS Route 855 travels along Campo Road as shown in **Exhibit 7** connecting La Mesa, Casa de Oro, Spring Valley, and Rancho San Diego. Destinations on Route 855 include Campo Road, Casa de Oro Plaza, Monte Vista High School, and Sweetwater Springs Boulevard. The bus route travels between the Spring Street Trolley Station (with connections to Route 851 and the Orange Line Trolley), and Rancho San Diego (with connections to Route 856 at Jamacha Boulevard and Lamplighter Village Drive).

Full service is provided Monday through Friday with reduced service on weekends and holidays. According to the MTS website, the average headways on a weekday is approximately 30 minutes between 6:04 AM and 10:51 PM in the eastbound direction. In the westbound direction, the bus operates between 5:02 AM and 9:19 PM with approximately 30-minute headways.

Within the study area, there are 4 bus stops along Campo Road (2 eastbound & 2 westbound). None of the bus stop locations have shelters or maps/wayfinding information. The following amenities are provided:

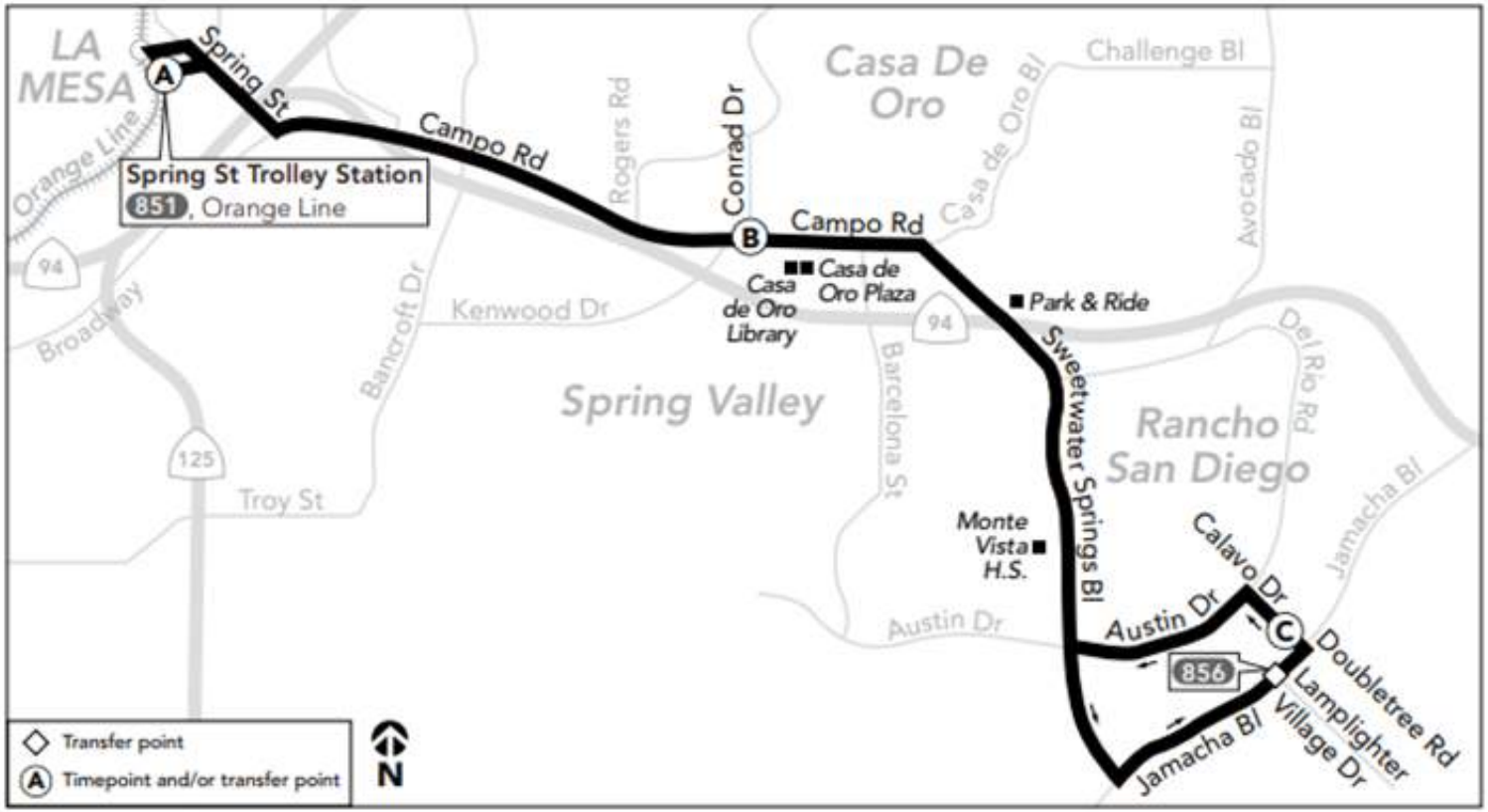
- Trash Receptacle (2 of 4 locations)
- Bench Seating (2 of 4 locations)
- Lighting (1 of 4 locations)

None of the bus stop locations have dedicated lighting, however 1 of the 4 locations have adjacent streetlights or traffic signal poles with a luminaire mast arm.

The available amenities at each bus stop are summarized in **Table 4** and **Exhibit 7**.

TABLE 4 - EXISTING BUS STOP AMENITIES ALONG CAMPO ROAD

ID	Bus Stop	Direction	Available Transit Amenities			
			Sign	Trash Receptacle	Bench	Lighting
1	Kenwood Drive	EB	✓	✓		
2	Kenwood Drive	WB	✓	✓		
3	Conrad Drive	EB	✓		✓	✓
4	Conrad Drive	WB	✓		✓	



MTS Route 855 - Spring St. Trolley to Rancho San Diego

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Exhibit 7

4.9.1 Intersection Evaluation

Exhibit 8 shows the Existing study intersection lane geometry. **Exhibit 9** shows the AM and PM peak hour traffic volumes at the study intersections.

Table 5 summarizes existing conditions AM/PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix C**.

TABLE 5 - EXISTING AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing Conditions	
		AM	PM
		Delay[1] - LOS	Delay[1] - LOS
1 - Campo Road / Project Access Driveway	OWSC	Does Not Exist	
2 - Campo Road / Kenwood Drive	Signal	25.8 - C	26.1 - C
3 - Campo Road / Conrad Drive	Signal	23.6 - C	17.7 - B

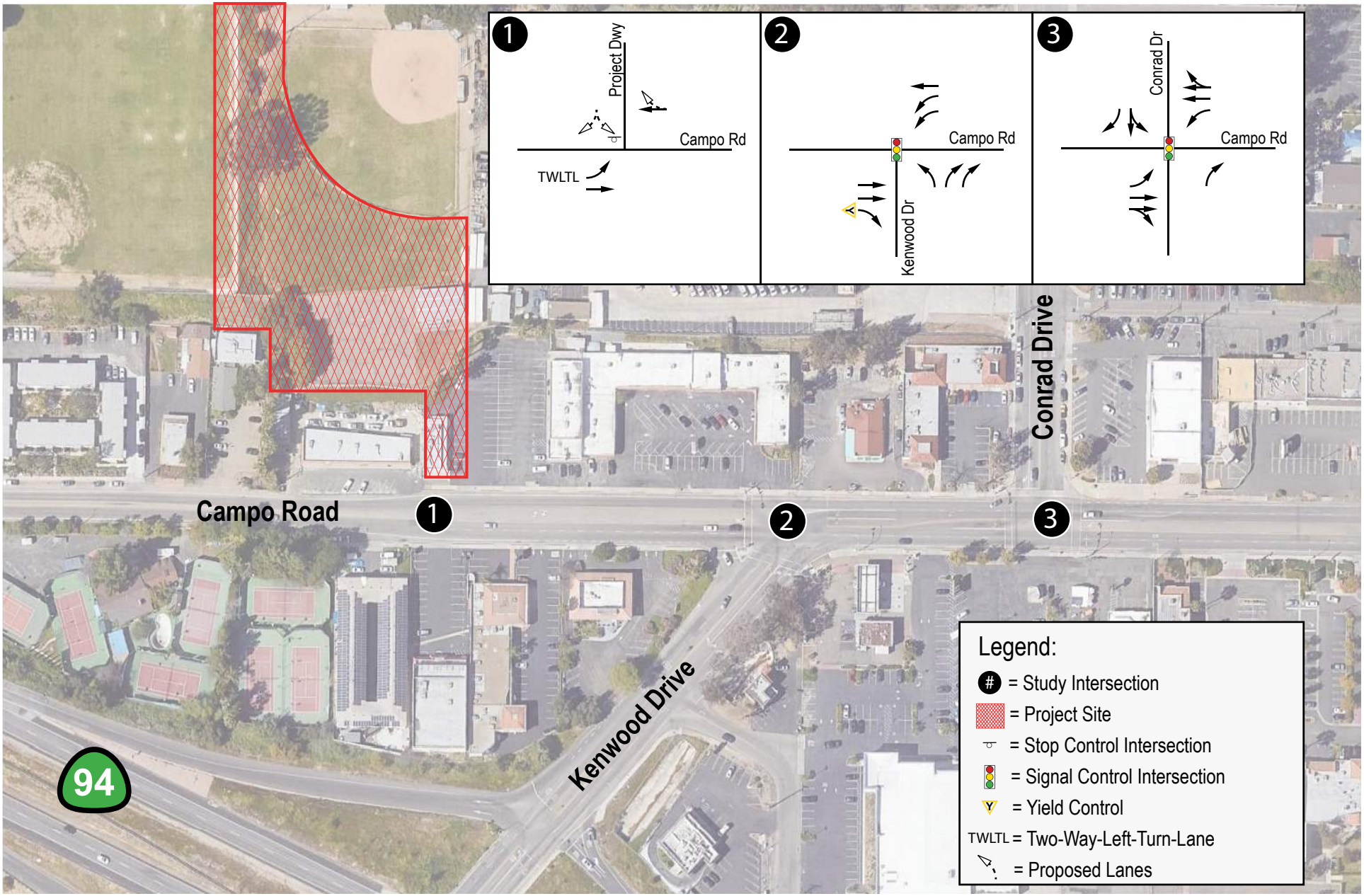
Note: Deficient intersection operation indicated in **bold**.
[1] Average seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control

As shown in **Table 5**, all of the study intersections are currently operating at an acceptable level of service (LOS D or better) for Existing conditions.

While not reflected in the level of service analysis, there are other abnormal intersection features that effect the operations of several intersections as described below.

At the intersection of Campo Road and Kenwood Drive, there are two uncontrolled driveways in the middle of the intersection on the north side. There are no signal heads, crosswalks, or pedestrian signal heads for these driveways, and they are signed as "right-turn only" for exiting vehicles. There are also no turn movements designated into the driveways from the eastbound or northbound directions (i.e. no pavement markings or signal heads). The westbound approach can turn right into these driveways from the through-lane. The existing peak hour counts showed a total 3 vehicles in the AM peak hour and 1 vehicle in the PM peak hour entering the driveways. There were no vehicles exiting the driveways during either peak hour. While these unusual driveway related access features and traffic movements exist, the intersection analysis shows this location operating at acceptable levels of service during the AM and PM peak hours.

Similarly, the intersection of Campo Road at Conrad Drive has an uncontrolled driveway on the south side of the intersection with no signal heads, crosswalks, or pedestrian signal heads. While the driveway is signed as a "right-turn only" for exiting vehicles, existing peak hour counts show 2 vehicles making illegal turn movements (1 through, and 1 left-turn) out of the driveway. There were 562 vehicles in the AM peak hour and 612 vehicles in the PM peak hour turn right out of the driveway. There was a total of 20 vehicles in the AM peak hour and 42 vehicles in the PM peak hour entering the driveway. There are designated turn movements from all approaches to enter the driveway. While these unusual driveway related access features and traffic movements exist, the intersection analysis shows this location operating at acceptable levels of service during the AM and PM peak hours.



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Existing Intersection Lane Geometry

September 2020
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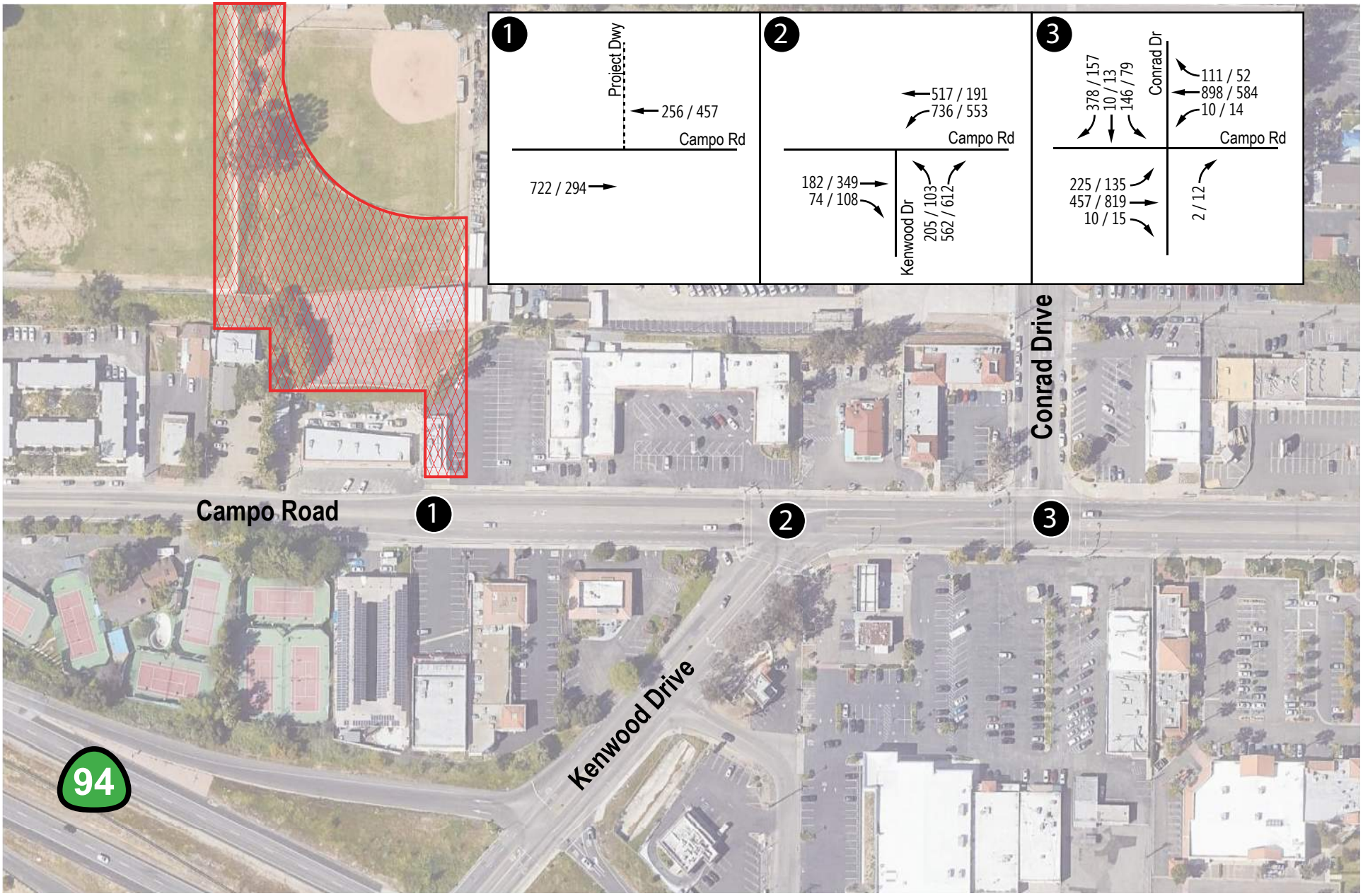
Exhibit 8



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Existing AM/PM Peak Hour Intersection Volumes

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Exhibit 9

4.10 PROPOSED PROJECT

The proposed project consists of approximately 13,000 square-foot library. The majority of the new library trips will be trips that are currently travelling to and from the existing library. These trips will be rerouted to the new library site. However, redistribution of these existing trips at the two study intersections would be challenging. Depending on the origins of the existing library trips, some will add traffic to the study area intersections and some origins will subtract trips at the study intersections. For simplicity, the traffic analysis conservatively assumes the library will generate new trips that are added to the study intersections. In addition, the new library may encourage new visitors and therefore the analysis includes all new trips generated by the new library.

4.10.1 Project Forecast Trip Generation

In order to calculate the vehicle trips forecast to be generated by the proposed project, the *Institute of Transportation Engineers (ITE) 10th Edition Trip Generation Manual* rates were utilized as summarized in **Table 6.**

TABLE 6 – TRIP GENERATION RATES

Land Use	ITE Code	Daily Trip Rate	AM Peak Hour Rate			PM Peak Hour Rate		
			Total	In	Out	Total	In	Out
Library	590 (1)	/KSF	0.62 /KSF	71%	29%	8 /KSF	48%	52%
Fast Casual Restaurant	930 (2)	/KSF	2.31 /KSF	67%	33%	13.8 /KSF	55%	45%

Source: ITE Trip Generation Manual, 10th Edition

(1) Rates shown are based on fitted curve equation.

(2) Rates shown are based on average rates.

Table 7 summarizes the project trip generation using the rates shown in **Table 6**. As shown, the new library is forecast to generate approximately 937 daily trips with 8 PM peak hour trips (6 in / 2 out). The existing Pho & Grill Vietnamese Restaurant will be demolished and therefore, a trip credit has been applied to account for the existing trips on the same site. After taking credits from the existing restaurant, the new library would be generating approximately 527 net new daily trips with 5 net new AM peak hour trips and 86 net new PM peak hour trips.

TABLE 7 – CASA DE ORO LIBRARY TRIP GENERATION

Land Use	Intensity	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Proposed								
Library	13.0 KSF	937	8	6	2	104	50	54
Existing								
Fast Casual Restaurant	1.3 KSF	410	3	2	1	18	10	8
Net New Trips (Proposed - Existing)		**527**	**5**	**4**	**1**	**86**	**40**	**46**

Notes:

KSF = 1,000 square feet

4.10.2 Trip Distribution & Trip Assignment of Proposed Project

Project trips were distributed onto the surrounding roadway network based on existing travel patterns using existing traffic count data. **Exhibit 10** shows the forecast trip percent distribution of the proposed project within the study area. At the project driveway, 20% of traffic is estimated to travel west on Campo Road and 80% east on Campo Road. **Exhibit 11** shows the corresponding forecast assignment of AM & PM peak hour project-generated trips assuming the trip percent distribution.

4.11 OPENING YEAR 2022 NO BUILD ANALYSIS

In order to derive Opening Year 2022 No Build traffic volumes, the SANDAG Series 13 model daily traffic volumes available online at the Transportation Forecast Information Center (TFIC) were used to establish a forecast growth trend that was applied to existing traffic volumes. From the SANDAG Series 13 model, a growth rate of 1.11% was calculated from the model baseline year 2016 to model year 2025. These growth rates were applied to existing traffic volumes for 3 years (2019-2022) to develop the Opening Year 2022 No Build AM and PM peak hour volumes.

Exhibit 12 shows the Opening Year 2022 No Build AM and PM peak hour volumes within the study area.

4.11.1 Intersection Evaluation

Peak Hour Intersection Level of Service

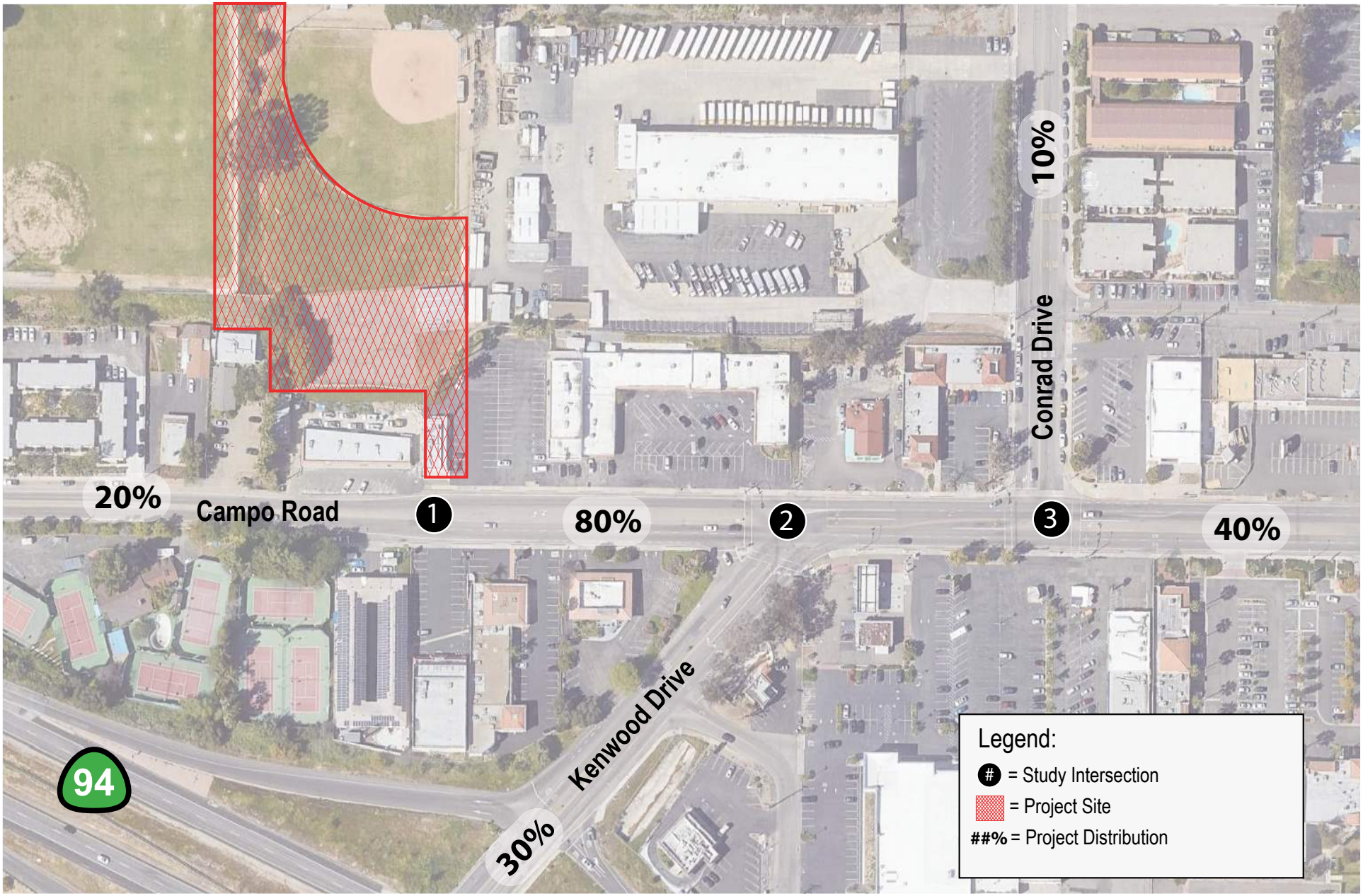
Table 8 summarizes Opening Year 2022 No Build AM and PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix D**.

TABLE 8 – OPENING YEAR 2022 NO BUILD AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2022 - No Build	
		AM	PM
		Delay[1] - LOS	Delay[1] - LOS
1 - Campo Road / Project Driveway	OWSC	Does Not Exist	
2 - Campo Road / Kenwood Drive	Signal	28.0 - C	26.5 - C
3 - Campo Road / Conrad Drive	Signal	27.5 - C	19.2 - B

Note: Deficient intersection operation indicated in **bold**.
[1] Average seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control

As shown, all study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours.



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Project Distribution

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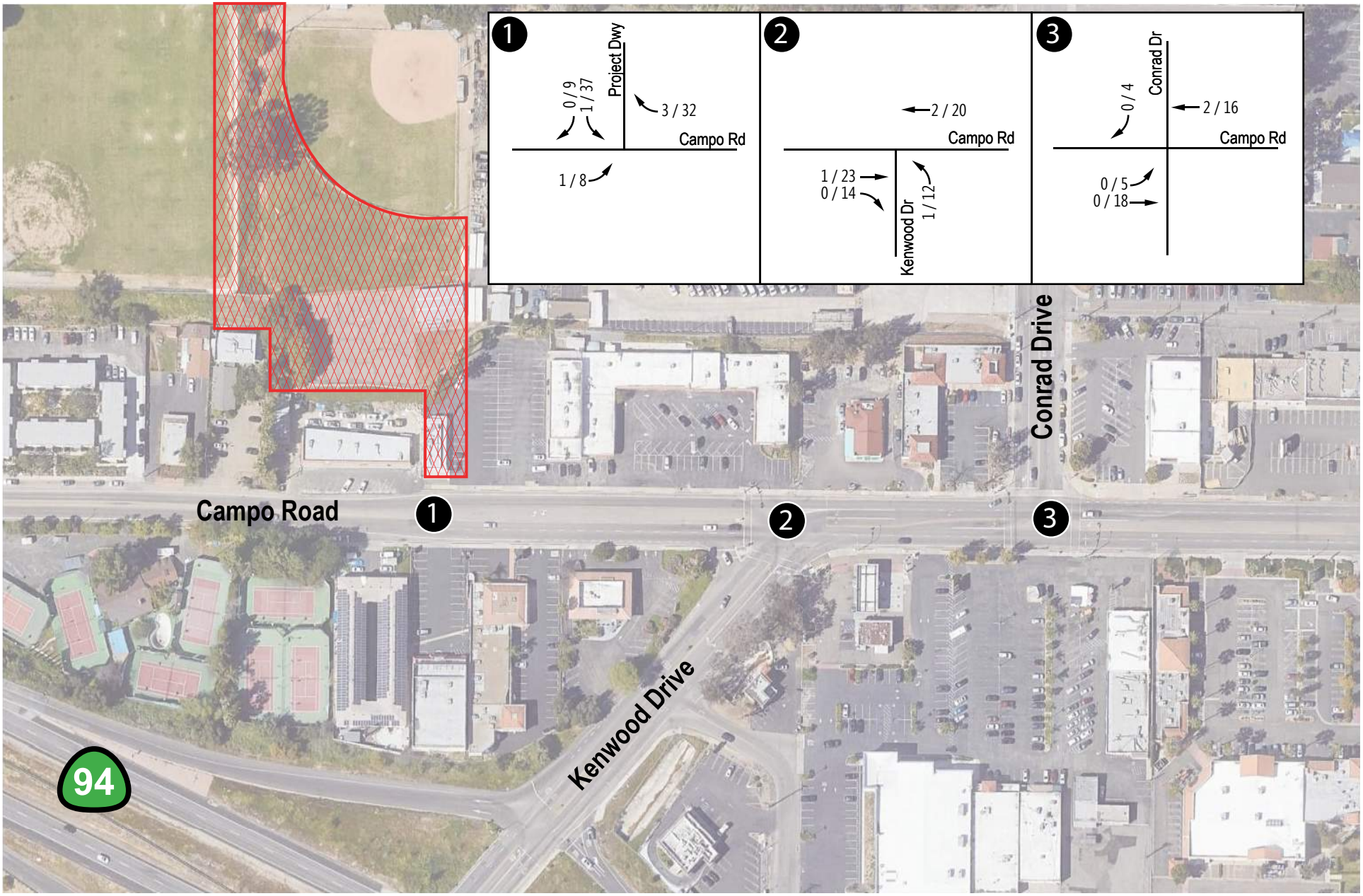
Exhibit 10



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Proposed Casa de Oro Library Trip Assignment

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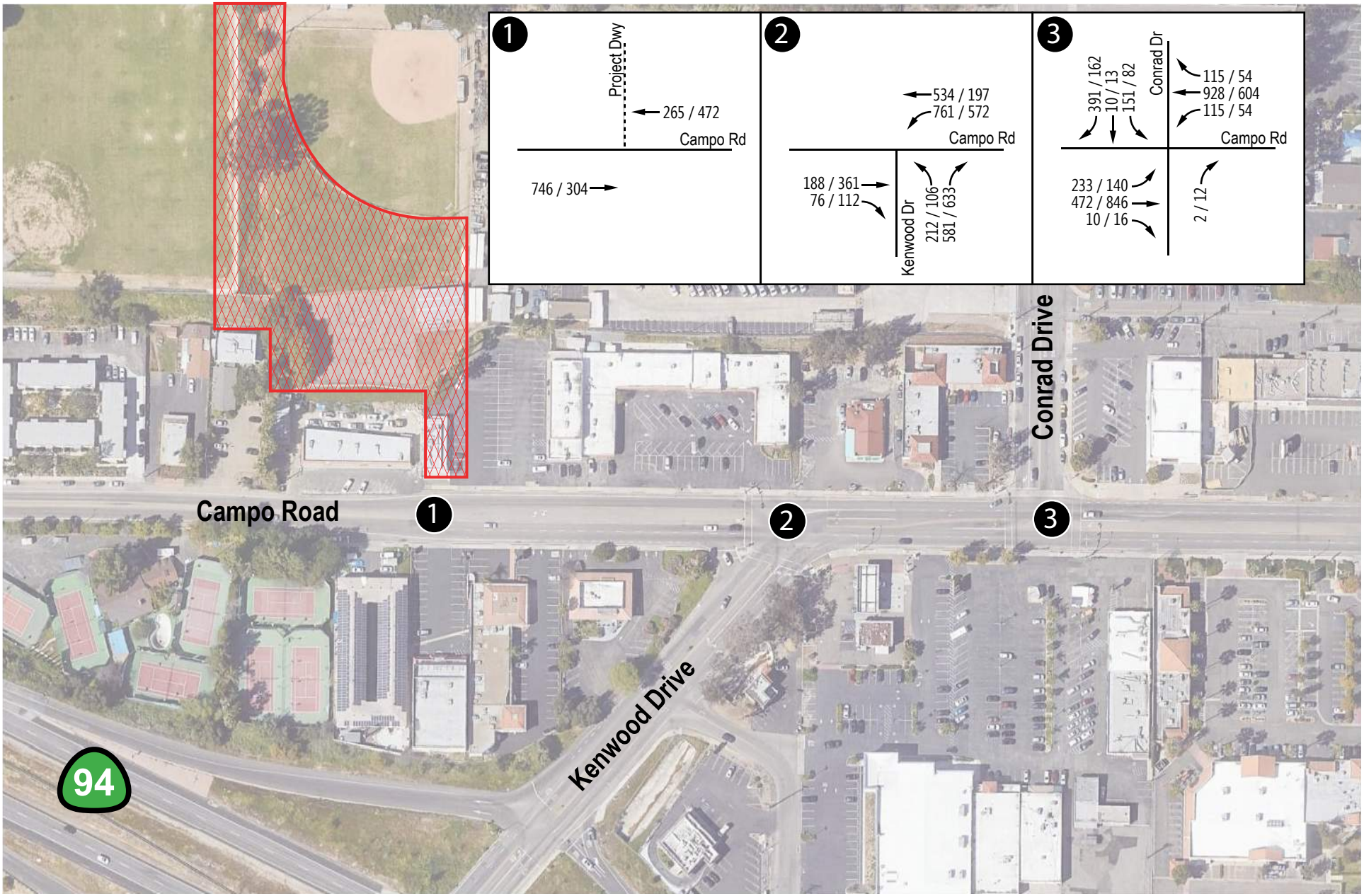
Exhibit 11



Opening Year 2022 AM/PM Peak Hour Intersection Volumes

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Exhibit 12

4.12 OPENING YEAR 2022 PLUS PROJECT ANALYSIS

Opening Year 2022 Plus Project traffic volumes are derived by adding trips forecast to be generated by the proposed project to Opening Year 2022 No Build volumes.

Exhibit 13 shows the Opening Year 2022 Plus Project AM and PM peak hour volumes within the study area.

4.12.1 Intersection Evaluation

Peak Hour Intersection Level of Service

Table 9 summarizes Opening Year 2022 Plus Project AM and PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix E**.

TABLE 9 – OPENING YEAR 2022 PLUS PROJECT AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2022 Plus Project	
		AM	PM
		Delay[1] - LOS	Delay[1] - LOS
1 - Campo Road / Project Driveway	OWSC	15.4 - C	13.6 - B
2 - Campo Road / Kenwood Drive	Signal	28.2 - C	27.4 - C
3 - Campo Road / Conrad Drive	Signal	27.5 - C	19.3 - B

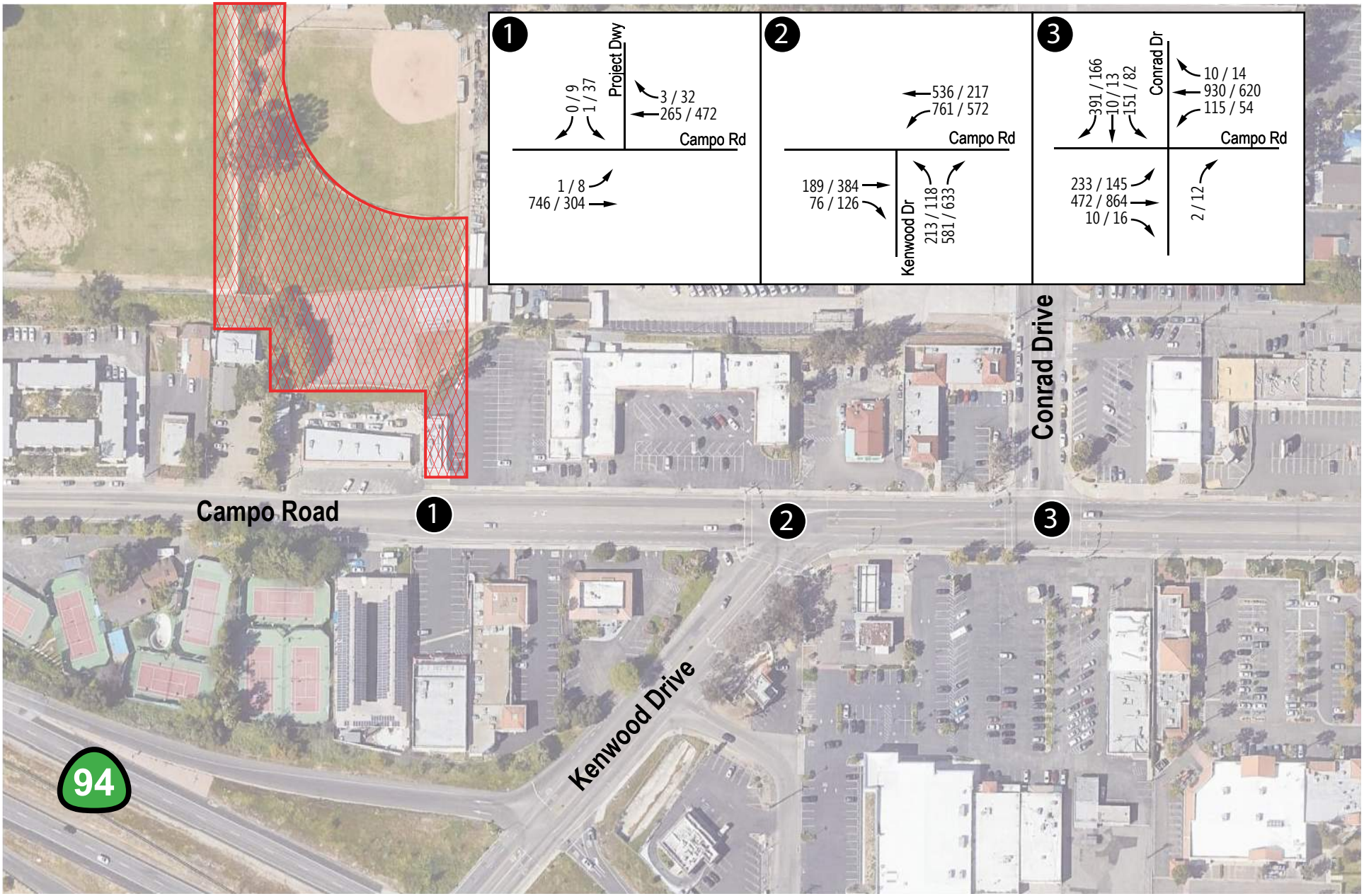
Note: Deficient intersection operation indicated in **bold**. AWSC = All-Way Stop Control
[1] Average seconds of delay per vehicle. TWSC = Two-Way Stop Control
LOS = level of service. OWSC = One-Way Stop Control

As shown, all study intersections are forecast to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours.

4.13 TRAFFIC SIGNAL WARRANT ANALYSIS

The 2014 *California Manual on Uniform Traffic Control Devices* (*CA MUTCD*) contains minimum guidelines regarding traffic volumes, collisions, speeds, visibility and other criteria in order to satisfy the requirements for the recommendation of a traffic signal, multi-way stop, or other traffic control device installation. A signal warrants analysis was conducted for the one-way or two-way stop-controlled intersections where the addition of project related traffic could potentially result in deficient operating conditions at the intersection.

For purposes of this report, a Peak Hour Warrant (CA MUTCD Warrant #3) was evaluated at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions. The Peak Hour Warrant (Warrant #3) is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major



Opening Year 2022 Plus Project AM/PM Peak Hour Intersection Volumes

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September 2020
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Exhibit 13

street. According to the CA MUTCD Section 4C.04, the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A.) If all three of the following conditions exist for the same 1 hour of an average day:
   1. The total stopped time delay experienced by the traffic on one minor-street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for one-lane approach or 5-vehicle hours for two-lane approach; and
   2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour (VPH) for one moving lane of traffic or 150 VPH for two moving lanes; and
   3. The total entering volume serviced during the hour equals or exceeds 650 VPH for intersections with three approaches or 800 VPH for intersections with four or more approaches.

B.) The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

The Peak Hour Signal Warrant analysis shows a traffic signal is not warranted at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions. Detailed worksheets can be found in **Appendix F** of this report.

4.14 SITE ACCESS ANALYSIS

Currently, there are two driveways off Campo Road that serve the existing Pho & Grill Vietnamese Restaurant parking lot. The western driveway (closest to the Pho & Grill Vietnamese Restaurant) will be removed and a new 24-foot driveway will be constructed approximately 25 feet to the west of the existing driveway. This new driveway will serve as the primary access to the proposed Casa de Oro Library. As shown in the analysis, this new driveway operates at an acceptable level of service (D or better) under Opening Year 2022 Plus Project conditions.

Sight distance was evaluated at the project driveway on Campo Road. Based on the County's Public Road Standards (Table 5), the minimum corner intersection sight distance at the new driveway is 350 feet in each direction. Although there is a slight vertical curve between the driveway and Kenwood Drive, the available sight distance to the east on Campo Road extends the length of the corridor which is greater than the 350 foot requirement. To the west on Campo Drive, the measured sight distance is approximately 350 feet which meets the minimum sight distance requirements.. Therefore, the available sight distance is equal to or greater than the required sight distance and drivers exiting onto Campo Road have adequate visibility at the project driveway.

4.15 ACTIVE TRANSPORTATION ANALYSIS

Michael Baker is currently contracted with the County of San Diego to develop the Casa de Oro Specific Plan. The study area for the Specific Plan is focused on along an approximately 3/4-mile section of Campo Road in the commercial corridor between Granada Avenue and Rogers Road. As part of the Casa de Oro Specific Plan and revitalization of the Campo Road corridor, transportation improvements such as roundabouts, enhanced pedestrian facilities and protected bikeways are being evaluated and considered. Many of the enhancements to pedestrian and bicycle facilities along Campo Road will be extended from Kenwood Drive to the new library site to improve connectivity throughout the corridor.

4.16 PARKING

Based on the County's Parking Ordinance, 3 parking spaces per 1,000 square feet is the minimum parking requirement for a library use. As such, a total of 39 parking spaces are required for the proposed project. The proposed library would provide a total of 52 surface parking spaces which would exceed the County's minimum parking requirements. This would accommodate daily library parking requirements as well as after-hours use of the community room. All employees would park on-site; off-site parking would not be required to accommodate library staff.

Two dedicated parking spaces would be provided on-site for library delivery vans. These parking spaces would be provided directly adjacent to the library staff service entry for ease of loading/unloading.

On-site bike racks to accommodate 6 bikes (minimum) would also be provided. Additionally, it is anticipated that two electric vehicle (EV) charging stations would be provided on-site within the surface parking lot. The number of EV stations provided would be in conformance with CalGreen standards.

5 SUMMARY & CONCLUSIONS

This study analyzes the forecast traffic conditions associated with the Casa de Oro Library (proposed project) located in the Valle de Oro Community Planning Area of San Diego County. The proposed project includes a new approximate 13,000 square foot library including 52 surface parking spaces.

CEQA Analysis Summary

In December 2018, new California Environmental Quality Act (CEQA) guidelines were approved that shift traffic analysis from delay and operations to VMT when evaluating Transportation Impacts under CEQA. This change in methodology is a result of Senate Bill 743 (SB743), which was signed into law in September 2013. The County of San Diego developed their own *Transportation Study Guidelines* (TSG) which were adopted by the Board of Supervisors on June 24, 2020 to include VMT analysis procedures and thresholds for significance. The County's TSG includes screening criteria for all land development projects. The proposed Casa de Oro Library is a locally serving public facility and therefore meets the VMT screening criteria outline in the County's TSG. Therefore, a detailed VMT analysis is not required and the Casa de Oro Library is presumed to have a less than significant VMT impact on the environment.

Level of Service Summary

The results of the analysis show that all three study intersections currently operate at acceptable levels of service (LOS D or better). Under Opening Year 2022 Plus Project conditions, study intersections continue to operate at acceptable levels of service. Therefore, no physical improvements to the study intersections are recommended. Although LOS is not required under CEQA, the LOS Summary in this report is consistent with General Plan Policy M-2.1 that requires projects provide associated road improvements necessary to achieve a LOS "D" or better on all Mobility Element roads except for those where a failing LOS (E or F) has been accepted by the County.

Signal Warrant Summary

The 2014 *California Manual on Uniform Traffic Control Devices* (*CA MUTCD*) contains minimum guidelines regarding traffic volumes, collisions, speeds, visibility and other criteria in order to satisfy the requirements for the recommendation of a traffic signal, multi-way stop, or other traffic control device installation. A signal warrants analysis was conducted for the one-way or two-way stop-controlled intersections where the addition of project related traffic could potentially result in deficient operating conditions at the intersection. A Peak Hour Warrant (CA MUTCD Warrant #3) was evaluated at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions. The Peak Hour Signal Warrant analysis shows a traffic signal is not warranted at the project driveway on Campo Road under Opening Year 2022 Plus Project conditions.

Recommended Improvements

The project access should be free and clear of any obstructions to provide adequate sight distance ensuring that exiting vehicles from the new driveway can adequately see pedestrians and bicyclists. Any landscaping and signage at the project driveway should not obstruct the drivers view from exiting the project site.

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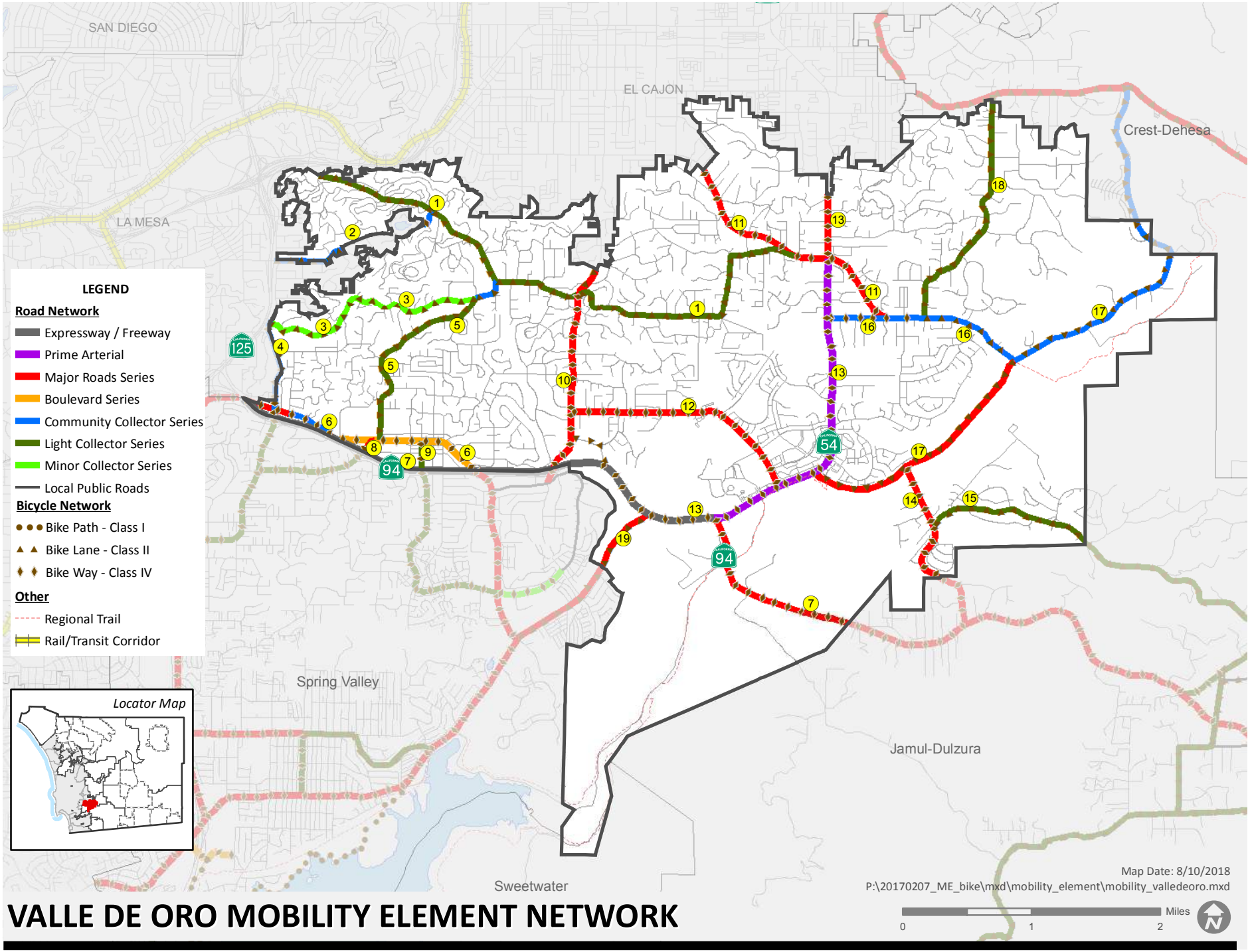
Appendix A: Mobility Element Network & Matrix



VALLE DE ORO MOBILITY ELEMENT NETWORK

Mobility Element Network—Valle de Oro Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
1	Fuerte Drive (SC 2111/SA 920/SC 2060) Segment: La Mesa city limits to Chase Avenue	2.2E Light Collector	Accepted at LOS E Segment: Bancroft Drive to Avocado Boulevard
2	Lemon Avenue (SA 930) Segment: SR-125 to Fuerte Drive	2.1E Community Collector	None
3	Edgewood Drive / Grandview Drive (SC 2115) Segment: Bancroft Drive to Fuerte Drive	2.3B Minor Collector Road Intermittent Turn Lanes—Bancroft Drive to Resmar Road 2.1E Community Collector Resmar Road to Fuerte Drive	None
4	Bancroft Drive Segment:SR-94 to Edgewood Drive	2.1C Community Collector Intermittent Turn Lanes	None
5	Conrad Drive /Resmar Road (SC 2125) Segment: Campo Road to Grandview Drive	2.2E Community Collector	None
6	Campo Road (SC 2118) Segment: La Mesa city limits to SR-94	4.1B Major Road Intermittent Turn Lanes—La Mesa city limits to Camino Paz 2.1C Community Collector Intermittent Turn Lanes—Camino Paz to Rodgers Road 4.2B Boulevard Intermittent Turn Lanes—Rodgers Road to SR-94	Accepted at LOS F Segment: Kenwood Drive to Conrad Drive
7	State Route 94/Campo Road Segment: La Mesa city limits to Jamul/Dulzura Subregion boundary	Freeway/6.1 Expressway La Mesa city limits to Jamacha Road 4.1A Major Road and Interchange with Jamacha Road Raised Median—Jamacha Road / SR-54 to Jamul CPA boundary	Caltrans Facilities Programming Improvements to a four-lane conventional highway programmed in the 2030 RTP (Unconstrained Revenue scenario) Recommended Improvement Ramps to Jamacha Road interchange
8	Kenwood Drive (SC 2122) Segment: SR- 94 to Campo Road	4.1B Major Road Intermittent Turn Lanes	None

Mobility Element Network—Valle de Oro Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
9	Barcelona Street (SC 2110) Segment: Campo Road to SR- 94	2.2E Light Collector Intersection Improvements	None
10	Avocado Boulevard (SF 1398) Segment: Spring Valley community boundary to El Cajon city limits	4.1B Major Road Intermittent Turn Lanes	None
11	Chase Avenue (SA 910.1) Segment: El Cajon city limits to Hillsdale Road	4.1B Major Road Intermittent Turn Lanes	None
12	Fury Lane (SC 2070/SA 921) Segment: Avocado Boulevard to Jamacha Road	4.1B Major Road Intermittent Turn Lanes—Avocado Boulevard to Wieghorst Way 4.1A Major Road Raised Median—Wieghorst Way to Jamacha Road	None
13	Jamacha Road (SF 1399) Segment: -SR-94 / Campo Road to El Cajon city limits	6.2 Prime Arterial SR 94/Campo Road to Chase Avenue 4.1A Major Road Raised Median—Chase Avenue to El Cajon city limits	Accepted at LOS F Segment: SR-94 / Campo Road to Fury Lane
14	Steele Canyon Road (SC 2050) Segment: Willow Glen Drive to Jamul/Dulzura Subregion boundary	4.1B Major Road Intermittent Turn Lanes	None
15	Jamul Drive (SC 2055) Segment: Steele Canyon Road to Jamul/Dulzura Subregion boundary	2.1C Light Collector Intermittent Turn Lanes	None
16	Hillsdale Road (SC 2030) Segment: Jamacha Road to Willow Glen Drive	2.1C Community Collector Intermittent Turn Lanes	None

Mobility Element Network—Valle de Oro Community Planning Area Matrix			
ID[a]	**Road Segment**	**Designation/Improvement** #.#X = [# of lanes].[roadway classification][improvement]	**Special Circumstances**
17	Willow Glen Drive (SF 1397) Segment: Jamacha Road to Camino de las Piedras	4.1B Major Road Intermittent Turn Lanes—Jamacha Road to Hillsdale Road 2.1D Community Collector Improvement Options [Unspecified Improvements}—Hillsdale Road to Camino de las Piedras	None
18	Vista Grande Road (SC 2030) Segment: Hillsdale Road to Dehesa Road	2.2E Light Collector	None
19	Jamacha Boulevard SF 1397) Segment: Spring Valley CPA boundary to SR-94 / Campo Road	4.1A Major Road Raised Median	Recommended Improvement Grade-separated interchange with SR-94/Campo Road

a. ID = Roadway segment on Figure M-A-22

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Appendix B:
Traffic Volume Count Data & Signal Timing Worksheets

Prepared by National Data & Surveying Services

Kenwood Dr & Campo Rd

Peak Hour Turning Movement Count

ID: 19-04442-004
City: Spring Valley

Day: Tuesday
Date: 11/12/2019

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Kenwood Dr)

AM	0	0	0	1	4	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	2	3	PM

EASTBOUND (Campo Rd)

AM	NOON	PM	
722	0	294	⇦
0	0	0	↶ 0
0	0	0	↱ 0
182	0	349	→ 1.5
74	0	108	↳ 0.5
AM	NOON	PM	

WESTBOUND (Campo Rd)

PM	NOON	AM	
1	0	1	↰ 0
191	0	517	← 1
553	0	736	↰ 2
0	0	0	↰ 0
961	0	744	⇨
PM	NOON	AM	

NORTHBOUND (Kenwood Dr)

PM	661	0	103	0	612	PM
NOON	0	0	0	0	0	NOON
AM	810	0	205	2	562	AM

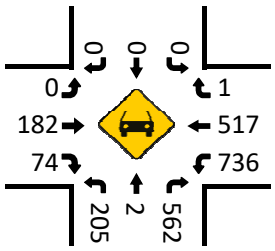
↰ 0	↰ 1	↑ 0	↱ 2

CONTROL

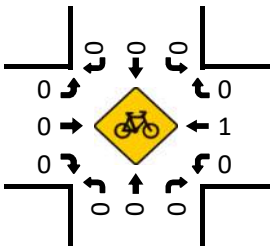
Signalized

TEV	2280	0	1919
	AM	NOON	PM
PHF	0.96		0.99

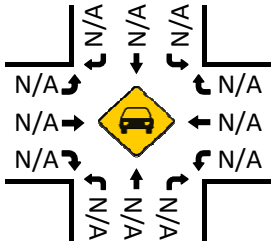
Total Vehicles (AM)



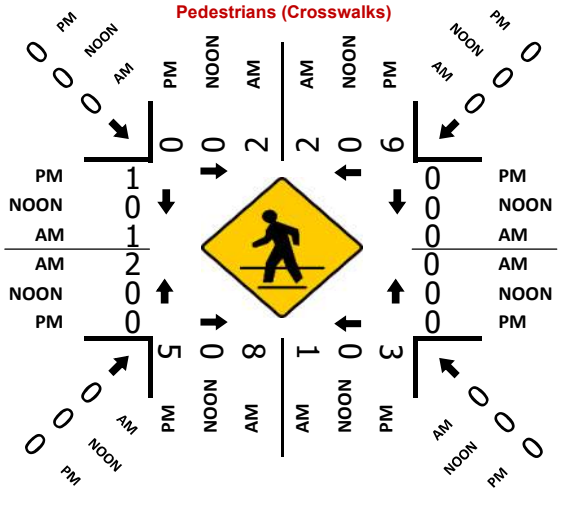
Bikes (AM)



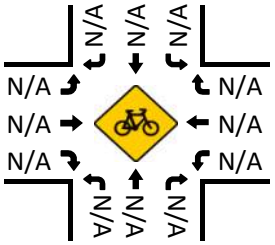
Total Vehicles (Noon)



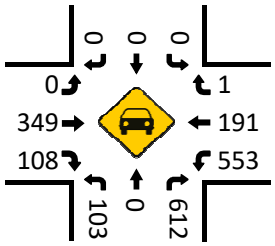
Pedestrians (Crosswalks)



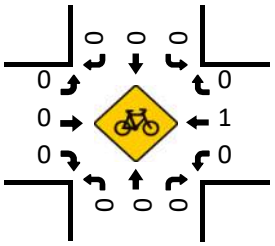
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Conrad Dr & Campo Rd

Peak Hour Turning Movement Count

ID: 19-04442-005
City: Spring Valley

Day: Tuesday
Date: 11/12/2019

PEAK HOURS		COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Conrad Dr — SOUTHBOUND

	Right	Thru	Left	U-Turn	Out
AM	378	10	146	0	337
NOON	0	0	0	0	0
PM	157	13	79	0	187
Lanes	1	0.5	0.5	0	

Campo Rd — EASTBOUND

	AM	NOON	PM	Lanes
Out	1277	0	741	
U-Turn	0	0	0	0
Left	225	0	135	1
Thru	457	0	819	2
Right	10	0	15	0

Campo Rd — WESTBOUND

	PM	NOON	AM	Lanes
Right	52	0	111	0
Thru	584	0	898	2
Left	14	0	10	1
U-Turn	0	0	0	0
Out	910	0	605	

Conrad Dr — NORTHBOUND

	Out	U-Turn	Left	Thru	Right
Lanes		0	0	0	0
PM	42	0	0	0	12
NOON	0	0	0	0	0
AM	30	0	1	1	2

CONTROL

Signalized

	AM	NOON	PM
TEV	2249	0	1880
PHF	0.97		0.97

Total Vehicles (AM)

SB: 378 right, 10 thru, 146 left
EB: 225 left, 457 thru, 10 right
WB: 111 right, 898 thru, 10 left
NB: 1 U-turn/left, 1 thru, 2 right

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

SB: 157 right, 13 thru, 79 left
EB: 135 left, 819 thru, 15 right
WB: 52 right, 584 thru, 14 left
NB: 0 left, 0 thru, 12 right

Bikes (AM)

SB: 0, 0, 0
EB: 4 left, 1 thru, 0 right
WB: 0 right, 1 thru, 0 left
NB: 0, 1, 0

Bikes (NOON)

All movements: N/A

Bikes (PM)

SB: 0, 0, 0
EB: 0, 0, 0
WB: 0 right, 1 thru, 0 left
NB: 1, 0, 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (west side)	0	0	0
North (east side)	3	0	0
West (north side)	14	0	1
West (south side)	70	0	5
East (north side)	11	0	7
East (south side)	18	0	6
South (west side)	17	0	6
South (east side)	30	0	6
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

QuicNet® System	
System ID	**15**
Group	**NONE**
Field Master	**NONE**
N-S Street	**Conrad**
E-W Street	**Campo**
Communications	
Channel	**UDP:8002:10.197.1.11**
Address	**5**
Area Number	**6**
Area Address	**5**
Database	
Last Changed	**3/19/2019 9:24**

QuicNet Timing Notes

Phase Timing - Bank 1								
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Min Green	**4**	**6**	**4**	**0**	**6**	**4**	**4**	**0**
Extension	**2.0**	**2.0**	**2.0**	**0.0**	**2.0**	**2.0**	**2.0**	**0.0**
Max	**25**	**40**	**30**	**0**	**40**	**30**	**30**	**0**
Max 2	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cond Serve Check	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Clearance Timing								
Yellow Change	**3.6**	**4.1**	**3.4**	**0.0**	**3.6**	**4.1**	**4.8**	**0.0**
Red Clear	**0.5**	**1.0**	**1.0**	**0.0**	**0.5**	**1.0**	**1.0**	**0.0**
Pedestrian Timing								
Walk	**0**	**7**	**0**	**0**	**0**	**7**	**0**	**0**
Pedestrian Change	**0**	**22**	**15**	**0**	**0**	**29**	**12**	**0**
Advance/Delay Walk	**0**	**0**	**7**	**0**	**0**	**0**	**7**	**0**
PE Min. Ped. Change	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume-Density								
Type 3 Disconnect	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Add per Vehicle	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Max Added Initial	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Min Gap	**2.0**	**2.0**	**2.0**	**0.0**	**2.0**	**2.0**	**2.0**	**0.0**
Max Gap	**2.0**	**2.0**	**2.0**	**0.0**	**2.0**	**2.0**	**2.0**	**0.0**
Reduce Every	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Alternate Timing								
Alternate Walk	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Alternate Ped. Change	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Alternate Minimum	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Alternate Extension	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Phase Timing - Exclusive Pedestrian	
Exclusive Ped Assignment	_____
Exclusive Walk	**0**
Exclusive Pedestrian Change	**0**
Red Clear	**0.0**
Walk Output	**0**
Don't Walk Output	**0**

Phase Functions - Page 1	
Red Lock	_____
Yellow Lock	**__3___7_**
Simultaneous Gap	_____
Rest In Walk	_____
Advance Walk	**__3___7_**
Flashing Walk	_____
Max Extension	_____
Red Rest	_____
Dual Entry	_____
Sequential Timing	_____
Inhibit Ped Reservice	_____
Delay Walk	_____
Guaranteed Passage	_____
Conditional Service	_____

Phase Functions - Page 2	
Minimum Recall	**_2__5___**
Ped Recall	_____
Maximum Recall	_____
Green Flash	_____
Overlap Green Flash	_____
Flashing Yellow Arrow for PPLT	_____
Max2	_____
Soft Recall	_____
External Recall	_____
Manual Control Calls	_____
Fast Green Flash	_____
Fast Overlap Green Flash	_____
Semi-Actuated	_____

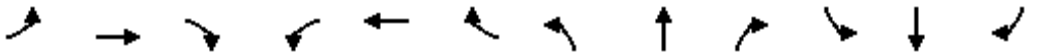
Michael Baker
INTERNATIONAL

Appendix C:
Existing Conditions
Synchro Worksheets

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	182	74	736	517	205	562
Future Volume (vph)	182	74	736	517	205	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.83	0.83	0.91	0.91	0.89	0.89
Adj. Flow (vph)	219	89	809	568	230	631
RTOR Reduction (vph)	0	0	0	0	0	311
Lane Group Flow (vph)	219	89	809	568	230	320
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	35.7	100.0	33.3	45.9	17.4	50.7
Effective Green, g (s)	35.7	100.0	33.3	45.9	17.4	50.7
Actuated g/C Ratio	0.36	1.00	0.33	0.46	0.17	0.51
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1263	1583	1143	855	307	1413
v/s Ratio Prot	0.06		c0.24	c0.30	c0.13	0.08
v/s Ratio Perm		0.06				0.04
v/c Ratio	0.17	0.06	0.71	0.66	0.75	0.23
Uniform Delay, d1	22.0	0.0	29.1	21.1	39.2	13.7
Progression Factor	1.00	1.00	1.29	0.67	1.00	1.00
Incremental Delay, d2	0.3	0.1	1.3	3.1	8.5	0.0
Delay (s)	22.3	0.1	38.8	17.3	47.7	13.8
Level of Service	C	A	D	B	D	B
Approach Delay (s)	15.9			29.9	22.8	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



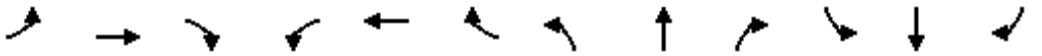
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	457	10	10	898	111	0	0	2	146	10	378
Future Volume (vph)	225	457	10	10	898	111	0	0	2	146	10	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3526		1770	3476				1611		1780	1583
Flt Permitted	0.95	1.00		0.27	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3526		497	3476				1611		1780	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.50	0.50	0.50	0.86	0.86	0.86
Adj. Flow (vph)	274	557	12	11	976	121	0	0	4	170	12	440
RTOR Reduction (vph)	0	2	0	0	10	0	0	0	2	0	0	38
Lane Group Flow (vph)	274	567	0	11	1087	0	0	0	2	0	182	402
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	23.1	35.7		45.9	45.9				45.9		16.0	39.1
Effective Green, g (s)	23.1	35.7		45.9	45.9				45.9		16.0	39.1
Actuated g/C Ratio	0.23	0.36		0.46	0.46				0.46		0.16	0.39
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	408	1258		228	1595				739		284	618
v/s Ratio Prot	c0.15	0.16			c0.31						0.10	c0.15
v/s Ratio Perm				0.02					0.00			0.10
v/c Ratio	0.67	0.45		0.05	0.68				0.00		0.64	0.65
Uniform Delay, d1	35.0	24.6		15.0	21.3				14.7		39.3	24.9
Progression Factor	1.14	0.83		0.80	0.63				1.00		1.00	1.00
Incremental Delay, d2	3.3	1.1		0.3	2.0				0.0		3.7	1.9
Delay (s)	43.1	21.6		12.4	15.4				14.7		43.0	26.8
Level of Service	D	C		B	B				B		D	C
Approach Delay (s)		28.6			15.4			14.7			31.5	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	349	108	553	191	103	612
Future Volume (vph)	349	108	553	191	103	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.95	0.95	0.97	0.97	0.96	0.96
Adj. Flow (vph)	367	114	570	197	107	638
RTOR Reduction (vph)	0	0	0	0	0	385
Lane Group Flow (vph)	367	114	570	197	107	253
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	46.8	100.0	26.4	60.7	13.2	39.6
Effective Green, g (s)	46.8	100.0	26.4	60.7	13.2	39.6
Actuated g/C Ratio	0.47	1.00	0.26	0.61	0.13	0.40
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1656	1583	906	1130	233	1103
v/s Ratio Prot	c0.10		c0.17	0.11	c0.06	0.06
v/s Ratio Perm		0.07				0.03
v/c Ratio	0.22	0.07	0.63	0.17	0.46	0.23
Uniform Delay, d1	15.8	0.0	32.5	8.6	40.1	20.1
Progression Factor	1.00	1.00	1.50	0.38	1.00	1.00
Incremental Delay, d2	0.3	0.1	1.0	0.3	0.5	0.0
Delay (s)	16.1	0.1	49.6	3.6	40.6	20.1
Level of Service	B	A	D	A	D	C
Approach Delay (s)	12.3			37.8	23.0	
Approach LOS	B			D	C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	819	15	14	584	52	0	0	12	79	13	157
Future Volume (vph)	135	819	15	14	584	52	0	0	12	79	13	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3528		1770	3492				1611		1786	1583
Flt Permitted	0.95	1.00		0.17	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3528		321	3492				1611		1786	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	145	881	16	15	608	54	0	0	16	85	14	169
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	6	0	0	128
Lane Group Flow (vph)	145	896	0	15	657	0	0	0	10	0	99	41
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	12.5	46.8		60.7	60.7				60.7		11.8	24.3
Effective Green, g (s)	12.5	46.8		60.7	60.7				60.7		11.8	24.3
Actuated g/C Ratio	0.12	0.47		0.61	0.61				0.61		0.12	0.24
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	221	1651		194	2119				977		210	384
v/s Ratio Prot	c0.08	c0.25			c0.19						c0.06	0.01
v/s Ratio Perm				0.05					0.01			0.01
v/c Ratio	0.66	0.54		0.08	0.31				0.01		0.47	0.11
Uniform Delay, d1	41.7	19.0		8.1	9.5				7.8		41.2	29.4
Progression Factor	1.11	0.77		0.65	0.67				1.00		1.00	1.00
Incremental Delay, d2	5.1	1.2		0.8	0.4				0.0		0.6	0.0
Delay (s)	51.3	15.9		6.0	6.7				7.8		41.8	29.5
Level of Service	D	B		A	A				A		D	C
Approach Delay (s)		20.9			6.7			7.8			34.0	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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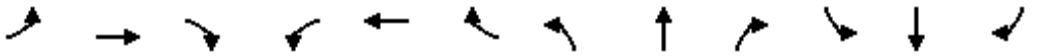
Appendix D: Opening Year 2022 No Build Synchro Worksheets

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	188	76	761	534	212	581
Future Volume (vph)	188	76	761	534	212	581
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.83	0.83	0.91	0.91	0.89	0.89
Adj. Flow (vph)	227	92	836	587	238	653
RTOR Reduction (vph)	0	0	0	0	0	336
Lane Group Flow (vph)	227	92	836	587	238	317
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	37.8	100.0	30.8	44.9	17.8	48.6
Effective Green, g (s)	37.8	100.0	30.8	44.9	17.8	48.6
Actuated g/C Ratio	0.38	1.00	0.31	0.45	0.18	0.49
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1337	1583	1057	836	315	1354
v/s Ratio Prot	0.06		c0.24	c0.32	c0.13	0.07
v/s Ratio Perm		0.06				0.04
v/c Ratio	0.17	0.06	0.79	0.70	0.76	0.23
Uniform Delay, d1	20.7	0.0	31.7	22.2	39.0	14.9
Progression Factor	1.00	1.00	1.35	0.59	1.00	1.00
Incremental Delay, d2	0.3	0.1	2.8	3.6	8.8	0.0
Delay (s)	20.9	0.1	45.6	16.6	47.9	14.9
Level of Service	C	A	D	B	D	B
Approach Delay (s)	14.9			33.7	23.7	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



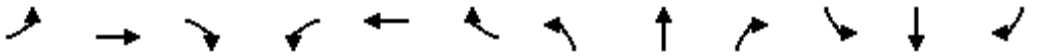
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	472	10	10	928	115	0	0	2	151	10	391
Future Volume (vph)	233	472	10	10	928	115	0	0	2	151	10	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3527		1770	3476				1611		1779	1583
Flt Permitted	0.95	1.00		0.29	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3527		535	3476				1611		1779	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.50	0.50	0.50	0.86	0.86	0.86
Adj. Flow (vph)	284	576	12	11	1009	125	0	0	4	176	12	455
RTOR Reduction (vph)	0	2	0	0	10	0	0	0	2	0	0	34
Lane Group Flow (vph)	284	586	0	11	1124	0	0	0	2	0	188	421
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	23.7	37.8		44.9	44.9				44.9		16.4	40.1
Effective Green, g (s)	23.7	37.8		44.9	44.9				44.9		16.4	40.1
Actuated g/C Ratio	0.24	0.38		0.45	0.45				0.45		0.16	0.40
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	419	1333		240	1560				723		291	634
v/s Ratio Prot	c0.16	0.17			c0.32						0.11	c0.16
v/s Ratio Perm				0.02					0.00			0.11
v/c Ratio	0.68	0.44		0.05	0.72				0.00		0.65	0.66
Uniform Delay, d1	34.7	23.2		15.5	22.4				15.2		39.1	24.5
Progression Factor	1.15	0.83		1.00	1.00				1.00		1.00	1.00
Incremental Delay, d2	3.3	1.0		0.4	2.9				0.0		3.7	2.0
Delay (s)	43.3	20.4		15.9	25.3				15.2		42.8	26.5
Level of Service	D	C		B	C				B		D	C
Approach Delay (s)		27.8			25.3			15.2			31.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	361	112	572	197	106	633
Future Volume (vph)	361	112	572	197	106	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.95	0.95	0.97	0.97	0.96	0.96
Adj. Flow (vph)	380	118	590	203	110	659
RTOR Reduction (vph)	0	0	0	0	0	370
Lane Group Flow (vph)	380	118	590	203	110	289
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	47.1	100.0	26.0	60.3	13.3	39.3
Effective Green, g (s)	47.1	100.0	26.0	60.3	13.3	39.3
Actuated g/C Ratio	0.47	1.00	0.26	0.60	0.13	0.39
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1666	1583	892	1123	235	1095
v/s Ratio Prot	c0.11		c0.17	0.11	c0.06	0.07
v/s Ratio Perm		0.07				0.04
v/c Ratio	0.23	0.07	0.66	0.18	0.47	0.26
Uniform Delay, d1	15.7	0.0	33.1	8.8	40.1	20.6
Progression Factor	1.00	1.00	1.47	0.45	1.00	1.00
Incremental Delay, d2	0.3	0.1	1.4	0.3	0.5	0.0
Delay (s)	16.0	0.1	50.2	4.3	40.6	20.6
Level of Service	B	A	D	A	D	C
Approach Delay (s)	12.2			38.4	23.5	
Approach LOS	B			D	C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	846	16	14	604	54	0	0	12	82	13	162
Future Volume (vph)	140	846	16	14	604	54	0	0	12	82	13	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3528		1770	3492				1611		1786	1583
Flt Permitted	0.95	1.00		0.17	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3528		310	3492				1611		1786	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	151	910	17	15	629	56	0	0	16	88	14	174
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	6	0	0	131
Lane Group Flow (vph)	151	926	0	15	680	0	0	0	10	0	102	43
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	12.8	47.1		60.3	60.3				60.3		11.9	24.7
Effective Green, g (s)	12.8	47.1		60.3	60.3				60.3		11.9	24.7
Actuated g/C Ratio	0.13	0.47		0.60	0.60				0.60		0.12	0.25
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	226	1661		186	2105				971		212	391
v/s Ratio Prot	c0.09	c0.26			c0.19						c0.06	0.01
v/s Ratio Perm				0.05					0.01			0.01
v/c Ratio	0.67	0.56		0.08	0.32				0.01		0.48	0.11
Uniform Delay, d1	41.6	19.0		8.3	9.8				7.9		41.2	29.1
Progression Factor	1.10	0.81		1.00	1.00				1.00		1.00	1.00
Incremental Delay, d2	5.5	1.3		0.8	0.4				0.0		0.6	0.0
Delay (s)	51.1	16.6		9.1	10.2				7.9		41.8	29.2
Level of Service	D	B		A	B				A		D	C
Approach Delay (s)		21.5			10.2			7.9			33.8	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Michael Baker
INTERNATIONAL

Appendix E: Opening Year 2022 + Project Synchro Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	265	746	3	1	0
Future Vol, veh/h	1	265	746	3	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	288	811	3	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	814	0	-	0	1103	813
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	813	-	-	-	234	378
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	813	-	-	-	234	378
Mov Cap-2 Maneuver	-	-	-	-	347	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	759	-

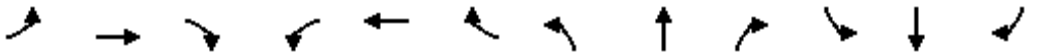
Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	813	-	-	-	347
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	9.4	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	189	76	761	536	213	581
Future Volume (vph)	189	76	761	536	213	581
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.83	0.83	0.91	0.91	0.89	0.89
Adj. Flow (vph)	228	92	836	589	239	653
RTOR Reduction (vph)	0	0	0	0	0	336
Lane Group Flow (vph)	228	92	836	589	239	317
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	37.9	100.0	30.6	44.8	17.9	48.5
Effective Green, g (s)	37.9	100.0	30.6	44.8	17.9	48.5
Actuated g/C Ratio	0.38	1.00	0.31	0.45	0.18	0.48
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1341	1583	1050	834	316	1351
v/s Ratio Prot	0.06		c0.24	c0.32	c0.14	0.07
v/s Ratio Perm		0.06				0.04
v/c Ratio	0.17	0.06	0.80	0.71	0.76	0.23
Uniform Delay, d1	20.6	0.0	31.8	22.3	39.0	15.0
Progression Factor	1.00	1.00	1.35	0.59	1.00	1.00
Incremental Delay, d2	0.3	0.1	2.9	3.7	8.8	0.0
Delay (s)	20.9	0.1	46.0	16.7	47.8	15.0
Level of Service	C	A	D	B	D	B
Approach Delay (s)	14.9			33.9	23.8	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	472	10	10	930	115	0	0	2	151	10	391
Future Volume (vph)	233	472	10	10	930	115	0	0	2	151	10	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3527		1770	3476				1611		1779	1583
Flt Permitted	0.95	1.00		0.29	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3527		538	3476				1611		1779	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.50	0.50	0.50	0.86	0.86	0.86
Adj. Flow (vph)	284	576	12	11	1011	125	0	0	4	176	12	455
RTOR Reduction (vph)	0	2	0	0	9	0	0	0	2	0	0	33
Lane Group Flow (vph)	284	586	0	11	1127	0	0	0	2	0	188	422
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	23.7	37.9		44.8	44.8				44.8		16.5	40.2
Effective Green, g (s)	23.7	37.9		44.8	44.8				44.8		16.5	40.2
Actuated g/C Ratio	0.24	0.38		0.45	0.45				0.45		0.16	0.40
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	419	1336		241	1557				721		293	636
v/s Ratio Prot	c0.16	0.17			c0.32						0.11	c0.16
v/s Ratio Perm				0.02					0.00			0.11
v/c Ratio	0.68	0.44		0.05	0.72				0.00		0.64	0.66
Uniform Delay, d1	34.7	23.1		15.6	22.5				15.3		39.0	24.4
Progression Factor	1.15	0.83		1.00	1.00				1.00		1.00	1.00
Incremental Delay, d2	3.3	1.0		0.4	3.0				0.0		3.6	2.0
Delay (s)	43.3	20.3		15.9	25.5				15.3		42.6	26.4
Level of Service	D	C		B	C				B		D	C
Approach Delay (s)		27.8			25.4			15.3			31.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	472	304	32	37	9
Future Vol, veh/h	8	472	304	32	37	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	513	330	35	40	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	365	0	-	0	879	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1194	-	-	-	318	695
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1194	-	-	-	315	695
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	590	-

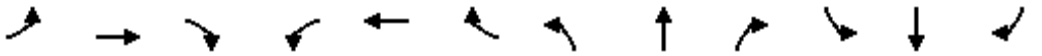
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1194	-	-	-	469
HCM Lane V/C Ratio	0.007	-	-	-	0.107
HCM Control Delay (s)	8	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	384	126	572	217	118	633
Future Volume (vph)	384	126	572	217	118	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	4.0	4.1	5.1	4.4	4.1
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	1863	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	1863	1770	2787
Peak-hour factor, PHF	0.95	0.95	0.97	0.97	0.96	0.96
Adj. Flow (vph)	404	133	590	224	123	659
RTOR Reduction (vph)	0	0	0	0	0	335
Lane Group Flow (vph)	404	133	590	224	123	324
Turn Type	NA	Free	Prot	NA	Prot	pm+ov
Protected Phases	6		5	2	3	5
Permitted Phases		Free				3
Actuated Green, G (s)	48.3	100.0	24.8	59.9	13.3	38.1
Effective Green, g (s)	48.3	100.0	24.8	59.9	13.3	38.1
Actuated g/C Ratio	0.48	1.00	0.25	0.60	0.13	0.38
Clearance Time (s)	5.1		4.1	5.1	4.4	4.1
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1709	1583	851	1115	235	1061
v/s Ratio Prot	c0.11		c0.17	0.12	c0.07	0.08
v/s Ratio Perm		0.08				0.04
v/c Ratio	0.24	0.08	0.69	0.20	0.52	0.30
Uniform Delay, d1	15.1	0.0	34.1	9.1	40.4	21.7
Progression Factor	1.00	1.00	1.52	0.46	1.00	1.00
Incremental Delay, d2	0.3	0.1	1.9	0.4	1.0	0.1
Delay (s)	15.4	0.1	53.8	4.6	41.4	21.7
Level of Service	B	A	D	A	D	C
Approach Delay (s)	11.6			40.3	24.8	
Approach LOS	B			D	C	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	864	16	14	620	54	0	0	12	82	13	166
Future Volume (vph)	145	864	16	14	620	54	0	0	12	82	13	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99				0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00		0.96	1.00
Satd. Flow (prot)	1770	3528		1770	3493				1611		1786	1583
Flt Permitted	0.95	1.00		0.17	1.00				1.00		0.96	1.00
Satd. Flow (perm)	1770	3528		316	3493				1611		1786	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	156	929	17	15	646	56	0	0	16	88	14	178
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	6	0	0	124
Lane Group Flow (vph)	156	945	0	15	697	0	0	0	10	0	102	54
Confl. Bikes (#/hr)			1			1						
Turn Type	Prot	NA		Perm	NA				Perm	Split	NA	pm+ov
Protected Phases	1	6			2					7	7	1
Permitted Phases				2					2			7
Actuated Green, G (s)	13.2	48.3		59.9	59.9				59.9		11.9	25.1
Effective Green, g (s)	13.2	48.3		59.9	59.9				59.9		11.9	25.1
Actuated g/C Ratio	0.13	0.48		0.60	0.60				0.60		0.12	0.25
Clearance Time (s)	4.1	5.1		5.1	5.1				5.1		5.8	4.1
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	233	1704		189	2092				964		212	397
v/s Ratio Prot	c0.09	c0.27			c0.20						c0.06	0.02
v/s Ratio Perm				0.05					0.01			0.02
v/c Ratio	0.67	0.55		0.08	0.33				0.01		0.48	0.14
Uniform Delay, d1	41.3	18.3		8.4	10.0				8.1		41.2	29.0
Progression Factor	1.09	0.85		1.00	1.00				1.00		1.00	1.00
Incremental Delay, d2	5.3	1.2		0.8	0.4				0.0		0.6	0.1
Delay (s)	50.4	16.7		9.3	10.5				8.1		41.8	29.1
Level of Service	D	B		A	B				A		D	C
Approach Delay (s)		21.5			10.4			8.1			33.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Michael Baker
INTERNATIONAL

Appendix F:
Signal Warrant Worksheets

OPENING YEAR PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: AM

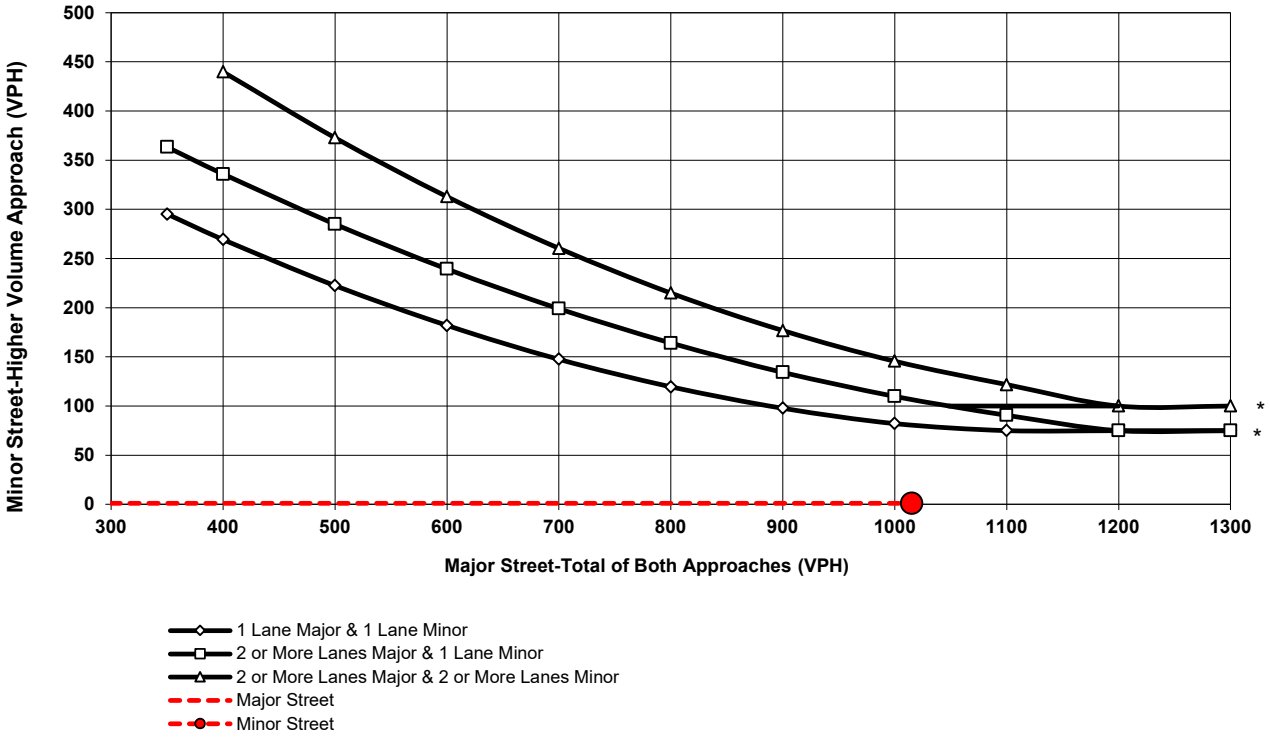
Major Street: Campo Road

Minor Street: Project Driveway

Total of Both Approaches (VPH):	1015	Higher Volume Approach (VPH):	1
Number of Approach Lanes:	2	Number of Approach Lanes:	1

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

OPENING YEAR PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

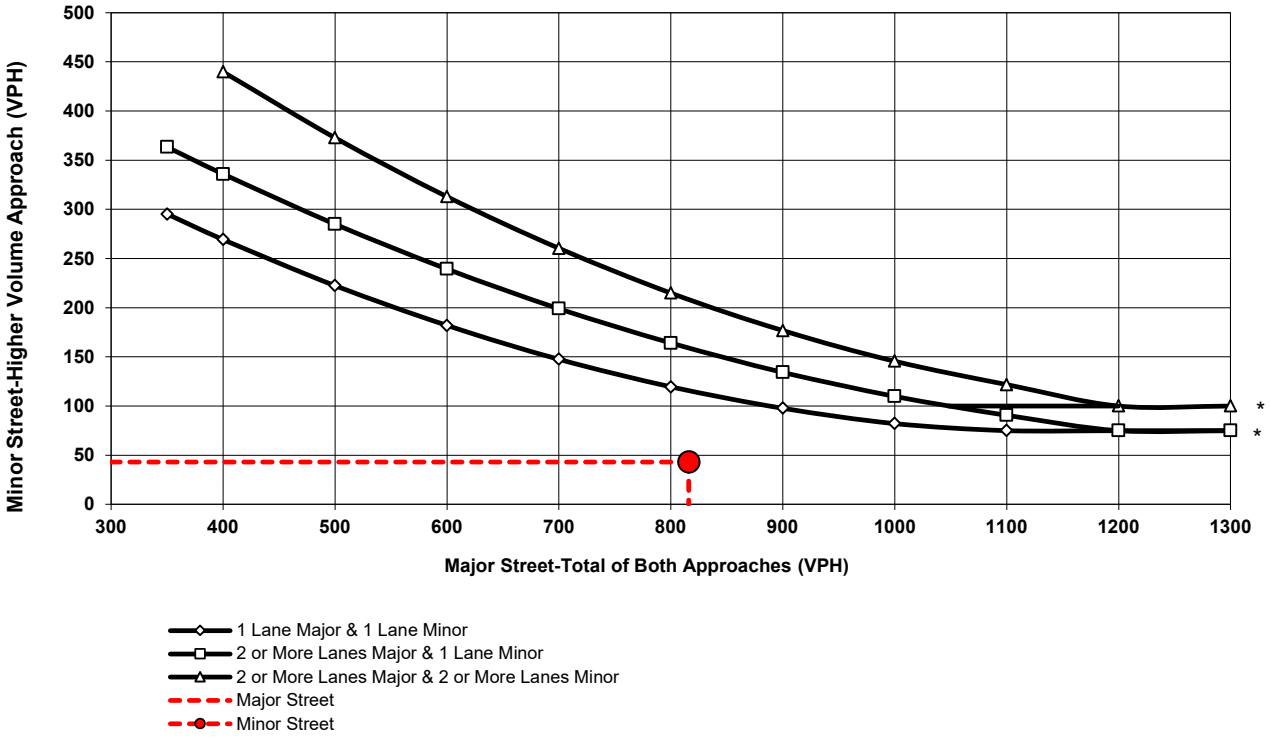
Major Street: Campo Road

Minor Street: Project Driveway

Total of Both Approaches (VPH):	816	Higher Volume Approach (VPH):	43
Number of Approach Lanes:	2	Number of Approach Lanes:	1

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1