APPENDIX Q

Local Mobility Analysis

JVR ENERGY PARK

Local Mobility Analysis

March 2021

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1 INTRODUCTION

The following Local Mobility Analysis (LMA) has been prepared to identify the traffic effects associated with the construction and daily operations of the JVR Energy Park.

1.1 PROJECT DESCRIPTION

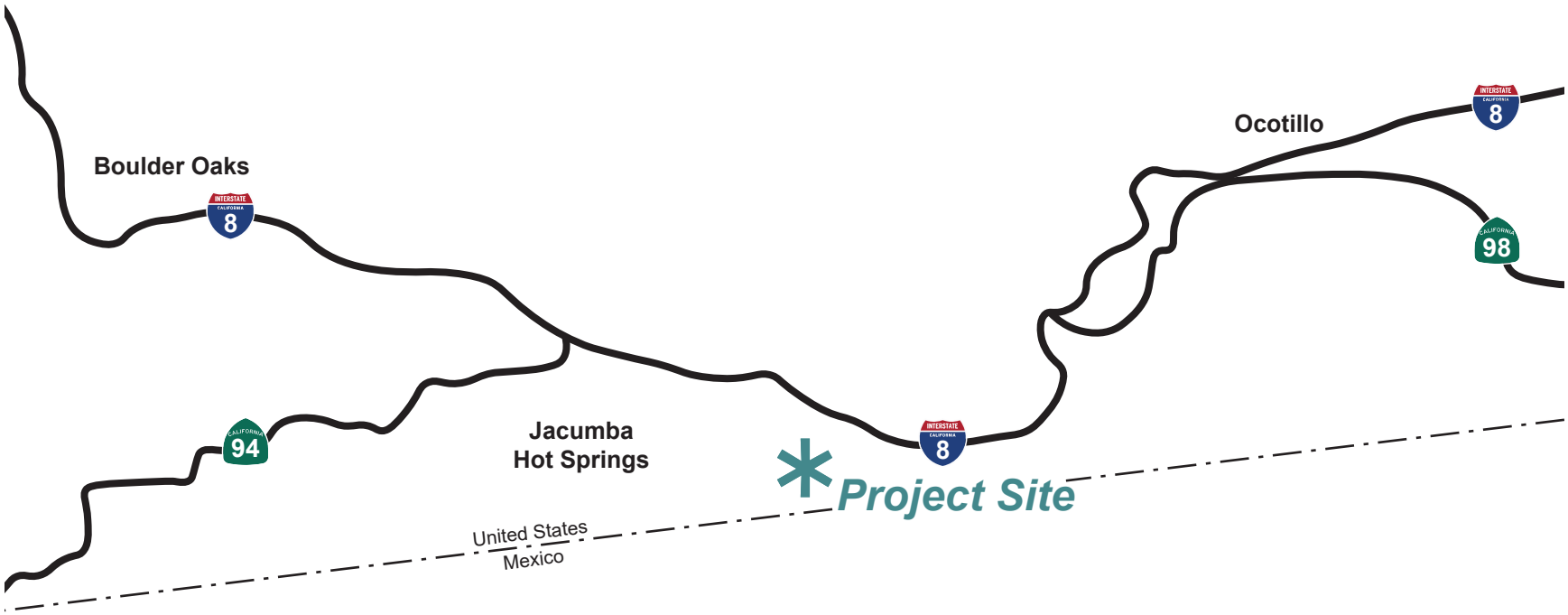
The project site consists of approximately 1,356 acres in southeastern San Diego County, within the County's Mountain Empire Subregional Plan area. It is located south of Interstate 8, immediately east of the community of Jacumba Hot Springs, and just north of the U.S./Mexico international border. **Figure 1-1** depicts the project location in a regional context. The site is located entirely on private land and consists of 24 parcels, including right-of-way easements for Old Highway 80, SDG&E easements, and an easement for the San Diego and Arizona Eastern Railway. The proposed project includes a solar energy generation and storage facility. The proposed project also includes an on-site collector substation and ~~switchyard~~ Switchyard Facilities. The ~~switchyard~~ Switchyard Facilities would be transferred to San Diego Gas & Electric (SDG&E) after construction. Overhead transmission lines would connect the ~~switchyard~~ Switchyard Facilities to an existing SDG&E 138 kV transmission line adjacent to the site. In order to develop a solar facility on the Project site, discretionary actions from the County would be required, including a Major Use Permit (MUP). **Appendix A** contains the proposed project plot plans and **Appendix B** contains a detailed project description of the solar facility, including construction activities and anticipated durations.

Access to the solar facility would be established through construction of six driveways at the following five locations:

- Access 1 – Full access driveway along Carrizo Gorge Road (east leg), approximately 1,000 feet southeast of the Interstate 8 interchange;
- Access 2 – Full access driveway along Carrizo Gorge Road (west leg), approximately 1,450 feet southeast of the Interstate 8 interchange;
- Access 3 – Full access driveway along Carrizo Gorge Road (east leg), approximately 2,100 feet southeast of the Interstate 8 interchange;
- Access 4 – Full access driveway along Carrizo Gorge Road (west leg), approximately 2,800 feet southeast of the Interstate 8 interchange; and
- Access 5 – Full access driveway along Old Highway 80 (north and south leg), approximately 1,200 feet east of Campo Street.

Construction of the project is anticipated to occur over a period of approximately 13 months. For purposes of this analysis, it is anticipated construction would finish end of 2021.

Figure 1-1 Regional Vicinity Map



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1.2 ANALYSIS SCENARIOS

Three scenarios were analyzed as part of this LMA, listed below:

- ***Existing (2019) Conditions****:* Represents the traffic conditions of the existing street network. Traffic counts were collected in March 2019.
- ***Existing (2019) Conditions Plus Construction Traffic:*** Represents the traffic conditions on the existing street network during peak construction activities. Comparison of this scenario to Existing (2019) Conditions scenario determines construction effects associated with the project.
- ***Existing (2019) Conditions Plus Daily Operations Traffic:*** Represents the traffic conditions on the existing street network with the addition of the proposed project. Comparison of this scenario to Existing (2019) Conditions scenario determines direct project effects associated with the project.

Project decommissioning related trips are estimated to be similar to or less than the construction related trips for the Existing (2019) Conditions Plus Construction Traffic.

2 METHODOLOGY

The following section describes the methodology used to determine study intersections, analyze study area conditions and to determine whether adverse project effect are expected to occur.

2.1 STUDY AREA

The study area was determined based on likely traffic patterns during the construction of the project and the typical operations of facilities. It also reflects the main access routes to and from the project site, mainly providing access to/from Interstate 8.

Table 2–1 Study Intersections

	Intersection	Traffic Control (a)	Jurisdiction (b)
1	I-8 Access Road & I-8 WB On/Off Ramp	OWSC	Caltrans
2	I-8 Access Road & I-8 EB On/Off Ramp	OWSC	Caltrans
3	I-8 Access Road & Carrizo Gorge Road	TWYC	County
4	Old Highway 80 & Carrizo Gorge Road	OWYC	County
5	Carrizo Gorge Road & Access 1	DNE	County
6	Carrizo Gorge Road & Access 2	DNE	County
7	Carrizo Gorge Road & Access 3	DNE	County
8	Carrizo Gorge Road & Access 4	DNE	County
9	Old Highway 80 & Access 5	DNE	County

(a) OWSC = One-Way Stop Control;
OWYC = One-Way Yield Control;
TWYC = Two-Way Yield Control;
DNE = Project Access Location - Does Not Exist currently.
(b) County = County of San Diego;
Caltrans = Caltrans District 11.

Figure 2-1 illustrates the study area at the time the counts were collected.

Figure 2-1 Study Area

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2.2 ANALYSIS PROCESS

The analysis process includes evaluating the operations at the intersections for the a.m. and p.m. peak periods. Intersection analyses were measured and quantified using Synchro traffic analysis software package. Analysis results are used to determine the project's consistency with County General Plan Mobility Element Policy M-2.1, which requires development projects to provide associated road improvements necessary to achieve a level of service of "D" or higher on all Mobility Element roads except for those where a failing level of service has been accepted by the County pursuant to the criteria outline in the General Plan.

2.2.1 ANALYSIS SOFTWARE

To analyze intersection operations, Synchro 10 (Trafficware), using the methodologies outlined in the 2000 *Highway Capacity Manual (HCM),* was used for the analysis. Due to limitations of the 2010 HCM and 6th Edition HCM in analyzing yield-controlled intersections in which delay is not reported, HCM 2000 methodology is used across the entire study area for consistency.

2.2.2 UNSIGNALIZED INTERSECTIONS

The Highway Capacity Manual (*HCM)* published by the Transportation Research Board establishes procedures to evaluate highway facilities and rate their ability to process traffic volumes. The terminology "level of service" is used to provide a qualitative evaluation based on certain quantitative calculations, which are related to empirical values. The criteria for the various levels of service designations for intersections are given in **Table 2-2**.

Level of service (LOS) for intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, final acceleration time, and stop delay.

LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each movement. At a one-way or two-way stop-controlled or yield-controlled intersection, the delay reported represents the worst movement (longest delay) of the intersection. However, for this analysis, the delay is reported for each stop-controlled movement.

The following list contains the assumptions used for the intersection analyses:

- Peak-hour factor (PHF) = Measured in field PHFs were used for the Existing (2019) Conditions and Existing (2019) Conditions Plus Daily Operations Traffic scenarios;
- 0.92 PHF was used for the Existing (2019) Conditions Plus Construction Traffic scenario since most of the traffic on the roadway network during the AM and PM peak hours is related to construction traffic scenario;
- Percent of heavy vehicle (PHV) = 2 percent for the Existing (2019) Conditions, Existing (2019) Conditions Plus Construction Traffic, and Existing (2019) Conditions Plus Daily Operations Traffic scenarios; and
- Passenger Car Equivalent (PCE) = 3.0 for Heavy Construction/Delivery Vehicles in the Existing (2019) Conditions Plus Construction Traffic scenario and Heavy Maintenance/Delivery Vehicles in

the Existing (2019) Plus Daily Operations Traffic scenario. PCE was used in lieu of increasing the PHV.

The acceptable LOS standard for intersections in the County of San Diego is LOS D.

Table 2–2 LOS Criteria for Intersections

LOS	Control Delay (sec/veh)		Description
	Signalized Intersections (a)	Unsignalized Intersections (b)	
A	≤10.0	≤10.0	Operations with very low delay and most vehicles do not stop.
B	>10.0 and ≤20.0	>10.0 and ≤15.0	Operations with good progression but with some restricted movement.
C	>20.0 and ≤35.0	>15.0 and ≤25.0	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35.0 and ≤55.0	>25.0 and ≤35.0	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines
E	>55.0 and ≤80.0	>35.0 and ≤50.0	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80.0	>50.0	Operations that is unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:

(a) 2000 Highway Capacity Manual, Chapter 18, Page 6, Exhibit 18-4

(b) 2000 Highway Capacity Manual, Chapter 19, Page 2, Exhibit 19-1 and Chapter 20, Page 3, Exhibit 20-2.

3 EXISTING (2019) CONDITIONS

This section summarizes the existing roadway circulation network, daily and peak-hour traffic volumes, and operations at the study intersections.

3.1 ROAD NETWORK

The following provides a description of the existing street system as of March 2019, within the vicinity of the project area.

Interstate 8 Access Road functions as an interchange and provides access to I-8 and Carrizo Gorge Road. The 500' two-lane, undivided roadway has no posted speed and parking is restricted. There is a service station at the south end of the road. The intersection of Carrizo Gorge Road is controlled with yield signs and pavement markings on the east and west legs and the I-8 eastbound and westbound exit ramps are stop-controlled.

Carrizo Gorge Road is a two-lane, undivided county road that connects I-8 with Old Highway 80. The roadway is currently classified as a 2.2D Light Collector per the County's General Plan. There is no posted speed limit along this gently-curved road and on-pavement parking is restricted. The intersection of Old Highway 80 is controlled with yield signs and pavement marking on the north leg of Carrizo Gorge Road. The north leg has a large flair that allows for separate southbound left and right turn movements.

Old Highway 80 is a two-lane, undivided county road that connects I-8 with Jacumba Hot Springs, within the project vicinity. The roadway is currently classified as a 2.2D Light Collector per the County's General Plan. The posted speed limit is 55 mph and on-pavement parking is restricted.

I-8 is a four-lane freeway within the vicinity of the project site. There are currently interchanges at Carrizo Gorge Road and Old Highway 80.

Figure 3-1 shows the existing geometrics of the study intersections within the study area.

3.2 TRAFFIC VOLUMES

Peak-Hour intersection turning movement counts were collected by National Data and Surveying Services (NDS) at the existing study intersections on Wednesday March 6, 2019. 24-Hour roadway segment volumes we collected by NDS adjacent to the future project access locations the same day. The 24-hour roadway segment volumes were utilized to develop the existing peak hour volumes and peak hour factors.

Appendix C contains the existing traffic volume data and calculations.

Figure 3-2 illustrates the existing peak hour turning movement volumes at the study intersections.

3.3 INTERSECTION ANALYSIS

Table 3-1 displays the intersection analysis for the study intersections under Existing (2019) Conditions. As shown in the table, all controlled intersection movements currently operate at LOS C or better during both the AM and PM peak periods. **Appendix D** contains the intersections LOS calculation worksheets.

Figure 3-1 Existing (2019) Conditions Intersection Geometrics

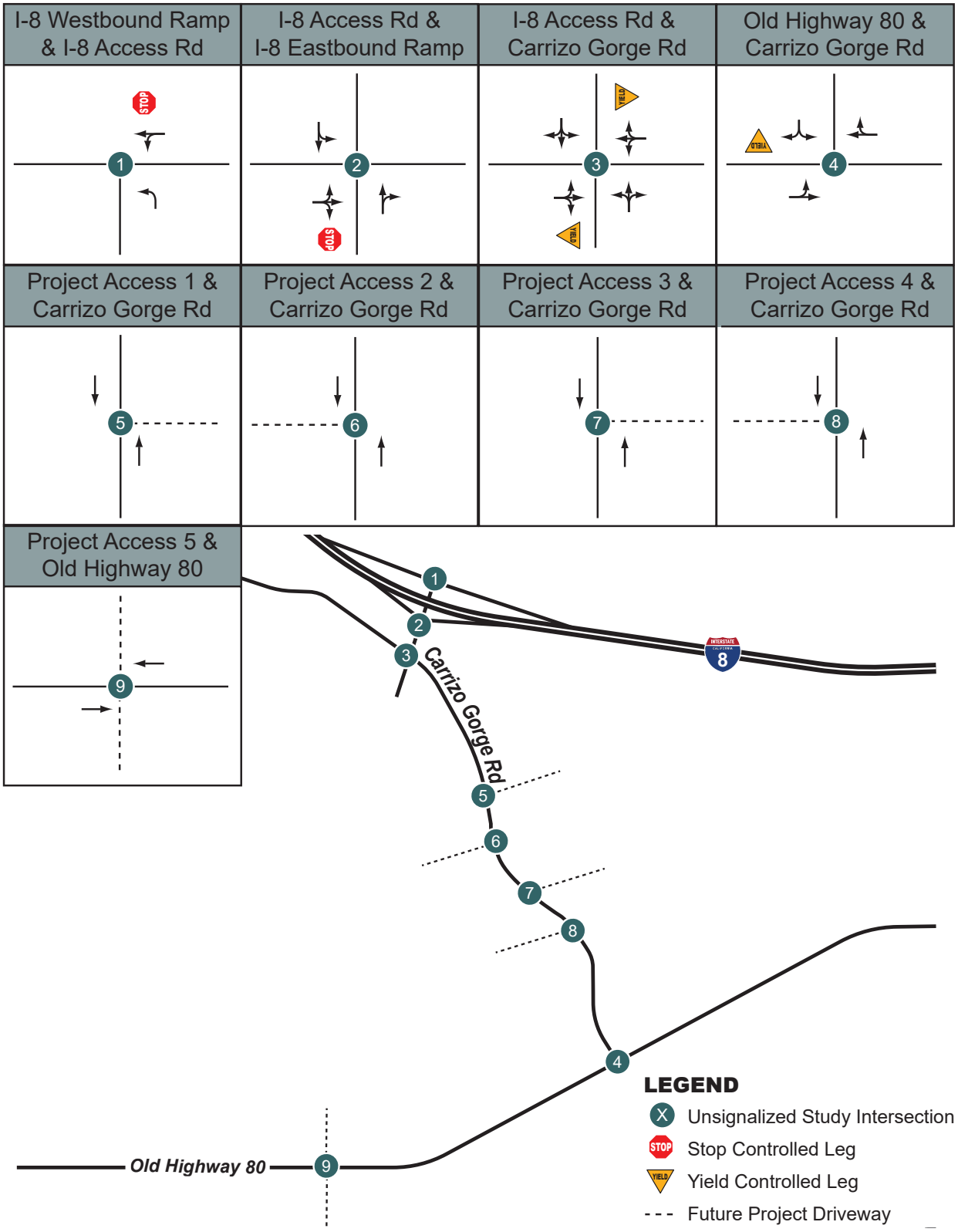

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Figure 3-2 Existing (2019) Conditions Peak Hour Volumes

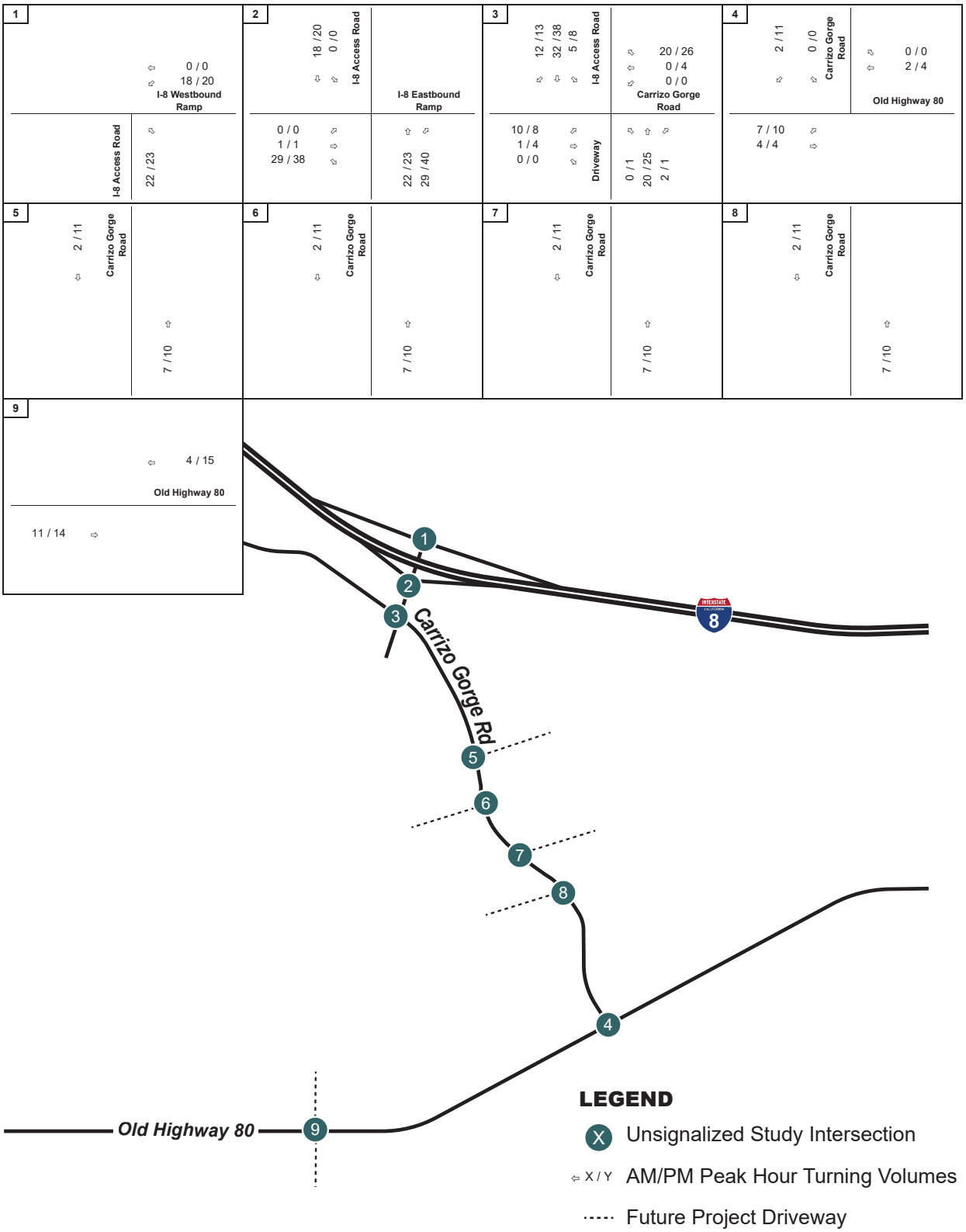

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TABLE 3-1
EXISTING (2019) CONDITIONS
INTERSECTION ANALYSIS SUMMARY

	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	EXISTING	
				DELAY (a)	LOS (b)
1	I-8 Access Road & I-8 WB On/Off Ramp	One-Way Stop	AM	9.1 (WB LT)	A
			PM	9.1 (WB LT)	A
2	I-8 Access Road & I-8 EB On/Off Ramp	One-Way Stop	AM	8.6 (EB LTR)	A
			PM	8.6 (EB LTR)	A
3	I-8 Access Road & Carrizo Gorge Road	Two-Way Yield	AM	9.5 (EB LTR) 8.5 (WB LTR)	A A
			PM	9.6 (EB LTR) 8.7 (WB LTR)	A A
4	Old Highway 80 & Carrizo Gorge Road	One-Way Yield	AM	18.5 (SB LR) 4.7 (EB LT)	C A
			PM	19.3 (SB LR) 5.2 (EB LT)	C A
5	Carrizo Gorge Road & Access 1	One-Way Stop	AM	- -	- -
			PM	- -	- -
6	Carrizo Gorge Road & Access 2	One-Way Stop	AM	- -	- -
			PM	- -	- -
7	Carrizo Gorge Road & Access 3	One-Way Stop	AM	- -	- -
			PM	- -	- -
8	Carrizo Gorge Road & Access 4	One-Way Stop	AM	- -	- -
			PM	- -	- -
9	Old Highway 80 & Access 5	Two-Way Stop	AM	- - - -	- - - -
			PM	- - - -	- - - -

Notes:

Bold values indicate intersections operating at LOS E or F.

(a) At a one-way/two-way stop-controlled/yield-controlled intersections, delay refers to individual controlled movements.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 10.0

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4 PROJECT TRAFFIC

The following section describes the trip generation, distribution and assignment related to the construction of the proposed project and its daily operations.

4.1 TRIP GENERATION

The trips generated by the construction of the proposed project and the daily operations were developed from information provided by the project applicant and end user such as number of workers required, schedules, and anticipated heavy delivery vehicles traveling to/from the site. It is conservatively estimated that during the peak construction of the project, up to 500 workers would be working across the entire project site and would arrive and depart between 6 AM – 4 PM. It is also anticipated that 30 heavy construction and/or delivery vehicles will travel to/from the project daily during construction. Based on preliminary construction schedules, approximately 462 workers and 22 trucks are anticipated for the construction of the solar facility, including the on-site collector substation, during peak construction operations. Approximately 38 workers and 8 trucks are anticipated for the construction of the ~~switchyard~~ Switchyard Facilities during peak construction operations. Thus, the total number of workers on the entire project site would be 500 workers during peak construction.

Since current SANDAG and ITE Trip Generation documents to do not contain information related to construction traffic, nor do they contain a land use that reflect the proposed daily operations of the subject site, a custom trip generation was necessary, to more accurately analyze the project-related effects.

For the Existing (2019) Conditions Plus Construction Traffic scenario, it is assumed that 65% of the workers (325) would arrive during the AM peak hour and depart during the PM peak hour. It is assumed that 30% of the 500 employees would carpool to/from the project site (15% reduction), which is conservative given the long distances between the project site and highly populated areas in San Diego County and Imperial County. Additionally, 15% of the worker traffic (64) is assumed to make an additional trip to/from the project site outside of the AM and PM peak hours. This accounts for workers leaving for lunch and additional miscellaneous trips that are to be expected. The 15% is expected to be conservative for a construction site in an undeveloped area since travel times would discourage these additional trips. A total of 30 heavy construction/delivery vehicles are anticipated to travel to/from the project site daily (22 for JVR construction and 8 for SDG&E ~~switchyard~~ Switchyard Facilities construction) and are spread out throughout the day (15% assumed during the peak hours). A Passenger Car Equivalent (PCE) of 3.0 is applied to all heavy vehicles. Based on the available information and the listed assumptions, it is estimated that the project would generate a total of 1,158 daily trips, with 320 (297 in, 23 out) trips during the a.m. peak hour and 320 (23 in, 297 out) during the p.m. peak hour, during peak construction operations and are broken down below.

- Solar Facility (including collector substation) – 1,036 daily trips, with 292 (270 in, 22 out) a.m. peak hour trips and 292 (22 in, 270 out) p.m. peak hour trips;
- Switchyard Facilities – 122 daily trips, with 28 (27 in, 1 out) a.m. peak hour trips and 28 (1 in, 27 out) p.m. peak hour trips.

After the construction operations are complete, the solar facility will generally be unmanned during typical operations. However, for purposes of the traffic analysis, it is projected that the daily operations of the

solar facility would require 2 employees on site and approximately 2 heavy delivery/maintenance vehicles traveling to/from the project daily. The ~~switchyard~~ Switchyard Facilities, which would be transferred to SDG&E after construction, is not expected to generate traffic outside of occasional maintenance required. For the purposes of this analysis, the ~~switchyard~~ Switchyard Facilities are not assumed to generate daily or peak hour trips.

For the Existing (2019) Conditions Plus Daily Operations Traffic scenario, it is assumed that workers would arrive during the AM peak hour and depart during the PM peak hour. No carpool reduction is assumed, and all workers are assumed to make an additional trip to/from the project site outside of the AM and PM peak hours for lunch and/or additional miscellaneous trips. A total of 2 heavy construction/delivery vehicles are assumed to travel to/from the project site daily and are split between the AM and PM peak hours. A PCE of 3.0 is also assumed for this scenario. Based on the available information and the listed assumptions, it is estimated that the project would generate a total of 20 daily trips, with 8 (5 in, 3 out) trips during the a.m. peak hour and 8 (3 in, 5 out) during the p.m. peak hour, during daily operations.

Table 4-1 summarizes the trip generation for the proposed project during construction and daily operations. In the table, construction traffic is broken down between the solar facility (including collector substation) and the ~~switchyard~~ Switchyard Facilities based on preliminary construction schedules. Refer to **Appendix B** for the planned construction activities and anticipated duration.

Figure 4-1 General Project Trip Distribution

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4.2 TRIP DISTRIBUTION

The project traffic distribution was based on the current network configuration, a review of the current traffic data and knowledge of the project area.

The following is the resulting general project traffic distribution assumed for this analysis for the Existing (2019) Plus Construction Traffic and Existing (2019) Plus Daily Operations scenarios:

- 65% to/from the west along Interstate 8 and using the Carrizo Gorge Road interchange
- 30% to/from the east along Interstate 8
    - 28% would use the Carrizo Gorge Road interchange
    - 2% would use the Old Highway 80 interchange
- 5% to/from the west along Old Highway 80

Figure 4-1 shows the general project traffic distribution within the study area for the Existing (2019) Plus Construction Traffic and Existing (2019) Plus Daily Operations scenarios.

5 EXISTING (2019) CONDITIONS PLUS CONSTRUCTION TRAFFIC

This section provides a description of the Existing (2019) Conditions with the addition of the proposed project's construction traffic.

5.1 TRAFFIC VOLUMES

The proposed project is expected to generate a total of 1,158 daily trips, with 320 trips (297 in, 23 out) during the AM Peak, and 320 trips (23 in, 297 out) during the PM Peak. Existing (2019) Conditions Plus Construction Traffic volumes were determined by adding the construction traffic to the Existing (2019) Conditions volumes and are shown in **Figure 5-1**.

5.2 TRIP ASSIGNMENT

Based on the project's trip generation and trip distribution, project trips were assigned to the local roadway network.

Figure 5-2 shows the total trip assignment for the proposed project under the Existing (2019) Plus Construction Traffic scenario at the study area intersections. **Figure 5-3** shows the trip assignment for the proposed project under the Existing (2019) Plus Daily Operations scenario at the study area intersections.

Figure 5-1 Trip Assignment for Existing (2019) Plus Construction Traffic

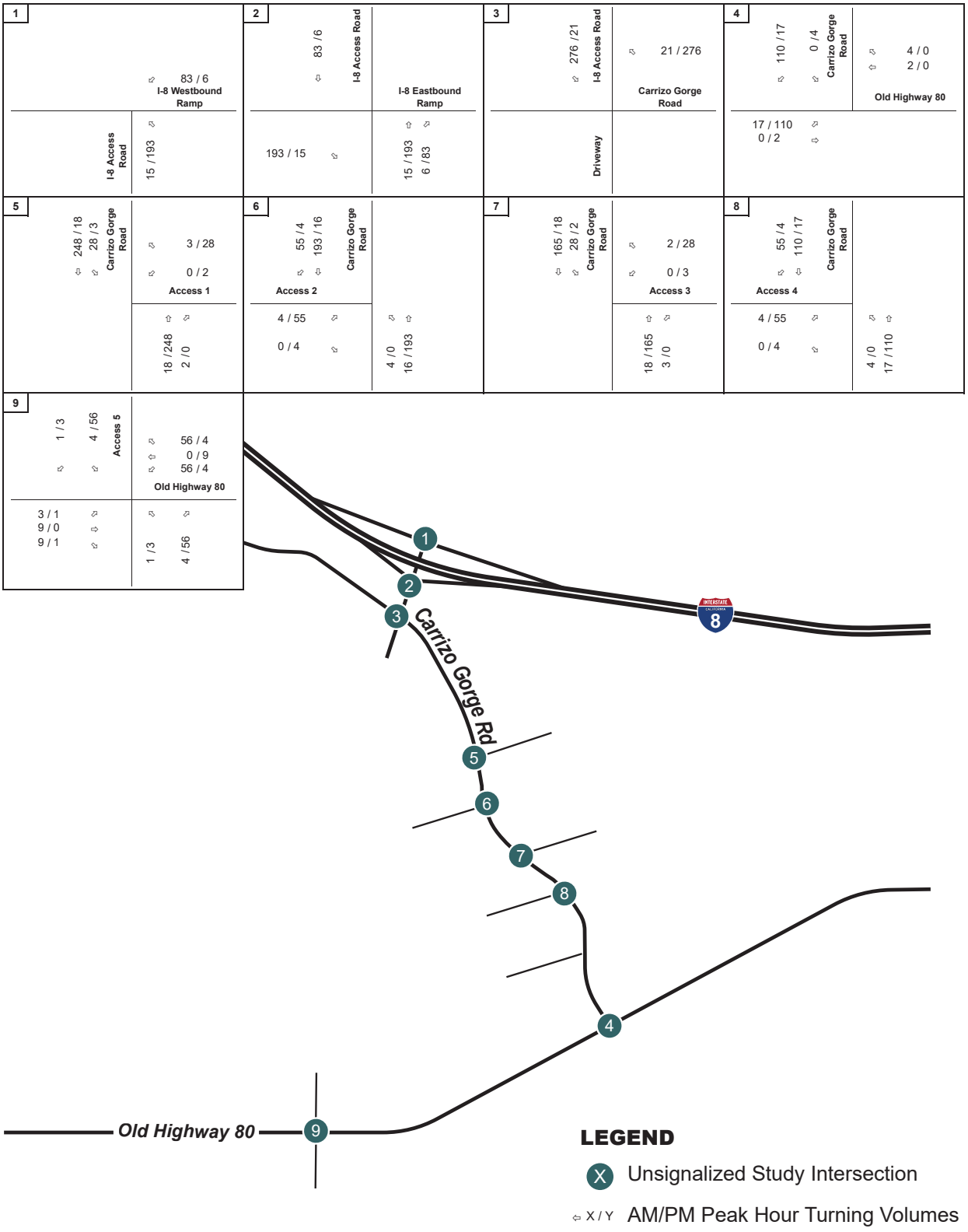

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Figure 5-2 Trip Assignment for Existing (2019) Plus Daily Operations Traffic

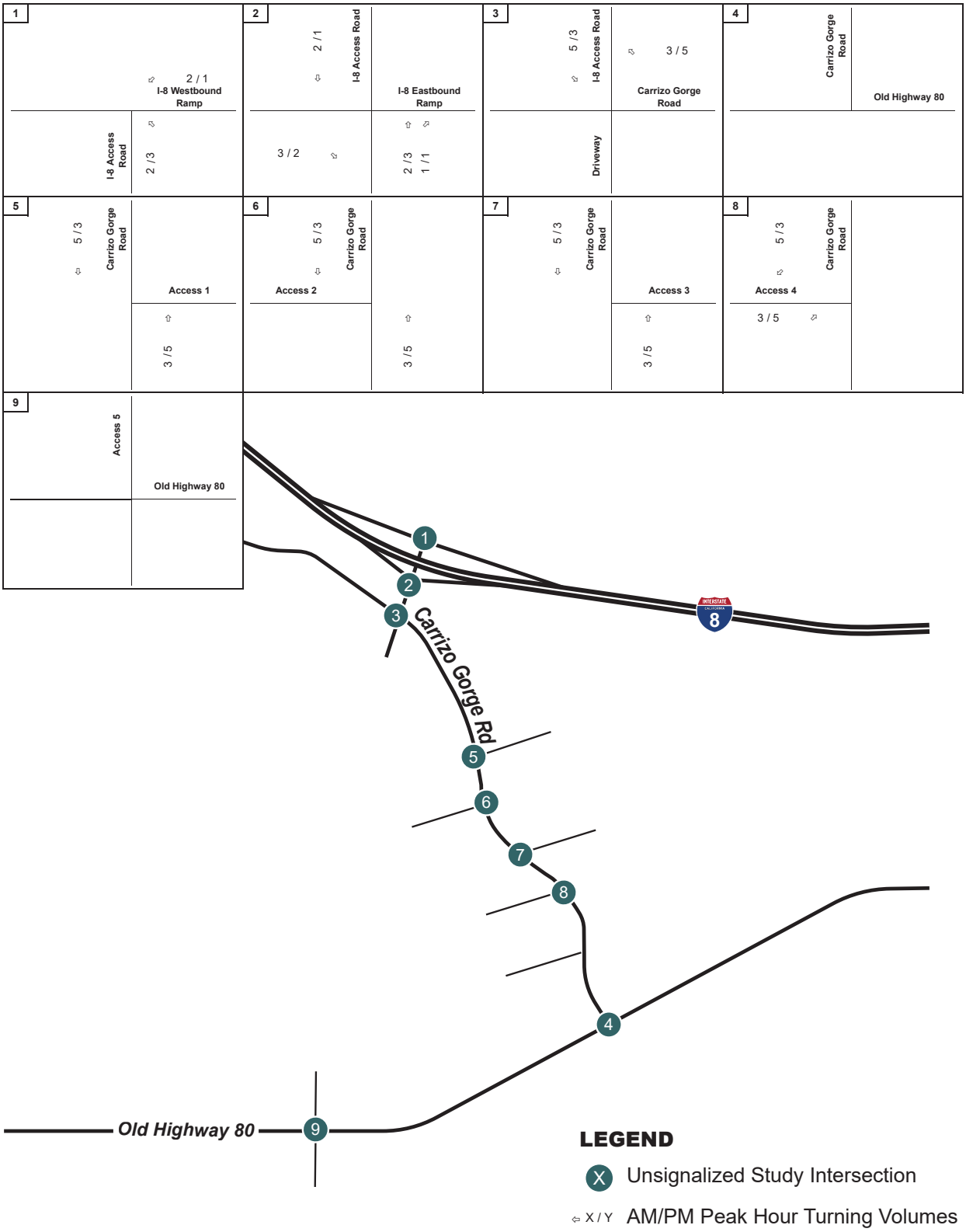

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Figure 5-3 Existing (2019) Plus Construction Traffic Peak Hour Volumes

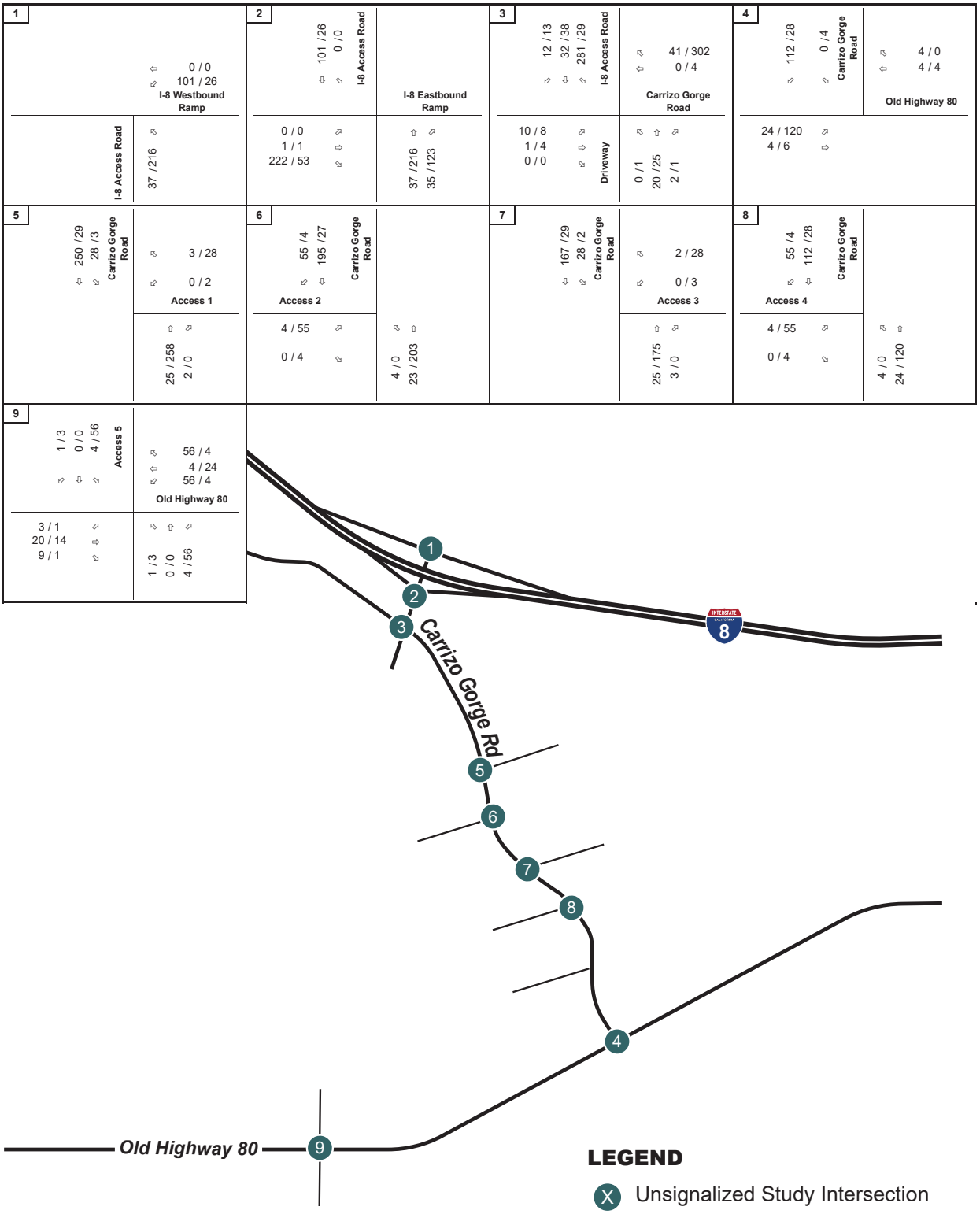

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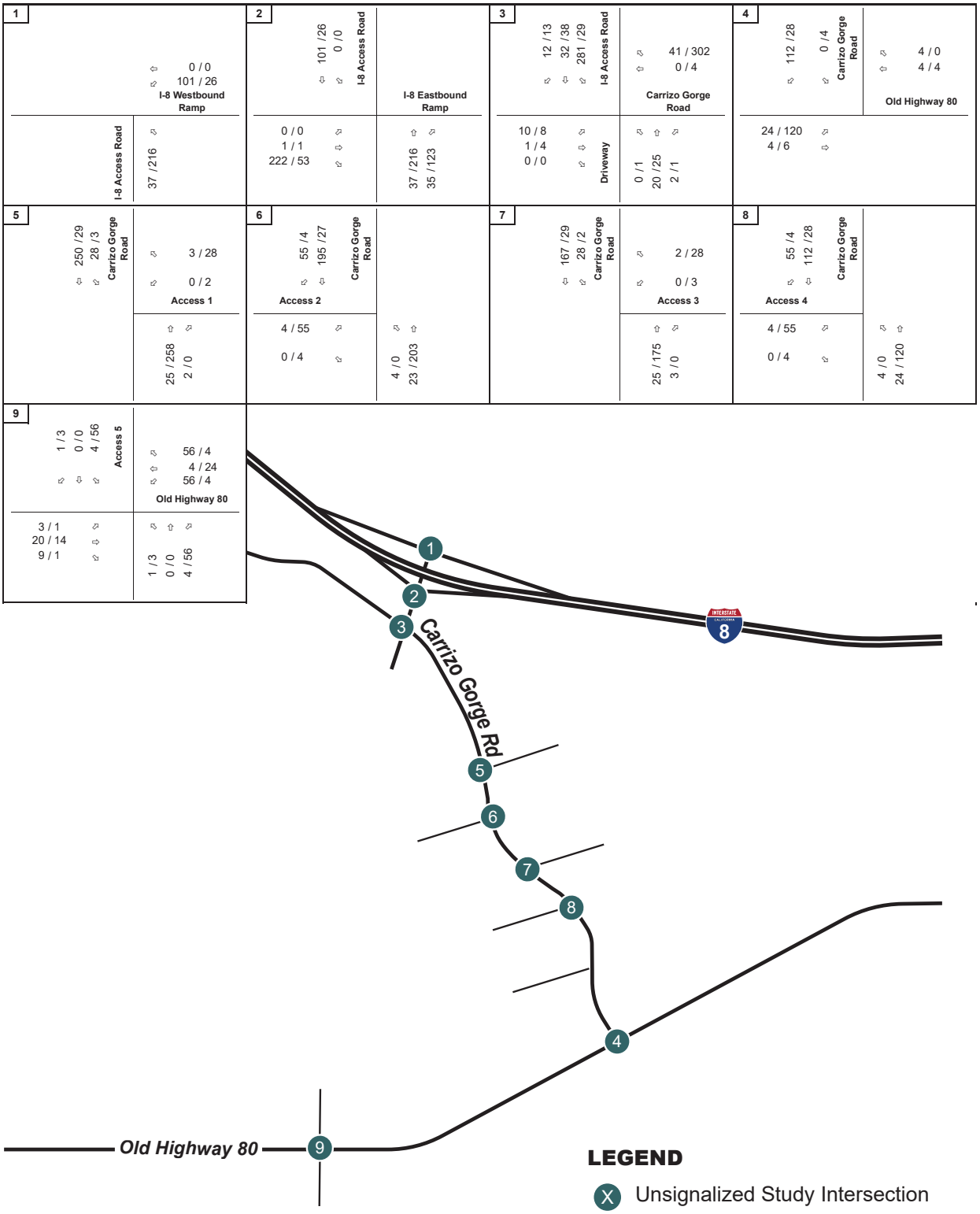
Figure 5-3 Existing (2019) Plus Construction Traffic Peak Hour Volumes



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5.3 ROADWAY NETWORK CHANGES

No roadway network changes are planned as part of the construction of the proposed project, except for the construction of the following six driveways at five locations to provide access to the solar facility:

- Access 1 – Full access driveway along Carrizo Gorge Road (east leg), approximately 1,000 feet southeast of the Interstate 8 interchange;
- Access 2 – Full access driveway along Carrizo Gorge Road (west leg), approximately 1,450 feet southeast of the Interstate 8 interchange;
- Access 3 – Full access driveway along Carrizo Gorge Road (east leg), approximately 2,100 feet southeast of the Interstate 8 interchange;
- Access 4 – Full access driveway along Carrizo Gorge Road (west leg), approximately 2,800 feet southeast of the Interstate 8 interchange; and
- Access 5 – Full access driveway along Old Highway 80 (north and south leg), approximately 1,200 east of Campo Street.

5.4 INTERSECTION ANALYSIS

Table 5-1 displays the intersection analysis for the study intersections under the Existing (2019) Conditions Plus Construction Traffic. As shown in the table, all controlled intersections movements would operate at LOS D or better during both the AM and PM peak periods with the addition of the proposed project construction traffic during peak construction. Decommissioning related trips are estimated to be similar to or less than the construction related trips described above.

Appendix D contains the intersections LOS calculation worksheets.

Table 5–1 Existing (2019) Plus Construction Traffic Intersection Analysis Summary

PLACEHOLDER

6 EXISTING (2019) CONDITIONS PLUS DAILY OPERATIONS TRAFFIC

This section provides a description of the Existing (2019) Conditions with the addition of the proposed project's daily operations traffic.

6.1 TRAFFIC VOLUMES

The proposed project is expected to generate 20 daily trips, with 8 trips (5 in, 3 out) during the AM Peak, and 8 trips (3 in, 5 out) during the PM Peak. Existing (2019) Conditions Plus Project volumes were determined by adding the project traffic to the Existing (2019) Conditions volumes and are shown in **Figure 6-1**.

6.2 ROADWAY NETWORK CHANGES

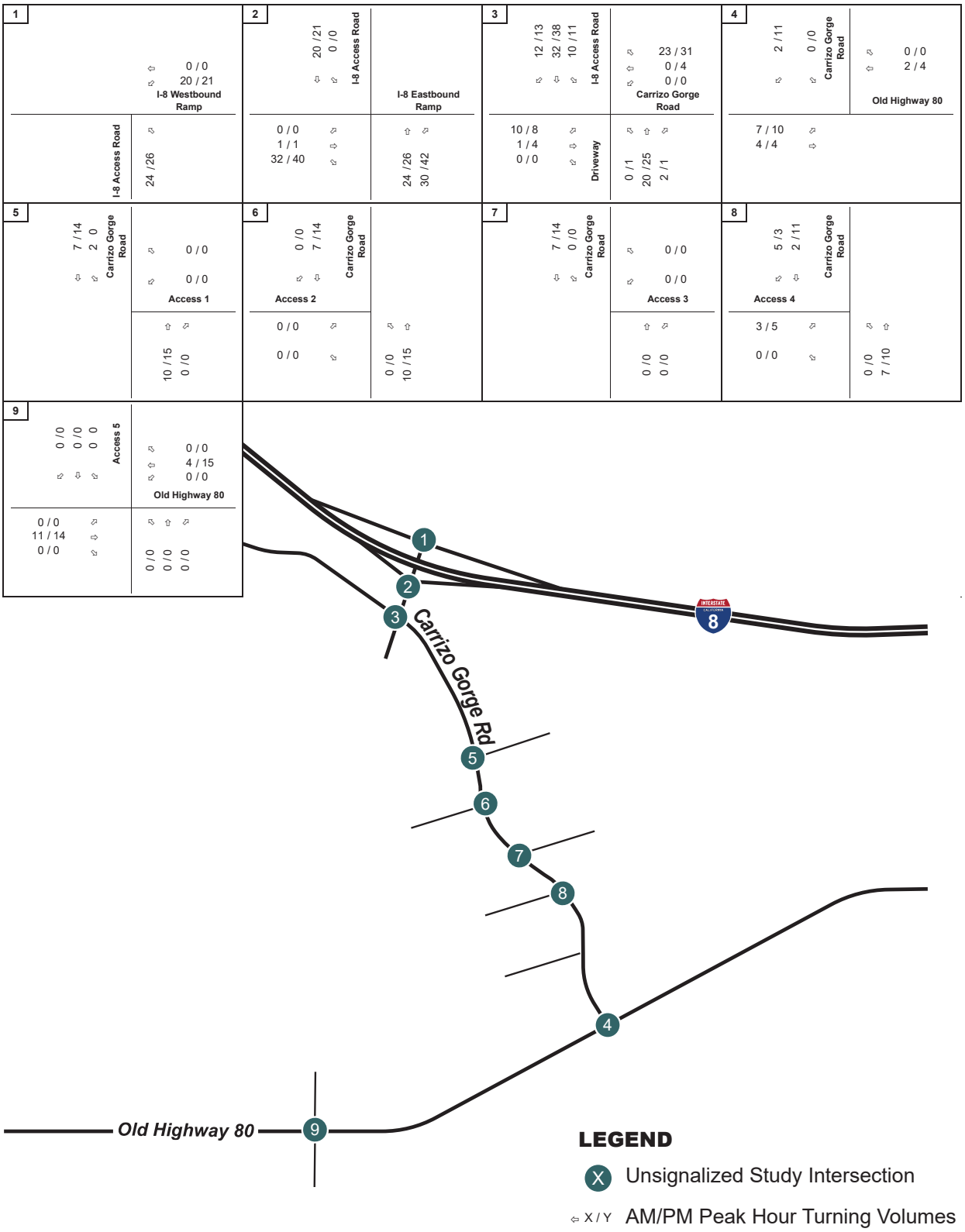
No roadway network changes are planned as part of the construction of the proposed project, except for the construction of the following six driveways at five locations to provide access to the solar facility:

- Access 1 – Full access driveway along Carrizo Gorge Road (east leg), approximately 1,000 feet southeast of the Interstate 8 interchange;
- Access 2 – Full access driveway along Carrizo Gorge Road (west leg), approximately 1,450 feet southeast of the Interstate 8 interchange;
- Access 3 – Full access driveway along Carrizo Gorge Road (east leg), approximately 2,100 feet southeast of the Interstate 8 interchange;
- Access 4 – Full access driveway along Carrizo Gorge Road (west leg), approximately 2,800 feet southeast of the Interstate 8 interchange; and
- Access 5 – Full access driveway along Old Highway 80 (north and south leg), approximately 1,200 feet east of Campo Street.

6.3 INTERSECTION ANALYSIS

Table 6-1 displays the intersection analysis for the study intersections under the Existing (2019) Conditions Plus Daily Operations Traffic. As shown in the table, all controlled intersections movements would continue to operate at LOS C or better during both the AM and PM peak periods with the addition of the proposed project daily operations traffic. **Appendix D** contains the intersections LOS calculation worksheets.

Figure 6-1 Existing (2019) Plus Daily Operations Traffic Peak Hour Volumes



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7 CONCLUSIONS AND RECOMMENDATIONS

This section summarizes the results of the traffic analysis and subsequent recommendations to the access driveway locations of the proposed project.

7.1 ANALYSIS SUMMARY

The development of the proposed project and resulting combined peak construction traffic generation of approximately 1,158 daily trips, 320 (297 in, 23 out) trips during the a.m. peak hour and 320 (23 in, 297 out) during the p.m. peak hour, are not expected to cause any significant traffic effects to the study area. The ~~switchyard~~ Switchyard Facilities would generate a portion of these total project trips: 122 daily trips, with 28 (27 in, 1 out) a.m. peak hour trips and 28 (1 in, 27 out) p.m. peak hour trips. Therefore, the ~~switchyard~~ Switchyard Facilities component of the project would not cause any individual significant traffic effects to the study area.

The daily operations of the proposed project and resulting traffic generation of approximately 20 daily trips, 8 (5 in, 3 out) trips during the a.m. peak hour and 8 (3 in, 5 out) during the p.m. peak hour, are not expected to cause any significant traffic effects to the study area. Since the ~~switchyard~~ Switchyard Facilities are not expected to generate traffic outside of occasional maintenance required, it would not cause any traffic effects to the study area.

7.2 PROJECT ACCESS RECOMMENDATIONS

The development of the proposed project will require the following improvements:

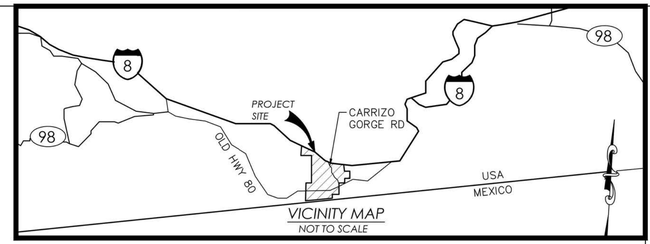
- Carrizo Gorge Road & Access 1
    - Construct a full access driveway, per County of San Diego standards, approximately 1,000 feet southeast of the Interstate 8 interchange;
    - Provide northbound shared through/right-turn lane;
    - Provide southbound shared left-turn/through lane; and
    - Provide westbound shared left/right-turn lane.
- Carrizo Gorge Road & Access 2
    - Construct a full access driveway, per County of San Diego standards, approximately 1,450 feet southeast of the Interstate 8 interchange;
    - Provide northbound shared left-turn/through lane;
    - Provide southbound shared through/right-turn lane; and
    - Provide eastbound shared left/right-turn lane.
- Carrizo Gorge Road & Access 3
    - Construct a full access driveway, per County of San Diego standards, approximately 2,100 feet southeast of the Interstate 8 interchange;
    - Provide northbound shared through/right-turn lane;
    - Provide southbound shared left-turn/through lane; and
    - Provide westbound shared left/right-turn lane.
- Carrizo Gorge Road & Access 4
    - Construct a full access driveway, per County of San Diego standards, approximately 2,800 feet southeast of the Interstate 8 interchange;
    - Provide northbound shared left-turn/through lane;
    - Provide southbound shared through/right-turn lane; and
    - Provide eastbound shared left/right-turn lane.
- Old Highway 80 & Access 5
    - Construct two (2) full access driveways, per County of San Diego standards, approximately 1,200 feet east of Campo Street;
    - Provide northbound shared left/through/right-turn lane;
    - Provide southbound shared left/through/right-turn lane;
    - Provide eastbound shared left/through/right-turn lane; and
    - Provide westbound shared left/through/right-turn lane.

APPENDICES

APPENDIX A

PROJECT PLOT PLANS

MAJOR USE PERMIT
FOR
JVR ENERGY PARK
COUNTY OF SAN DIEGO, CA
PDS2018-MUP-18-022



VICINITY MAP
NOT TO SCALE

GENERIC ZONING SETBACKS

PER COUNTY OF SAN DIEGO, PLANNING & DEVELOPMENT SERVICES, SETBACKS FOR SOLAR PHOTOVOLTAIC PANELS DOCUMENT; TO BE EVALUATED DURING MUP APPLICATION PROCESS.

FRONT: 3 FT
EXTERIOR SIDE: 3 FT
INTERIOR SIDE: 3 FT
REAR: 3 FT

SURVEY NOTE

COORDINATE SYSTEM: SEE ALTA
DATUM: SEE ALTA
ZONE: SEE ALTA
GEOID: SEE ALTA
VERTICAL DATUM: SEE ALTA
ORIGINATING BENCHMARK: SEE ALTA

BENCHMARK NOTE

ELEVATIONS FOR THIS SURVEY ARE BASED UPON NGS BENCHMARK "M1252" PID DC0157, BEING A VERTICAL CONTROL DISC AS DESCRIBED PER THE NGS DATASHEET.

ELEVATION: 2872.21 FEET
DATUM: NAVD88

BASIS OF BEARINGS NOTE

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM 83, ZONE 6, NAD83, EPOCH 2010.00, AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS OPERATING REFERENCE STATIONS (CORS) "P066" AND "POTR" BEING NORTH 89°37'30" WEST AS DERIVED FROM GEODETIC VALUES PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS), AND MEETS ALL THE REQUIREMENTS OF THE CALIFORNIA PUBLIC RESOURCES CODE.

ZONING

EXISTING ZONE	APN
S-80 (MAJOR USE PERMIT REQUIRED)	660-150-07
	660-150-08
	660-150-10
	660-150-16
	660-150-21
	660-140-06
	660-140-08
S-88 (LIMITED USES AFTER ADOPTION OF SPECIFIC PLAN)	REMAINING APN LISTING
RL-40 - RURAL LANDS	661-010-02

ASSESSOR PARCEL NUMBERS

614-110-04	660-150-07	660-150-17	660-020-05	661-010-15
614-100-20	660-150-08	660-150-18	660-020-06	661-010-26
614-100-21	660-150-10	660-150-21	661-060-12	661-010-27
660-170-09	660-150-14	660-140-06	661-060-22	661-010-30
660-150-04	660-150-16	660-140-08	661-010-02	

PROJECT TEAM

DEVELOPER AND PRELIMINARY DESIGN ELECTRICAL ENGINEER
JVR ENERGY PARK, LLC
GEORGE GUNNOE
AKHILA KRISHNAN, P.E.
17901 VON KARMAN AVE, SUITE 1050
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AKHILA.KRISHNAN@BAYWA-RE.COM

CIVIL ENGINEER
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ORANGE, CA 92868
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SURVEYOR
MICHAEL KNAPTON, P.L.S., P.E.
KIMLEY-HORN AND ASSOCIATES, INC.
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(619) 744-0142
MICHAEL.KNAPTON@KIMLEY-HORN.COM

CURRENT LAND OWNERS
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17901 VON KARMAN AVE, SUITE 1050
IRVINE, CA 92614
(949) 398-3915

DAVID M. LANDMAN
HELEN E. LANDMAN
1951 CARRIZO GORGE RD,
JACUMBA, CA 91934
(619) 766-4301

ENVIRONMENTAL
DUDEK
DAVID HOCHART
750 SECOND STREET
ENCINITAS, CA 92024
(760) 415-2864
DHOCHART@DUDEK.COM

GEOTECHNICAL
NINYO & MOORE GEOTECHNICAL & ENVIRONMENTAL SCIENCES CONSULTANTS
NISSA MORTON
5710 RUFFIN ROAD
SAN DIEGO, CA 92123
(858) 576-1000

NOTES

1. GROSS (PROPERTY) AREA: 1,355.84 ACRES
2. MUP BOUNDARY ("DEVELOPED") AREA: 623.02 ACRES
3. FENCED AREA (INCLUDES PROJECT COLLECTOR SUBSTATION AND SWITCHYARD): 547.21± ACRES
4. GENERAL PLAN: PUBLIC AGENCY LANDS, VILLAGE RESIDENTIAL (VR-2), RURAL COMMERCIAL
5. REGIONAL CATEGORY: VILLAGE AND RURAL
6. TOPOGRAPHIC SOURCE: KIMLEY-HORN FIELD SURVEY COMPLETED 8/8/2018 (SEE SURVEY NOTE, LEFT)
7. ASSOCIATED REQUESTS: NONE
8. WATER DISTRICT: JACUMBA COMMUNITY SERVICES DISTRICT
9. FIRE DISTRICT: SAN DIEGO COUNTY FIRE AUTHORITY
10. THE APPROVAL OF THIS MAJOR USE PERMIT (MUP) AUTHORIZES THE FOLLOWING: CONSTRUCTION, OPERATION, AND MAINTENANCE OF A PHOTOVOLTAIC (PV) SOLAR FARM PURSUANT TO SECTION 6952 OF THE SAN DIEGO COUNTY ZONING ORDINANCE.
11. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
12. ALL SOLAR EQUIPMENT STRUCTURES TO BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL (CONCRETE, BLOCK, METAL) OR SIMILAR AND PAINTED EARTH TONE COLORS AS EXPLICITLY REQUIRED BY THE CONDITIONS OF APPROVAL.
13. LIGHTING FOR MAINTENANCE AND SECURITY PURPOSES ONLY. SHIELDED LIGHTING LOCATED AT ENTRANCE GATES AND INVERTER/TRANSFORMER PADS AND SHALL CONFORM TO COUNTY OF SAN DIEGO OUTDOOR LIGHTING REQUIREMENTS.
14. PHASING – PROJECT MAY BE IMPLEMENTED IN SEVERAL PHASES WITHOUT REGARD TO SEQUENCE.
15. ALL DISTURBED AREAS SHALL BE COVERED WITH ORGANIC MULCH OR APPROVED EQUAL TO REDUCE DUST, SEEDED, AND WATERED REGULARLY AND PERMANENTLY DURING CONSTRUCTION.
16. SEE PRELIMINARY GRADING PLANS FOR PROPOSED GRADING.
17. SEE EROSION AND SEDIMENT CONTROL PLANS FOR PRELIMINARY LAYOUT OF TEMPORARY AND PERMANENT BEST MANAGEMENT PRACTICES, LAYDOWN, STAGING, AND CONSTRUCTION MANAGEMENT AREAS.
18. SITE ACCESS GATE(S) TO BE EQUIPPED WITH FIRE DEPARTMENT APPROVED STROBE LIGHT ACTIVATION AND KNOX KEY-OPERATED SWITCH.
19. SOLAR RELATED FACILITIES (PANELS, RACKING, ELECTRICAL CONNECTIONS, INVERTER/TRANSFORMER PADS, SWITCHGEAR, MET STATION, FENCING AND INTERNAL ACCESS, ETC.) SHOWN ON THE PLOT PLAN MAY BE RELOCATED, RECONFIGURED, AND/OR RESIZED WITHIN THE SOLAR FACILITY DEVELOPMENT AREA WITH THE ADMINISTRATIVE APPROVAL OF THE DIRECTOR OF PDS WHEN FOUND IN CONFORMANCE WITH THE INTENT AND CONDITIONS OF PERMITS APPROVAL.
20. INVERTER/TRANSFORMER LOCATIONS CAN BE RELOCATED/RECONFIGURED WITHOUT REQUIREMENT OF MINOR DEVIATION. THE INVERTER/TRANSFORMER MUST COMPLY WITH THE NOISE ORDINANCE AND MUST BE ELEVATED 1' ABOVE FLOOD ELEVATION.
21. THE 20' FIRE ACCESS DRIVE WIDTHS MAY BE REDUCED ADMINISTRATELY WITH THE APPROVAL OF THE COUNTY AND FIRE AUTHORITY HAVING JURISDICTION OVER THE PROJECT.
22. A SYSTEM IDENTIFICATION SIGN SHALL BE LOCATED AT ALL GATE ENTRANCES. SIGN SHALL BE 12" X 18" MIN. SIGN SHALL LIST NAME OF SITE AND CONTACT INFORMATION AS PROVIDED BY SDGE.
23. PRIVATE PROPERTY/NO TRESPASSING AND HIGH VOLTAGE SIGNS SHALL BE LOCATED AT ALL GATE ENTRANCES AND EVERY 100' MINIMUM ON FENCE, THE SIGN SHALL BE 10" X 14" MISCELLANEOUS INTERIOR DIRECTIONAL AND SAFETY SIGNAGE AND PERMITTED.
24. LIGHTING ORDINANCE COMPLIANCE: IN ORDER TO COMPLY WITH THE COUNTY LIGHTING ORDINANCE 59.101 ET SEQ. AND ZONING ORDINANCE SECTIONS 6322, 6324, AND 6326, THE ONSITE LIGHTING SHALL COMPLY WITH THE APPROVED PLOT PLAN(S), SPECIFIC PERMIT CONDITIONS AND APPROVED BUILDING PLANS ASSOCIATED WITH THIS PERMIT. ALL LIGHT FIXTURES SHALL BE DESIGNED AND ADJUSTED TO REFLECT LIGHT DOWNWARD, AWAY FROM ANY ROAD OR STREET, AND AWAY FROM ADJOINING PREMISES, AND SHALL OTHERWISE CONFORM TO THE COUNTY LIGHTING ORDINANCE 59.101 ET SEQ. AND ZONING ORDINANCE SECTIONS 6322, AND 6324. THE PROPERTY OWNER AND PERMITTEE SHALL CONFORM TO THE APPROVED PLOT PLAN(S), SPECIFIC PERMIT CONDITIONS, AND APPROVED BUILDING PLANS ASSOCIATED WITH THIS PERMIT AS THEY PERTAIN TO LIGHTING. NO ADDITIONAL LIGHTING IS PERMITTED. IF THE PERMITTEE OR PROPERTY OWNER CHOOSES TO CHANGE THE SITE DESIGN IN ANY AWAY, THEY MUST OBTAIN APPROVAL FROM THE COUNTY FOR A MINOR DEVIATION OR A MODIFICATION PURSUANT TO THE COUNTY OF SAN DIEGO ZONING ORDINANCE.
25. METEOROLOGICAL (MET) STATIONS SHALL BE LOCATED ADJACENT TO THE INVERTER/EQUIPMENT PADS AS SHOWN ON THE PLANS.

ABBREVIATIONS

APN	ASSESSOR'S PARCEL NUMBER
CL	CENTERLINE
(E)	EXISTING
EOP	EDGE OF PAVEMENT
MIN	MINIMUM
NTS	NOT TO SCALE
(P)	PROPOSED
PL	PROPERTY LINE
ROW	RIGHT-OF-WAY
TBD	TO BE DETERMINED
TYP	TYPICAL
VAR	VARIES

ON-SITE STRUCTURES	APPROX. FLOOR AREA (SF)
(E) TO REMAIN	0
(E) TO BE REMOVED	47,000
(P) BATTERY STORAGE CONTAINERS	75,124
(P) INVERTER SKID	7,859
(P) SUBSTATION CONTROL BUILDING	527

SHEET INDEX

LEGEND

- PROPERTY LINE
- MUP BOUNDARY
- CENTER LINE
- SETBACK LINE
- EASEMENT LINE
- W — EXISTING WATER LINE
- OH — EXISTING OVERHEAD ELECTRIC
- PROPOSED SITE FENCE. SEE SHEET 202, DETAIL 1
- PROPOSED LANDSCAPE BUFFER
- PROPOSED ALL WEATHER ACCESS DRIVE.
- EXISTING STRUCTURES
- PROPOSED PAVED ACCESS DRIVE. PAVED IMPROVEMENTS SHOULD BE COORDINATED WITH THE ADJACENT LANDOWNER UNLESS EXPLICIT RIGHTS ARE HELD TO MAKE SUCH IMPROVEMENTS. SEE SHEET 201, DETAIL 2
- EXISTING SDG&E TRANSMISSION TOWER. SEE SHEET 202, DETAIL 6
- WELL TO REMAIN
- WELL TO BE DECOMMISSIONED
- PROPOSED WATER TANK
- PROPOSED METEOROLOGICAL STATION. SEE SHEET 203, DETAIL 1
- 30-FT WIDE FUEL MODIFICATION ZONE NO ELECTRICAL EQUIPMENT PERMITTED
- SUBJECT TO INUNDATION BY THE CALCULATED 100-YEAR FLOOD (ABOVE 6-INCHES IN DEPTH)
- DRAINAGE FEATURES
- 50' DRAINAGE FEATURE BUFFER

SITE WORK DESCRIPTION	ACREAGE
FENCED SDG&E SWITCHYARD AREA	1.79
SDG&E SWITCHYARD AREA BEYOND FENCING	3.01
TOTAL SWITCHYARD EASEMENT AREA	**4.80**
FENCED SDG&E SWITCHYARD AREA	1.79
FENCED PV ARRAY FIELD	544.89
FENCED PROJECT SUBSTATION	0.53
TOTAL FENCED AREA	**547.21**
LANDSCAPED AREA	5.55
PUBLIC DRIVEWAYS AND ACCESS TO PV ARRAY FIELD ONLY	0.90
UTILITY DRIVEWAYS TO PROJECT SUBSTATION, SDG&E SWITCHYARD, AND TOWERS	1.35
GRADING (BEYOND ABOVE)	4.69
ADDITIONAL MUP BOUNDARY AREA	60.31
NET DEVELOPED (TOTAL MUP BOUNDARY)	**623.02**

BORDER SETBACK DESCRIPTION	ENCROACHMENT ACREAGE
APPROXIMATE ENCROACHMENT OF PROPOSED FENCED SITE AREA INTO 90' COUNTY SETBACK, WHICH BEGINS 60' FROM THE USA-MEXICO BORDER ALONG THE NORTH EDGE OF THE ROOSEVELT PUBLIC RESERVE SETBACK	1.3±
APPROXIMATE ENCROACHMENT OF PROPOSED FENCED SITE AREA INTO 60' ROOSEVELT PUBLIC RESERVE SETBACK, WHICH BEGINS AT THE USA-MEXICO BORDER	0

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DRAFT

SITE INFORMATION
JVR ENERGY PARK

PROJECT MANAGER
GEORGE GUNNOE
832.303.2477

PROJECT ENGINEER
AKHILA KRISHNAN
949.771.2976

NO.	ISSUE	DATE
1	MUP - 1ST SUBMITTAL	11/01/2018
2	MUP - 2ND SUBMITTAL	10/17/2019
3	MUP - 3RD SUBMITTAL	03/25/2020
4	MUP - 4TH SUBMITTAL	04/08/2021

PROJECT NUMBER KHA -194083001
DRAWN BY TC
REVIEWED BY WC
APPROVED BY DB

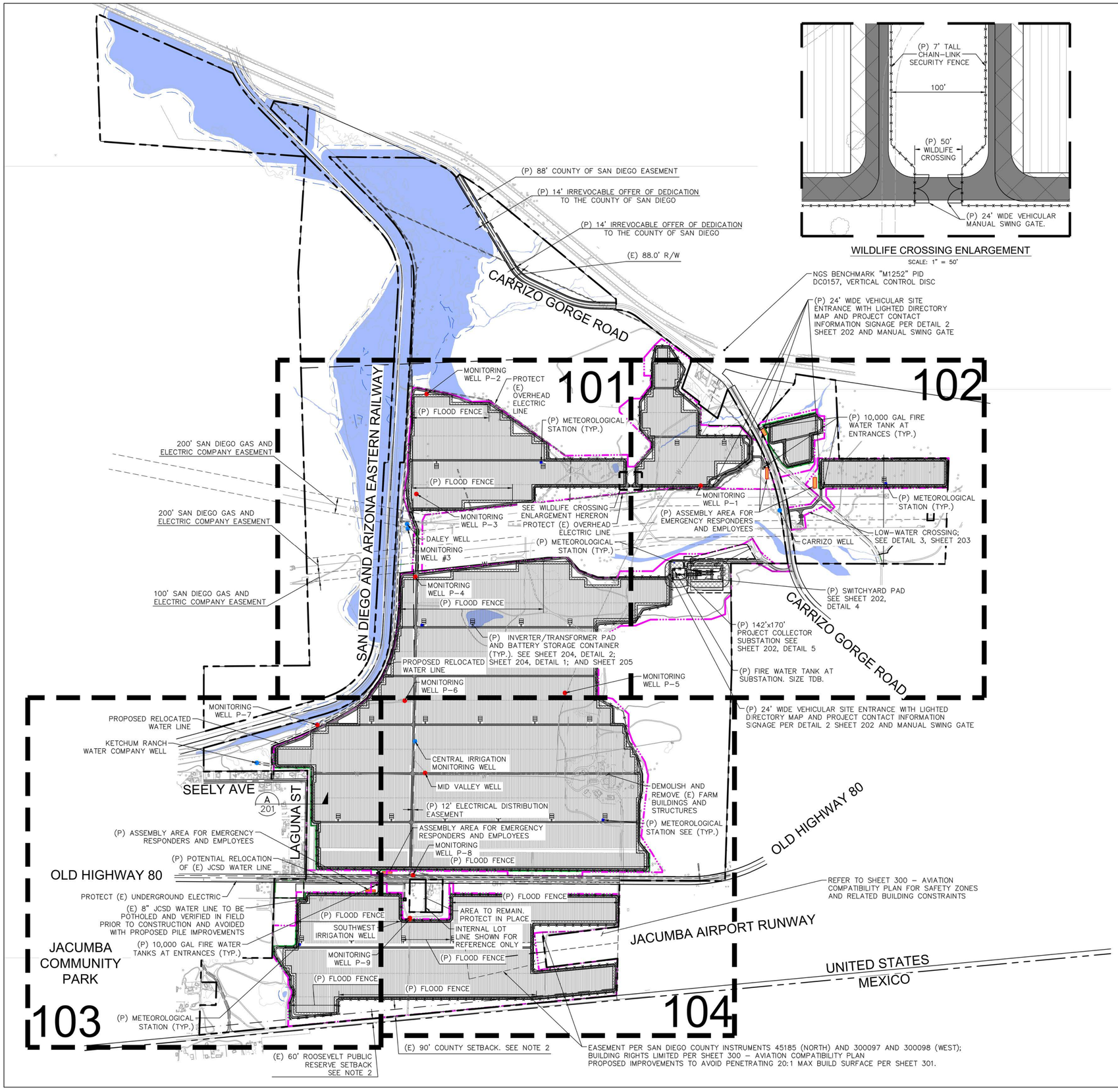
CLIENT SIGNATURE

MAJOR USE PERMIT

COVER SHEET

DRAWING NUMBER 001

SHEET SIZE: ARCH D - 24" x 36"



WILDLIFE CROSSING ENLARGEMENT

SCALE: 1" = 50'

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- SUBJECT TO INUNDATION BY THE CALCULATED 100-YEAR FLOOD (ABOVE 6-INCH DEPTH)
- DRAINAGE FEATURES
- 50' DRAINAGE FEATURE BUFFER

NOTES

1. SURVEY INFORMATION PREPARED BY KIMLEY-HORN AND ASSOCIATES DATED AUGUST 2018; PENDING ALTA COMPLETION.
2. SETBACKS
   - A. 60' "ROOSEVELT" PUBLIC RESERVE SETBACK PER "COUNTY OF SAN DIEGO, CALIFORNIA BOARD OF SUPERVISORS POLICY NUMBER I-111"
     - A.1. ~1.3± ACRES OF ENCROACHMENT INTO 90'-WIDE SD COUNTY SETBACK ≈0.10% OF GROSS (PROPERTY) AREA; ≈0.25% OF FENCED AREA.
   - B. 90' COUNTY SETBACK PER "COUNTY OF SAN DIEGO, CALIFORNIA BOARD OF SUPERVISORS POLICY NUMBER I-111"
   - C. FRONT, REAR, AND SIDE BUILDING COUNTY SETBACKS PER SAN DIEGO COUNTY "SETBACKS FOR SOLAR PHOTOVOLTAIC PANELS" DATED 01/30/18. REQUIRES A MINIMUM 3' SETBACK FROM PROPERTY LINE TO GROUND-MOUNTED PV SOLAR ARRAYS.
3. BIOLOGICAL RESOURCE DELINEATION PROVIDED BY DUDEK ENVIRONMENTAL ON AUGUST 30TH 2018.
4. 15'-WIDE PROPOSED LANDSCAPE BUFFER, REFER TO CONCEPTUAL LANDSCAPE PLANS, SHEETS 500-504.
5. RUNWAY SAFETY ZONES DELINEATED PER 300 – AVIATION COMPATIBILITY PLAN. SEE SHEET 300.
6. ELECTRICAL LAYOUT SHOWN AS PROVIDED BY BAYWA R.E. SOLAR PROJECTS, LLC DATED OCTOBER 09, 2018.
7. ALL PROPOSED ACCESS DRIVES SHALL BE CONSTRUCTED PER DETAIL 2 ON SHEET 201, UNLESS OTHERWISE NOTED ON PLANS.

NORTH

GRAPHIC SCALE IN FEET
0 300 600 1200
1" = 600'
WHEN PLOTTED ON 24" X 36" SHEET

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SITE INFORMATION
JVR ENERGY PARK

PROJECT MANAGER
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832.303.2477

PROJECT ENGINEER
AKHILA KRISHNAN
949.771.2976

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3	MUP - 3RD SUBMITTAL	03/25/2020
4	MUP - 4TH SUBMITTAL	04/08/2021

PROJECT NUMBER	KHA -19408301
DRAWN BY	TC
REVIEWED BY	WC
APPROVED BY	DB

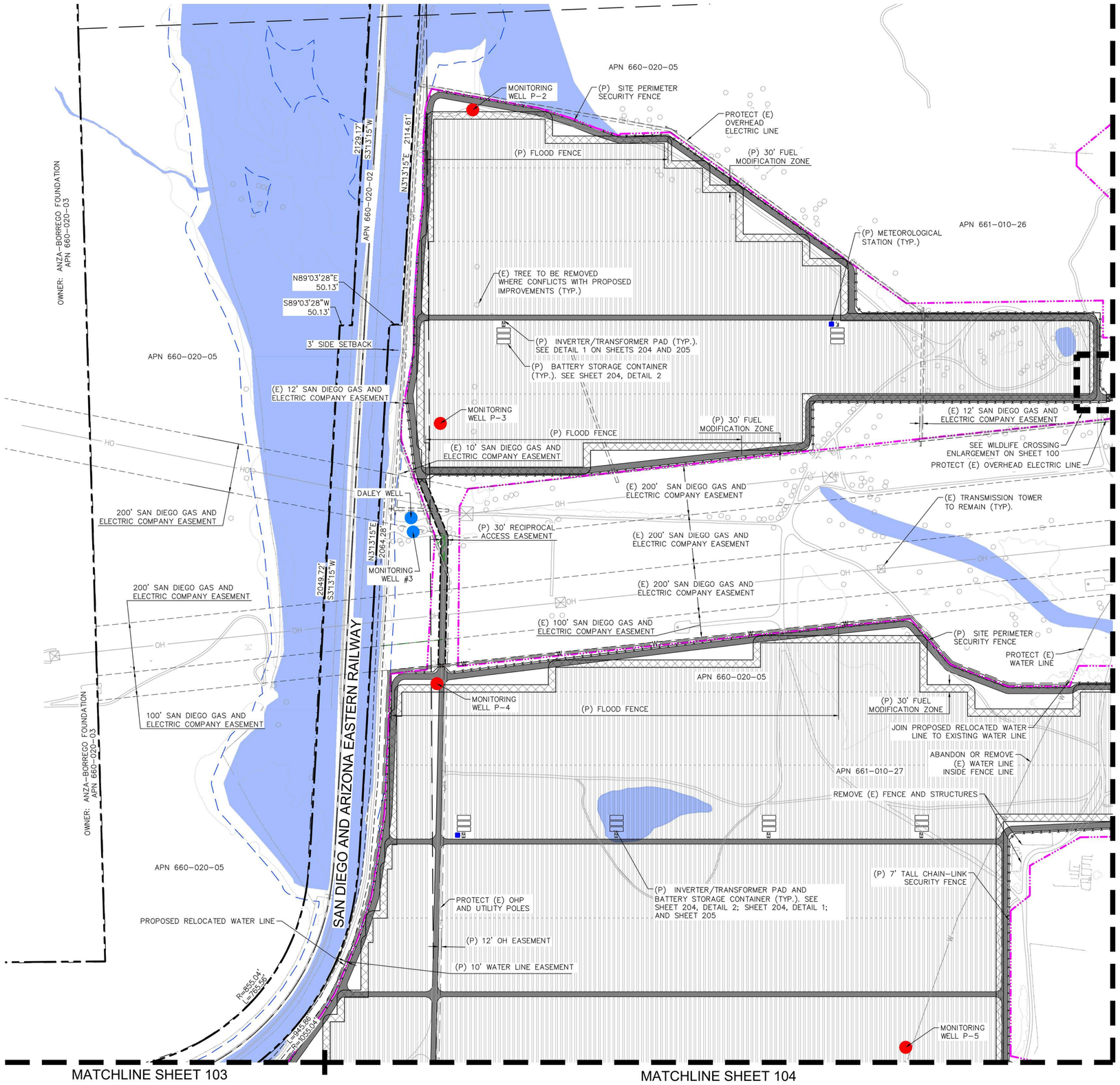
CLIENT SIGNATURE

MAJOR USE PERMIT

OVERALL PLOT PLAN

DRAWING NUMBER 100

SHEET SIZE: ARCH D - 24" x 36"



LEGEND

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6. ELECTRICAL LAYOUT SHOWN AS PROVIDED BY BAYWA R.E. SOLAR PROJECTS, LLC DATED OCTOBER 09, 2018.
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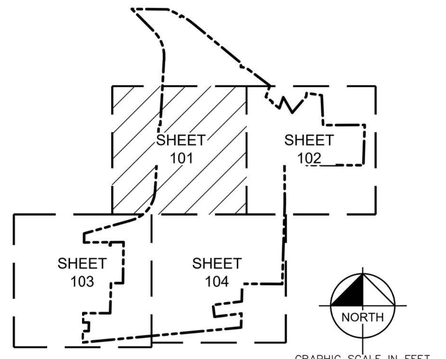

KEY MAP
NTS

GRAPHIC SCALE IN FEET
0 100 200 400
1" = 200'
WHEN PLOTTED ON 24" X 36" SHEET

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4	MUP - 4TH SUBMITTAL	04/08/2021

PROJECT NUMBER	KHA -194083001
DRAWN BY	TC
REVIEWED BY	WC
APPROVED BY	DB

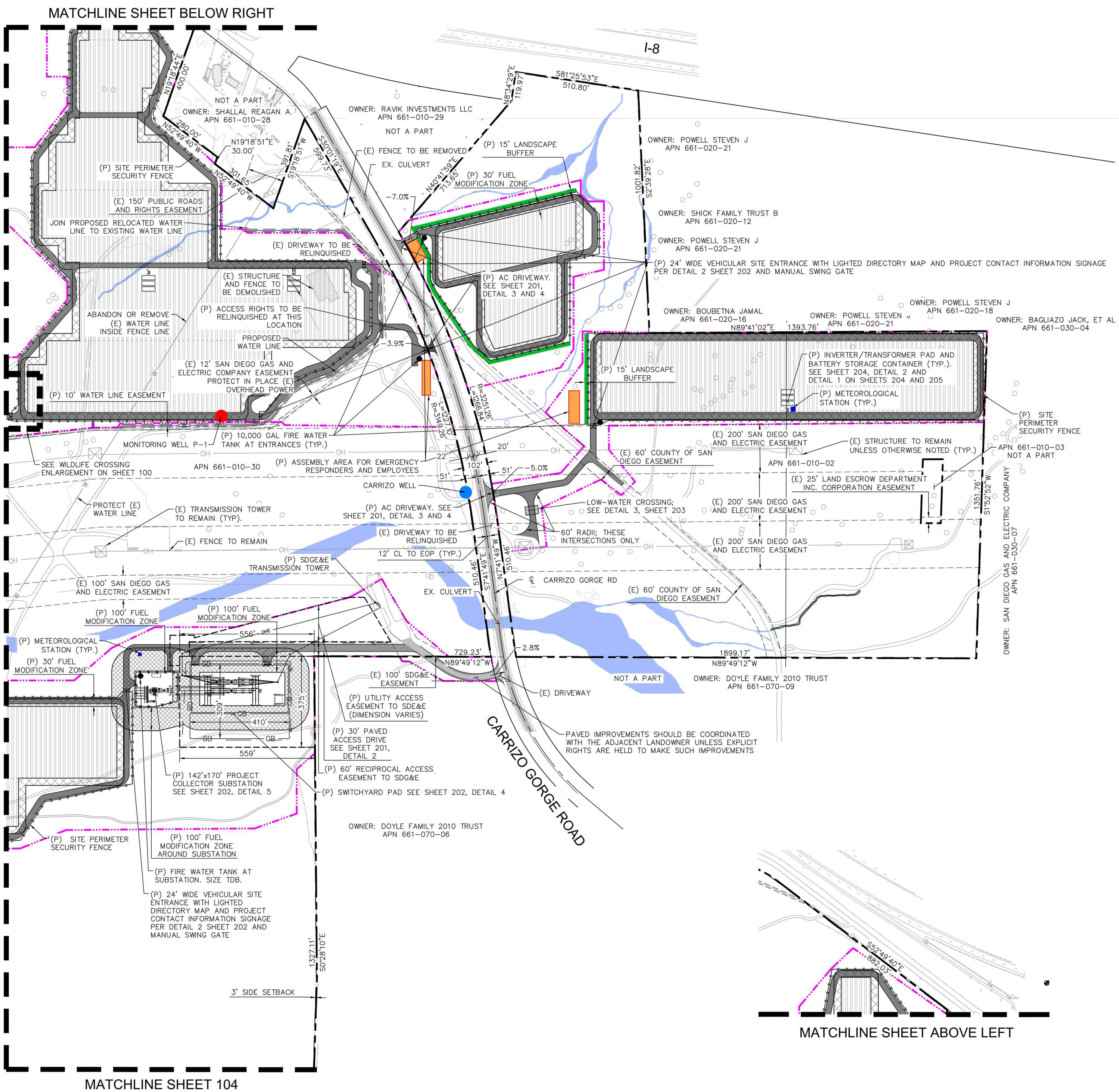
CLIENT SIGNATURE

MAJOR USE PERMIT

ENLARGED PLOT PLAN

DRAWING NUMBER 101

SHEET SIZE: ARCH D - 24" x 36"



MATCHLINE SHEET BELOW RIGHT
I-8
MATCHLINE SHEET 101
MATCHLINE SHEET 104
MATCHLINE SHEET ABOVE LEFT
NOT A PART
OWNER: SHALLAL REAGAN A.
APN 661-010-28
OWNER: RAVIK INVESTMENTS LLC
APN 661-010-29
OWNER: POWELL STEVEN J
APN 661-020-21
OWNER: SHICK FAMILY TRUST B
APN 661-020-12
OWNER: BOUBETNA JAMAL
APN 661-020-16
OWNER: POWELL STEVEN J
APN 661-020-18
OWNER: BAGLIAZO JACK, ET AL
APN 661-030-04
OWNER: SAN DIEGO GAS AND ELECTRIC COMPANY
APN 661-030-07
OWNER: DOYLE FAMILY 2010 TRUST
APN 661-070-09
OWNER: DOYLE FAMILY 2010 TRUST
APN 661-070-06
APN 661-010-30
APN 661-010-02
APN 661-010-03
(P) SITE PERIMETER SECURITY FENCE
(E) 150' PUBLIC ROADS AND RIGHTS EASEMENT
JOIN PROPOSED RELOCATED WATER LINE TO EXISTING WATER LINE
(E) DRIVEWAY TO BE RELINQUISHED
(E) STRUCTURE AND FENCE TO BE DEMOLISHED
(P) ACCESS RIGHTS TO BE RELINQUISHED AT THIS LOCATION
ABANDON OR REMOVE (E) WATER LINE INSIDE FENCE LINE
PROPOSED WATER LINE
(E) 12' SAN DIEGO GAS AND ELECTRIC COMPANY EASEMENT PROTECT IN PLACE (E) OVERHEAD POWER
(P) 10' WATER LINE EASEMENT
(P) 10,000 GAL FIRE WATER TANK AT ENTRANCES (TYP.)
MONITORING WELL P-1
SEE WILDLIFE CROSSING ENLARGEMENT ON SHEET 100
(P) ASSEMBLY AREA FOR EMERGENCY RESPONDERS AND EMPLOYEES
CARRIZO WELL
PROTECT (E) WATER LINE
(E) TRANSMISSION TOWER TO REMAIN (TYP.)
(E) FENCE TO REMAIN
(P) AC DRIVEWAY. SEE SHEET 201, DETAIL 3 AND 4
(E) DRIVEWAY TO BE RELINQUISHED
12' CL TO EOP (TYP.)
(P) SDG&E TRANSMISSION TOWER
(E) 100' SAN DIEGO GAS AND ELECTRIC EASEMENT
(P) 100' FUEL MODIFICATION ZONE
(P) METEOROLOGICAL STATION (TYP.)
(P) 30' FUEL MODIFICATION ZONE
EX. CULVERT
(E) FENCE TO BE REMOVED
(P) 15' LANDSCAPE BUFFER
(P) 30' FUEL MODIFICATION ZONE
(P) AC DRIVEWAY. SEE SHEET 201, DETAIL 3 AND 4
(P) 24' WIDE VEHICULAR SITE ENTRANCE WITH LIGHTED DIRECTORY MAP AND PROJECT CONTACT INFORMATION SIGNAGE PER DETAIL 2 SHEET 202 AND MANUAL SWING GATE
(P) 15' LANDSCAPE BUFFER
(P) INVERTER/TRANSFORMER PAD AND BATTERY STORAGE CONTAINER (TYP.). SEE SHEET 204, DETAIL 2 AND DETAIL 1 ON SHEETS 204 AND 205
(P) METEOROLOGICAL STATION (TYP.)
(P) SITE PERIMETER SECURITY FENCE
(E) 200' SAN DIEGO GAS AND ELECTRIC EASEMENT
(E) STRUCTURE TO REMAIN UNLESS OTHERWISE NOTED (TYP.)
(E) 60' COUNTY OF SAN DIEGO EASEMENT
(E) 25' LAND ESCROW DEPARTMENT INC. CORPORATION EASEMENT
LOW-WATER CROSSING; SEE DETAIL 3, SHEET 203
60' RADII; THESE INTERSECTIONS ONLY
CARRIZO GORGE RD
CARRIZO GORGE ROAD
(E) 100' SDG&E EASEMENT
(E) DRIVEWAY
(P) UTILITY ACCESS EASEMENT TO SDE&E (DIMENSION VARIES)
(P) 30' PAVED ACCESS DRIVE SEE SHEET 201, DETAIL 2
(P) 60' RECIPROCAL ACCESS EASEMENT TO SDG&E
(P) SWITCHYARD PAD SEE SHEET 202, DETAIL 4
PAVED IMPROVEMENTS SHOULD BE COORDINATED WITH THE ADJACENT LANDOWNER UNLESS EXPLICIT RIGHTS ARE HELD TO MAKE SUCH IMPROVEMENTS
(P) 142'x170' PROJECT COLLECTOR SUBSTATION SEE SHEET 202, DETAIL 5
(P) SITE PERIMETER SECURITY FENCE
(P) 100' FUEL MODIFICATION ZONE AROUND SUBSTATION
(P) FIRE WATER TANK AT SUBSTATION. SIZE TDB.
(P) 24' WIDE VEHICULAR SITE ENTRANCE WITH LIGHTED DIRECTORY MAP AND PROJECT CONTACT INFORMATION SIGNAGE PER DETAIL 2 SHEET 202 AND MANUAL SWING GATE
3' SIDE SETBACK
S81°25'53"E 510.80'
N8°34'29"E 119.97'
1001.82' S2°39'28"E
N89°41'02"E 1393.76'
1351.76' S1°52'52"W
1899.17' N89°49'12"W
729.23' N89°49'12"W
1327.11' S0°28'10"E
N19°18'44"E 400.00'
N52°49'40"W 280.00'
N19°18'51"E 30.00'
S52°49'40"W 301.65'
S19°18'51"W 391.81'
S30°01'19"E 599.73'
N40°41'59"E 713.65'
S52°49'40"E 882.03'
-7.0%
-3.9%
-5.0%
-2.8%
556'
559'
410'
309'
375'

LEGEND

	PROPERTY LINE
	MUP BOUNDARY
	CENTER LINE
	SETBACK LINE
	EASEMENT LINE
W	EXISTING WATER LINE
OH	EXISTING OVERHEAD ELECTRIC
	PROPOSED SITE FENCE. SEE SHEET 202, DETAIL 1
	PROPOSED LANDSCAPE BUFFER AND SLATTED OR SCREENED FENCING
	PROPOSED ALL WEATHER ACCESS DRIVE. SEE SHEET 201, DETAILS 1 AND 6
	EXISTING STRUCTURES
	PROPOSED PAVED ACCESS DRIVE. PAVED IMPROVEMENTS SHOULD BE COORDINATED WITH THE ADJACENT LANDOWNER UNLESS EXPLICIT RIGHTS ARE HELD TO MAKE SUCH IMPROVEMENTS. SEE SHEET 201, DETAIL 2 AND 4
	EXISTING SDG&E TRANSMISSION TOWER. SEE SHEET 202, DETAIL 6
	WELL TO REMAIN
	WELL TO BE DECOMMISSIONED
	PROPOSED WATER TANK
	PROPOSED METEOROLOGICAL STATION. SEE SHEET 203, DETAIL 1
	30-FT WIDE FUEL MODIFICATION ZONE NO ELECTRICAL EQUIPMENT PERMITTED
	SUBJECT TO INUNDATION BY THE CALCULATED 100-YEAR FLOOD (ABOVE 6-INCH DEPTH)
	DRAINAGE FEATURES
	50' DRAINAGE FEATURE BUFFER

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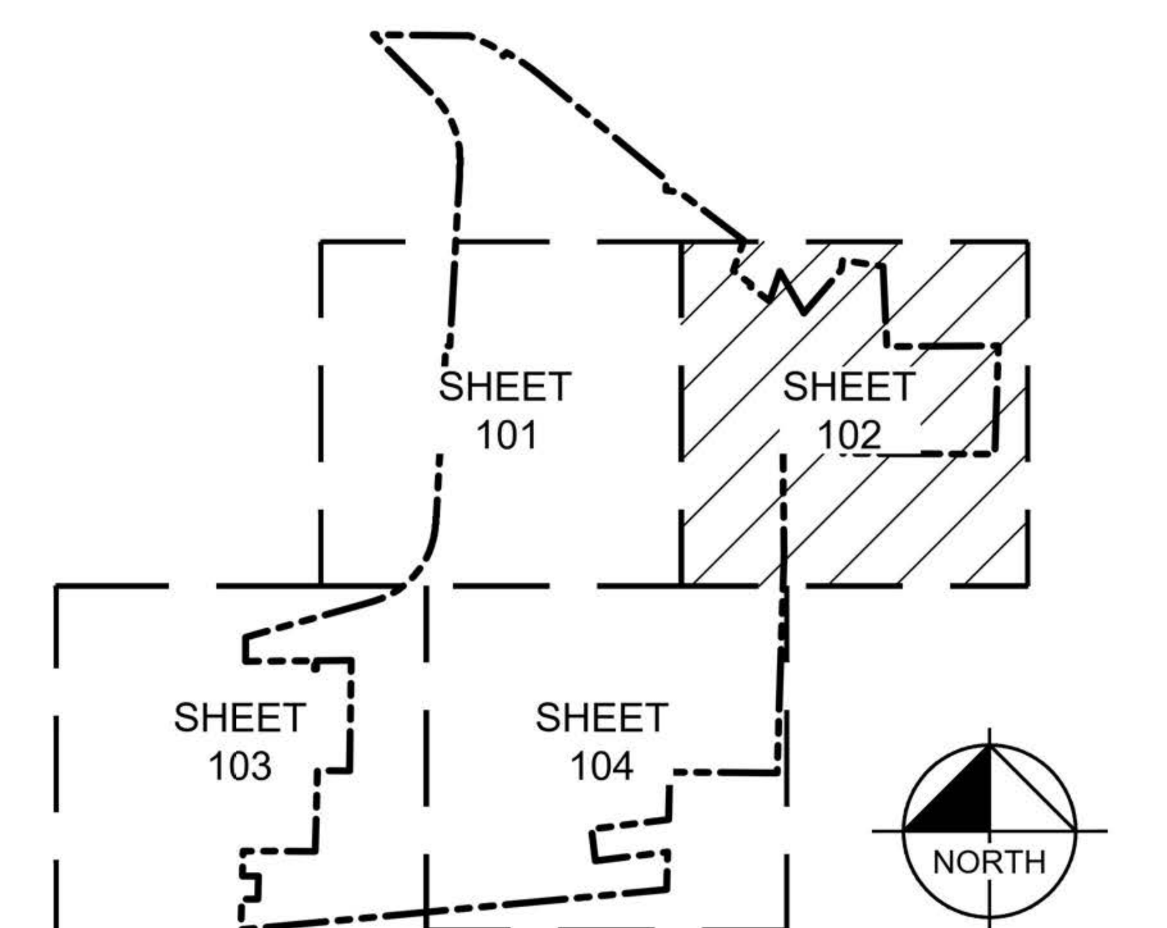

KEY MAP
NTS

GRAPHIC SCALE IN FEET
0 100 200 400
1" = 200'
WHEN PLOTTED ON 24" X 36" SHEET

BayWa r.e. renewable energy

BayWa r.e. Solar Projects LLC

17901 Von Karman Ave, Suite 1050
Irvine, CA 92614
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www.baywa-re.us

Kimley»Horn

765 THE CITY DRIVE, SUITE 200, ORANGE, CA 92868
PHONE: 714.939.1030 FAX: 714.938.9488
WWW.KIMLEY-HORN.COM

DRAFT

SITE INFORMATION
JVR ENERGY PARK

PROJECT MANAGER
GEORGE GUNNOE
832.303.2477

PROJECT ENGINEER
AKHILA KRISHNAN
949.771.2976

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4	MUP - 4TH SUBMITTAL	04/08/2021

PROJECT NUMBER	KHA -194083001
DRAWN BY	TC
REVIEWED BY	WC
APPROVED BY	DB

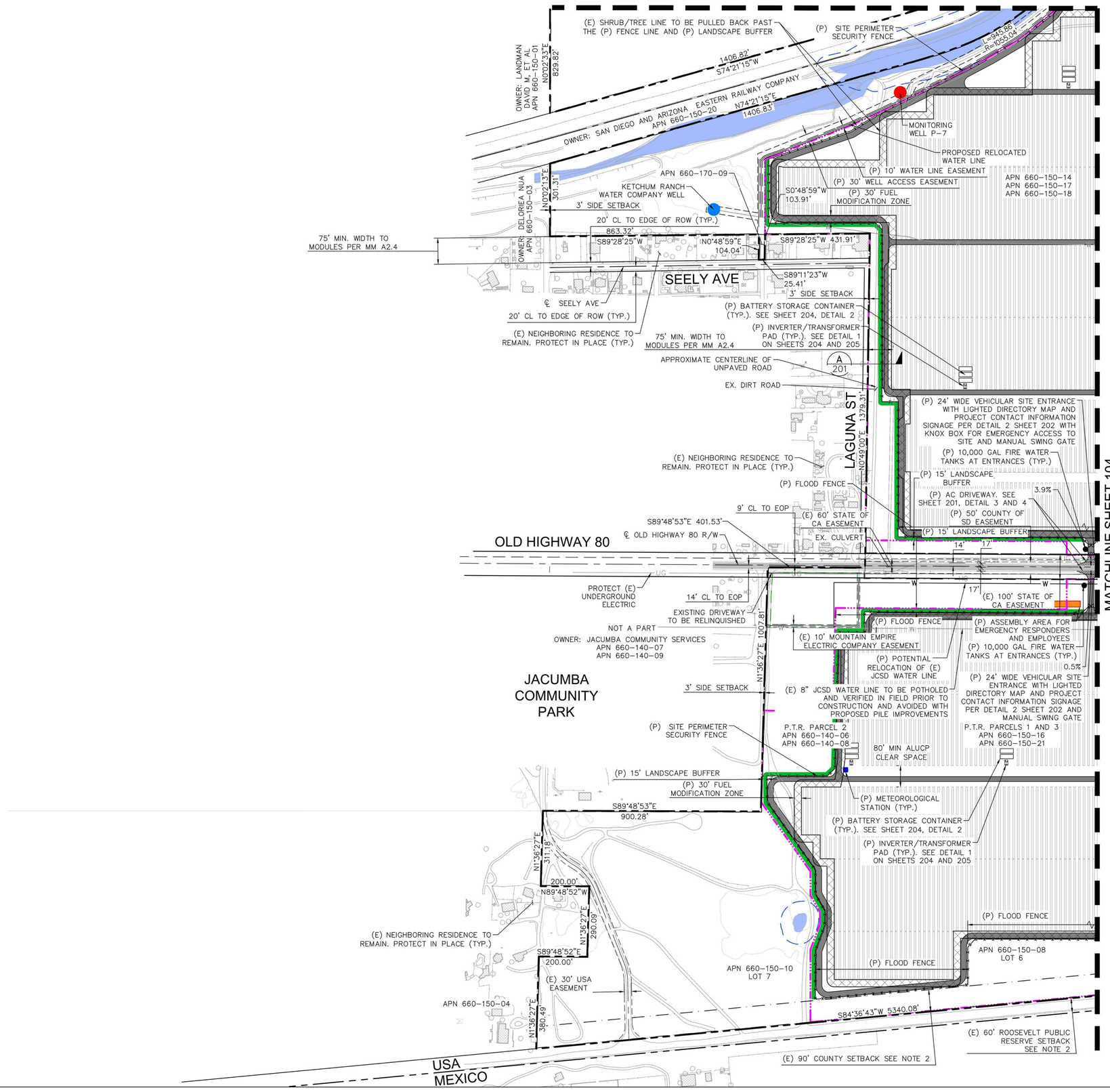
CLIENT SIGNATURE

MAJOR USE PERMIT

ENLARGED PLOT PLAN

DRAWING NUMBER 102

SHEET SIZE: ARCH D - 24" x 36"



LEGEND

- PROPERTY LINE
- MUP BOUNDARY
- CENTER LINE
- SETBACK LINE
- EASEMENT LINE
- EXISTING WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED SITE FENCE. SEE SHEET 202, DETAIL 1
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- DRAINAGE FEATURES
- 50' DRAINAGE FEATURE BUFFER

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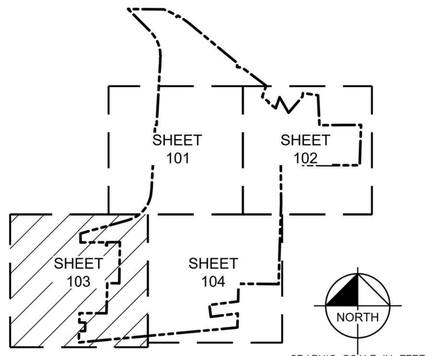

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DRAFT

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PROJECT NUMBER	KHA -194083001
DRAWN BY	TC
REVIEWED BY	WC
APPROVED BY	DB

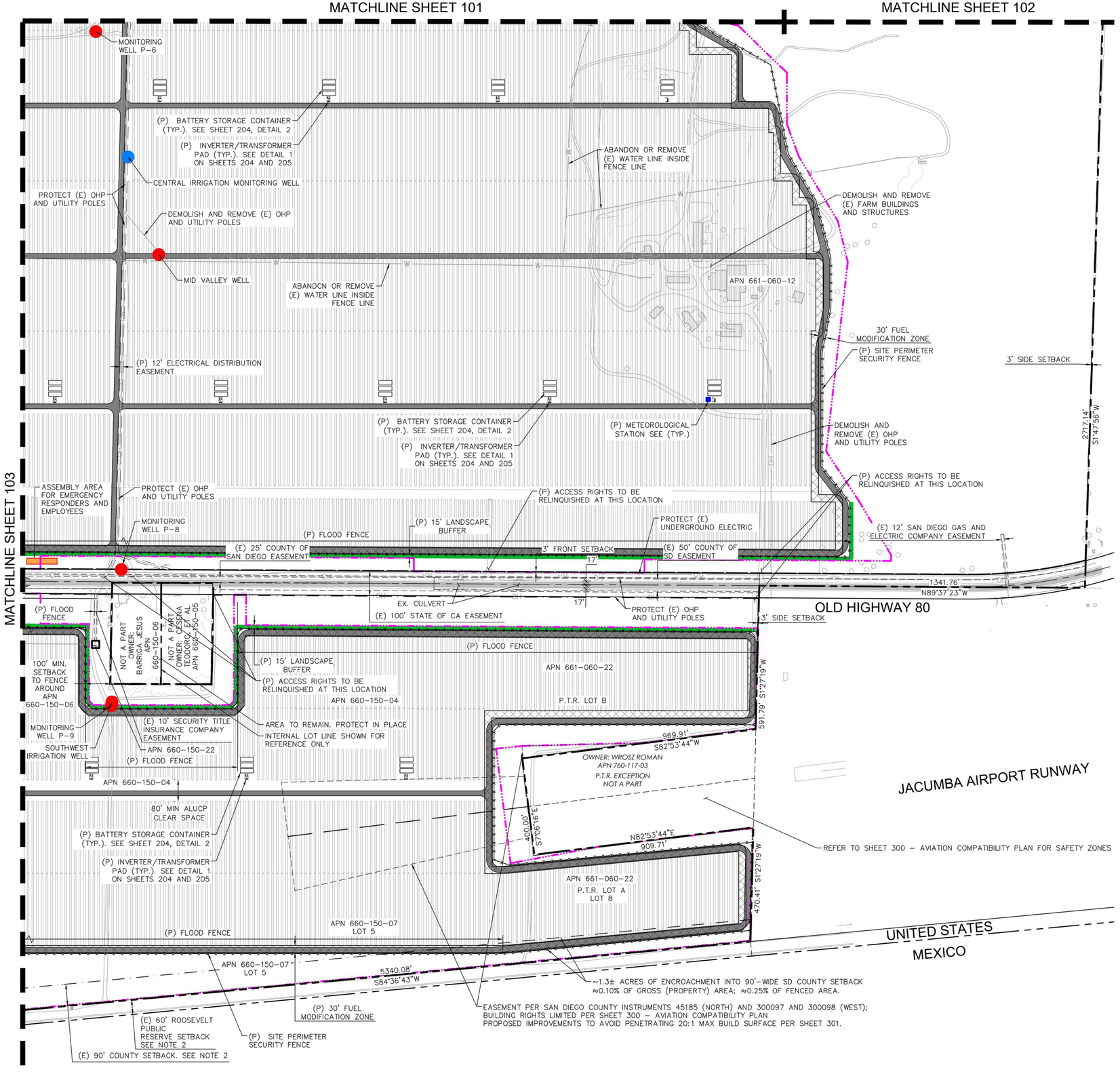
CLIENT SIGNATURE

MAJOR USE PERMIT

ENLARGED PLOT PLAN

DRAWING NUMBER 103

SHEET SIZE: ARCH D - 24" x 36"



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- PROPERTY LINE
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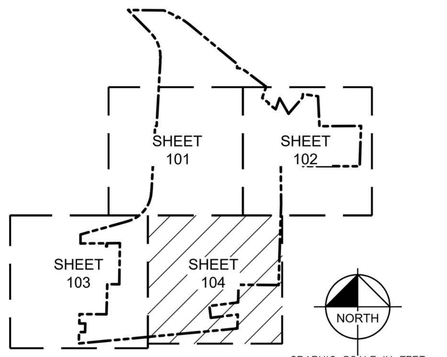

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PROJECT NUMBER	KHA -194083001
DRAWN BY	TC
REVIEWED BY	WC
APPROVED BY	DB
CLIENT SIGNATURE	

MAJOR USE PERMIT

ENLARGED PLOT PLAN

DRAWING NUMBER 104

SHEET SIZE: ARCH D - 24" x 36"

APPENDIX B

PROJECT DESCRIPTION

JVR Energy Park – Summarized Project Description

Project Description

The Project consists of a Solar Facility that would be located on private land in southeastern San Diego County. The Proposed Project would be located to the south of Interstate (I) 8, immediately east of the community of Jacumba Hot Springs, and immediately north of the U.S./Mexico international border.

Solar Facility

The Proposed Project is a solar energy generation and storage facility that would produce a rated capacity of up to 90 MW of AC generating capacity. The power produced by the proposed solar facility would be delivered to an existing SDG&E 138 KV transmission line that would transect the Project site. The Proposed Project would include the following primary components:

PV Modules

PV modules generate electricity by safely converting the energy of the sun's photons into DC electrons. The Proposed Project would include approximately 300,000 PV modules, which would be installed in rows (arrays). The modules would be mounted on single-axis trackers oriented in the north–south direction. The PV modules would cover the majority of the area of the proposed facility. The PV modules would be electrically connected to the grounding system of the facility in accordance with local codes and regulations.

PV Module Support Structures

The solar PV modules would be mounted on 12-foot-high support structures that allows them to be properly positioned for maximum capture of the sun's solar energy. Each row of PV modules (module arrays) would be a single-axis tracker system that would be oriented along a north-to-south axis.

Electrical (DC) Underground Collection System

PV modules would be electrically connected to adjacent modules to form module "strings" using wiring attached to the support structures. PV module strings would be electrically connected to each other via underground wiring. String wiring terminates at the PV module array combiner boxes, which are lockable electrical boxes mounted on or near an array's support structure. Output wires from combiner boxes would be routed along an underground trench system approximately 3-4 feet deep and 1-3 feet wide, including trench and disturbed area, to the inverters and transformer platforms.

Inverter/Transformer Platforms

Inverters are a key component of solar PV power-generating facilities because they convert the DC generated by the PV modules into AC that is compatible for use with the transmission network. The medium-voltage transformers step up the AC voltage to collection-level voltage (34.5 kV). The inverters and medium-voltage transformers would be installed at 25 locations, adjacent to the battery storage containers throughout the solar facility. At each location, two inverters and one transformer would be installed on a metal platform, referred to as a skid. The skids would be mounted above the 100-year flood elevations on a set of piles driven into the ground and covered by an earth or gravel mount that is built up to the top of the skid to provide a working clearance to all access points on the skid.

Underground Medium AC Voltage Collection System

At each of the 25 inverter/transformer platform locations, the 34.5 kVA transformer would be connected to an underground medium AC voltage collection system that would carry the power to the on-site collector substation.

Collector Substation

The Proposed Project includes a collector substation that would be located near the center of the eastern side of the Project site. The purpose of the substation is to collect the power from the AC collector system and convert the voltage from 34.5 kV to 138 kV, as well as to be able to isolate equipment in the event of an electrical short-circuit or for maintenance. A 138 kV dead-end structure that would have a maximum height of 65 feet would also be placed within the substation area. This structure would have either an A-frame or H-frame design and would be constructed of steel. The dead-end structure is where the power output from the collector substation is delivered to the gen-tie line that goes to the switchyard. One Control Enclosure would also be provided for the Supervisory Control and Data Acquisition (SCADA) system.

Switchyard

The Proposed Project would include a 138 kV switchyard located adjacent to the proposed collector substation. Within this area would be 8-foot high security fence (445 feet by 300 feet) surrounded by a 5-foot shoulder for grounding protection inside the fence. Drainage facilities would be installed to control runoff and protect the switchyard from erosion. The 138 kV insulated electrical bus, steel support structures and foundations would be installed to support electrical equipment. One control enclosure would be used for relays, metering, SCADA information and security and communication equipment. A gas generator may also be installed for use as backup power to the station lights and station service power transformers.

138 kV Transmission Line Tie-in

The proposed switchyard would be connected into the existing 138 kV SDG&E Boulevard – East County transmission line. The existing transmission line is overhead between the existing SDG&E

Boulevard substation and the vicinity of the proposed switchyard. The existing transmission line is underground from vicinity of the switchyard eastward to the existing SDG&E East County (ECO) substation (within Carrizo Gorge Road and Old Highway 80 right-of-way). The proposed overhead transmission line tie-in would require two approximately 550-feet long spans of wire and up to four steel transmission poles. Each pole would have up to six cross arms and a pole top to accommodate a fiber optic ground wire for lightning protection and critical communication.

Battery Energy Storage System

A battery energy storage system with a maximum capacity of up to 90 MW(180 MWh) is proposed to be located throughout the solar facility. This energy storage system would be comprised of battery storage containers located adjacent to the inverter/transformer platforms (up to 3 containers at each location for a total of 75 containers on site). The battery system would be charged from the energy from the PV modules, which is a DC connected system.

Fiber-Optic Line

To provide for communication with the SCADA system, a fiber-optic cable would be placed underground to connect the substation to the switchyard. Utility interconnection regulations require the installation of a second separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the Project development footprint and the proposed switchyard boundary.

Meteorological Weather Stations

The Proposed Project includes five meteorological weather stations, which would be installed throughout the solar facility. The weather stations would be used to record weather to measure the performance of the solar facility. Four of the meteorological stations would be installed at a place closest to the inverter/transformer platforms to minimize cable runs. The fifth station would be located adjacent to the collector substation.

Site Access Driveways

The Project proposes five access points. The site access driveways would be 24-feet wide, would be all-weather and would support a 50,000-pound load bearing capacity as required by County Fire. In addition, the switchyard would have a dedicated access from an existing access road on Carrizo Gorge Road that would be improved to a 30-feet-wide paved road. Each site entrance would feature a manual swing gate, and a sign with a lighted directory map and contact information. All entrance gates would feature a ‘Knox Box’ for emergency access.

Internal Access

The Proposed Project would include dual-purpose internal fire response access and service access. The perimeter internal access within the fenced solar facility would be constructed to a minimum

improved width of 24 feet. The interior access would be constructed to a minimum improved width of 20 feet. All internal access would be designed to provide a minimum inner turning radius of 28feet, would be graded and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds), and would be designed and maintained to provide all-weather driving capabilities. The internal access would allow for two-way access of fire apparatus throughout the solar facility in order to access all of the inverter/transformer pads.

Improvements within SDG&E Transmission Corridor

The SDG&E Transmission Corridor is approximately 600-feet wide and is comprised of three easements. The Proposed Project would include minor improvements within the SDG&E Transmission Corridor.

Security Fencing, Lighting and Signage

The solar facility would be fenced along the entire facility boundary for security. The fencing would meet National Electrical Safety Code requirements for protective arrangements in electric supply stations. Fencing would be 7 feet in height total, with a 6-foot-high chain-link perimeter fence and 1 foot of three strands of barbed wire along the top. Signage in Spanish and English for electrical safety would be placed along the perimeter of the solar facility on the fence, warning the public of the high voltage and the need to keep out. Motion censored lights would be installed at all site access driveway entrances and would only be used if motion is detected.

Water Tanks (Fire Protection)

The Project would have six 10,000-gallon water tanks with fire department connections available. One tank would be provided at each entrance to a site section and one tank would be provided near the substation. Water would be stored in aboveground tanks complying with the San Diego California Fire Agency requirements and with National Fire Protection Act 22, Private Fire Protection Water Tanks.

Fuel Modification Zones

A minimum 30 feet wide fuel modification zone (FMZ) would be provided along the perimeter of the solar facility between the PV modules and the off-site wildland fuels. This area would include contiguous fuel modification from the perimeter fence inward and would include the perimeter fire access road. Additionally, a minimum 100-foot-wide FMZ would surround the proposed collector substation and switchyard.

Landscaping

Landscaping would be installed in the following locations to provide visual screening of the PV modules and other Project components:

- Along the proposed fenceline on the north and south sides of Old Highway 80
- Along the western boundary of the proposed solar facility adjacent to residential areas (along Seely Avenue, Laguna Street, and the entire western boundary south of Old Highway 80)

The proposed landscaping buffer would be approximately 15-feet wide and would be located outside of the perimeter fencing. The proposed landscaping would include native and/or drought tolerant trees shrubs, and ground covers. All landscaping would be regularly irrigated with an automatic drip irrigation system supplied by an existing domestic water meter.

Construction

Construction of the Project is anticipated to occur over approximately 13 months and would consist of several activities as described below.

Clearing and Grubbing

Construction of the Project would involve clearing and grubbing of the existing vegetation within the development footprint. Grading would be required throughout the development footprint, and is expected to be balanced on site.

Installation of Underground Medium Voltage Collection System

Trenching is required for installation of the AC medium voltage underground electrical collection system and telecommunication lines. Trenches would be approximately 3 to 4-feet-deep and 2 to 3 feet wide. The trenches would be filled with base materials above and below the conductors and communication lines to ensure adequate thermal conductivity and electrical installation characteristics. The topsoil from trench excavation would be set aside the trench before the trench is backfilled and would ultimately comprise the uppermost layer of the trench. Excess material from the foundation and trench excavations would be used for site leveling. Where possible, trenching would be located beneath driveways and roads to minimize disturbance.

PV System Installation

The PV system installation includes foundations, racking, module assembly, and DC wiring as follows:

- Foundations: The foundations are H piles that would be driven into the soil using a pile/vibratory/rotary driving technique like that used to install freeway guardrails. The pile foundations would be driven to approximate depths of 10 to 15 feet deep depending upon required embedment depth. The spacing of the piles is determined by the ultimate ground coverage ratio that are surveyed and pined to exact location.

- Racking: The racking is assembled on top of the H piles manually and tightened and adjusted with handheld electric ratchet guns.
- Module Assembly: The modules are manually lifted and adjusted on top of the racking.
- Above Ground DC Wiring: The modules are strung together and manually connected with twist connectors.

Installation of Battery Energy Storage System

The battery energy storage installation would be completed in four phases:

- Foundation: The foundations are driven H piles driven to the embedment depth required by the manufacturer.
- Containers: The storage containers and integration systems are delivered to the site by truck and are lifted off the truck by a forklift or crane.
- Battery Placement: The battery packs are delivered separately from the containers and integrated into the system onsite.
- Wiring and Commissioning: The fully integrated container is then wired into the inverter/ transformer platforms.

Construction Personnel, Traffic, and Equipment

It is conservatively estimated that during the peak construction of the Proposed Project, up to 500 workers would be on the Project site. It is anticipated that workers would arrive and depart between 6:00 a.m. and 7:00 p.m. Monday through Saturday. It is also anticipated that 30 heavy construction and/or delivery vehicles would travel daily to/from the Project site during construction. The Proposed Project construction would result in a temporary increase in traffic on Carrizo Gorge Road and Old Highway 80. No road closures are anticipated during Project construction.

Decommissioning

This section describes the dismantling of the solar facility, recycling, and removal surety. All Project components would be decommissioned except the switchyard and connection to the SDG&E transmission line which would be owned and operated by SDG&E. All decommissioning would occur within the development footprint and disturbance limits of the Proposed Project.

Given the lifespan of the solar facility equipment (35 years), a conservative 35-year life span for the Proposed Project is assumed at which time it will be decommissioned as described below. The decommissioning of the solar facility would last approximately 10 months. The use of the land would have to return to a use that is consistent with the County of San Diego Zoning Ordinance at

the time of dismantling. If a new use is not proposed, the decommissioning would include removal of all ground-level components and preparing the site with a compatible hydroseed mix.

The aboveground (detachable) equipment and structures would be disassembled and removed from the site. Detachable elements include all PV modules and support structures, battery storage units, inverters, transformers, and associated controllers. Removal of the fencing, substation, and aboveground conductors on the transmission facilities would also be implemented. Most of these materials can be recycled or reclaimed. Remaining materials that cannot be recycled or reclaimed would be limited and would be contained and disposed of offsite, consistent with the County of San Diego Construction Demolition and Debris Management Plan (County Ordinance 68.508-68.518). Underground collector and transmission components would be abandoned in place and cut off down to three feet below grade.

Operation

The solar facility's control system includes a SCADA system and an overall plant control system (PCS). Operation of the solar facility would be monitored through the SCADA system, as described below. The SCADA system is required for the purpose of communicating and monitoring the solar facility from a remote location. The SCADA system connects the solar facility to the plant operator and the Independent System Operator (ISO). The SCADA system would be monitored remotely, and no on-site operations and maintenance facilities or personnel would be necessary. The SCADA system would be located in two Control Enclosures. One enclosure would be located in the on-site collection substation area and the other enclosure would be located within the switchyard area. The SCADA system would be comprised of rack-mounted servers and software to allow for the continuous monitoring and control of PV inverters, solar trackers, PV weather monitoring system, substation equipment, battery energy storage system and other equipment throughout the solar facility. The SCADA system would be used to provide critical operating information (e.g., power production, equipment status and alarms, and meteorological information) to the power purchaser, Project owners and investors, grid operator, and Project operations teams. The system would also facilitate production forecasting and other reporting requirements for Project stakeholders.

Electrical components would be tested routinely according to manufacturer's recommendations. In the event that remote monitoring indicates a problem, such as low performance in a section of the array field, a crew would investigate and correct the problem on an as-needed basis. It is anticipated that in-place PV panel washing would occur four times a year. Washing of the PV panels would be undertaken using wash trucks. Washing would occur during daylight hours, so no lighting would be required. During operation of the collector substation, operation and maintenance staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

After completion of construction of the switchyard, operation of the switchyard would be transferred to SDG&E; therefore, the switchyard would be monitored and controlled remotely from the SDGE's central operations facilities off site. Accordingly, no new personnel would be required for operation and maintenance. Routine operations would require a single pickup truck visiting the switchyard site several times a week for switching, as well as several larger substation construction and maintenance trucks visiting the switchyard several times a year for equipment maintenance. Maintenance activities would include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventive maintenance. Based on operations at similar facilities, routine maintenance is expected to necessitate approximately six trips per year by a two- to four-person crew. Routine operations would require one or two workers in a light utility truck to visit the switchyard on a weekly basis. Typically, a major maintenance inspection would take place annually, requiring approximately 20 personnel for approximately one week.

APPENDIX C

EXISTING TRAFFIC VOLUME DATA

SAME PH AS EB RAMPS

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-8 Access Rd & I-8 EB Ramps
City: Jacumba
Control: 1-Way Stop (EB)

Project ID: 19-04107-001
Date: 3/6/2019

Total

NS/EW Streets:	I-8 Access Rd				I-8 Access Rd				I-8 EB Ramps				I-8 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	9	0	0	6	0	0	0	0	9	0	0	0	0	0	27
7:15 AM	0	8	5	0	0	3	0	0	0	0	5	0	0	0	0	0	21
7:30 AM	0	6	4	0	0	1	0	0	0	0	4	0	0	0	0	0	15
7:45 AM	0	4	6	0	0	2	0	0	0	0	6	0	0	0	0	0	18
8:00 AM	0	4	6	0	0	1	0	0	0	0	5	0	0	0	0	0	16
8:15 AM	0	6	6	0	0	9	0	0	0	1	5	0	0	0	0	0	27
8:30 AM	0	7	7	0	0	4	0	0	0	0	8	0	0	0	0	0	26
8:45 AM	0	5	10	0	0	4	0	0	0	0	11	0	0	0	0	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	43	53	0	0	30	0	0	0	1	53	0	0	0	0	0	180
APPROACH %'s :	0.00%	44.79%	55.21%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	1.85%	98.15%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	22	29	0	0	18	0	0	0	1	29	0	0	0	0	0	99
PEAK HR FACTOR :	0.000	0.786	0.725	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.659	0.000	0.000	0.000	0.000	0.000	0.825
		0.850				0.500				0.682							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	6	3	0	0	4	0	0	0	0	9	0	0	0	0	0	22
4:15 PM	0	6	11	0	0	7	0	0	0	0	7	0	0	0	0	0	31
4:30 PM	0	6	8	0	0	2	0	0	0	0	17	0	0	0	0	0	33
4:45 PM	0	8	10	0	0	7	0	0	0	1	7	0	0	0	0	0	33
5:00 PM	0	3	11	0	0	4	0	0	0	0	7	0	0	0	0	0	25
5:15 PM	0	1	3	0	0	5	0	0	0	0	9	0	0	0	0	0	18
5:30 PM	0	8	7	0	0	6	0	0	0	2	9	0	0	0	0	0	32
5:45 PM	0	4	8	0	0	5	0	0	0	0	9	0	0	0	0	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	42	61	0	0	40	0	0	0	3	74	0	0	0	0	0	220
APPROACH %'s :	0.00%	40.78%	59.22%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	3.90%	96.10%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	23	40	0	0	20	0	0	0	1	38	0	0	0	0	0	122
PEAK HR FACTOR :	0.000	0.719	0.909	0.000	0.000	0.714	0.000	0.000	0.000	0.250	0.559	0.000	0.000	0.000	0.000	0.000	0.924
		0.875				0.714				0.574							

I-8 WB RAMPS

18|20

AM PHF = $\frac{40}{4(15)}$ PHF 8AM-9AM = 0.667

PM PHF = $\frac{43}{4(15)}$ PHF 4:15PM-5:15PM = 0.717

Prepared by National Data & Surveying Services

I-8 Access Rd & I-8 EB Ramps

Peak Hour Turning Movement Count

ID: 19-04107-001
City: Jacumba

Day: Wednesday
Date: 03/06/2019

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

I-8 Access Rd — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	0	18	0	0	22
NOON	0	0	0	0	0
PM	0	20	0	0	23
Lanes	0	1	0	0	

I-8 EB Ramps — EASTBOUND

Movement	AM	NOON	PM	Lanes
Departing	0	0	0	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	1	0	1	1
Right	29	0	38	0

I-8 EB Ramps — WESTBOUND

Movement	Lanes	PM	NOON	AM
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0
U-Turn	0	0	0	0
Departing		41	0	30

I-8 Access Rd — NORTHBOUND

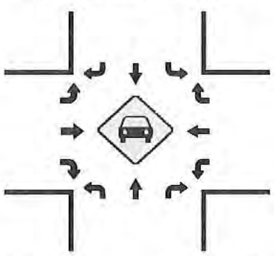
	Departing	U-Turn	Left	Through	Right
Lanes		0	0	1	0
PM	58	0	0	23	40
NOON	0	0	0	0	0
AM	47	0	0	22	29

CONTROL

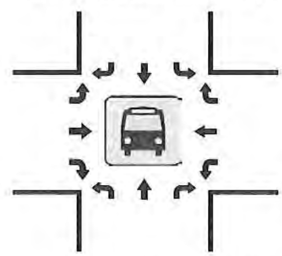
1-Way Stop (EB)

	AM	NOON	PM
TEV	99	0	122
PHF	0.83		0.92

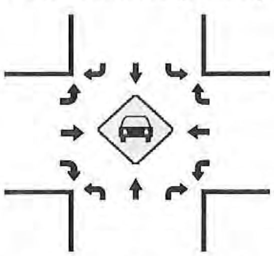
Total Vehicles (AM)



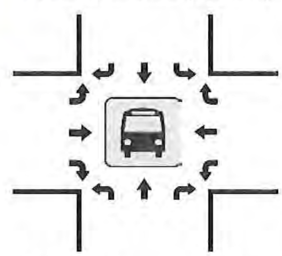
Total Vehicles (AM)



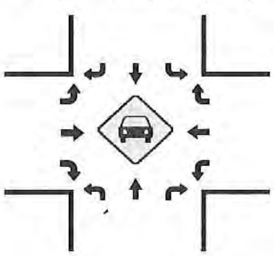
Total Vehicles (NOON)



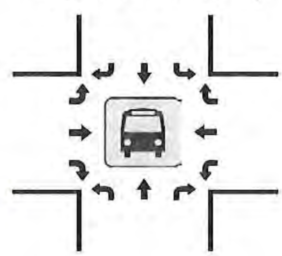
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
West leg	0	0	0
East leg	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-8 Access Rd & Carrizo Gorge Rd
City: Jacumba
Control: 2-Way Yield (EB/WB)

Project ID: 19-04107-002
Date: 3/6/2019

Total

NS/EW Streets:	I-8 Access Rd				I-8 Access Rd				Carrizo Gorge Rd				Carrizo Gorge Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	0	0	2	6	6	0	2	0	0	0	0	0	5	0	26
7:15 AM	0	8	0	0	0	5	0	0	2	0	0	0	0	1	2	0	18
7:30 AM	0	4	0	0	2	6	1	0	3	0	0	0	0	0	4	0	20
7:45 AM	0	5	0	0	2	2	2	0	3	0	0	0	0	1	3	0	18
8:00 AM	0	3	1	0	1	4	2	0	0	0	0	0	0	0	6	0	17
8:15 AM	0	9	0	0	2	9	4	0	2	0	0	0	0	0	1	0	27
8:30 AM	0	2	1	0	1	8	1	0	2	0	0	0	0	0	6	0	21
8:45 AM	0	6	0	0	1	11	5	0	6	1	0	0	0	0	7	0	37
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	42	2	0	11	51	21	0	20	1	0	0	0	2	34	0	184
APPROACH %'s :	0.00%	95.45%	4.55%	0.00%	13.25%	61.45%	25.30%	0.00%	95.24%	4.76%	0.00%	0.00%	0.00%	5.56%	94.44%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	20	2	0	5	32	12	0	10	1	0	0	0	0	20	0	102
PEAK HR FACTOR :	0.000	0.556	0.500	0.000	0.625	0.727	0.600	0.000	0.417	0.250	0.000	0.000	0.000	0.000	0.714	0.000	0.689
		0.611				0.721				0.393				0.714			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	7	0	0	2	5	3	0	2	0	0	0	0	0	4	0	23
4:15 PM	0	7	0	0	2	12	5	0	0	1	0	0	0	1	6	0	34
4:30 PM	0	9	0	0	4	8	4	0	2	2	0	0	0	3	5	0	37
4:45 PM	1	8	1	0	0	9	2	0	2	1	0	0	0	0	6	0	30
5:00 PM	0	1	0	0	2	9	2	0	4	0	0	0	0	0	9	0	27
5:15 PM	0	2	1	0	1	8	4	0	1	0	0	0	0	0	5	0	22
5:30 PM	0	6	0	0	2	10	4	0	2	0	0	0	0	0	3	0	27
5:45 PM	0	7	0	0	0	10	6	0	3	1	0	0	0	1	2	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	47	2	0	13	71	30	0	16	5	0	0	0	5	40	0	230
APPROACH %'s :	2.00%	94.00%	4.00%	0.00%	11.40%	62.28%	26.32%	0.00%	76.19%	23.81%	0.00%	0.00%	0.00%	11.11%	88.89%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	1	25	1	0	8	38	13	0	8	4	0	0	0	4	26	0	128
PEAK HR FACTOR :	0.250	0.694	0.250	0.000	0.500	0.792	0.650	0.000	0.500	0.500	0.000	0.000	0.000	0.333	0.722	0.000	0.865
		0.675				0.776				0.750				0.833			

Prepared by National Data & Surveying Services

I-8 Access Rd & Carrizo Gorge Rd

Peak Hour Turning Movement Count

ID: 19-04107-002
City: Jacumba

Day: Wednesday
Date: 03/06/2019

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

I-8 Access Rd — SOUTHBOUND

AM	12	32	5	0	50	AM
NOON	0	0	0	0	0	NOON
PM	13	38	8	0	59	PM

Carrizo Gorge Rd — EASTBOUND

AM	NOON	PM	
12	0	18	⇦
0	0	0	0 ↶
10	0	8	0 ↱
1	0	4	1 →
0	0	0	0 ↷
AM	NOON	PM	

Carrizo Gorge Rd — WESTBOUND

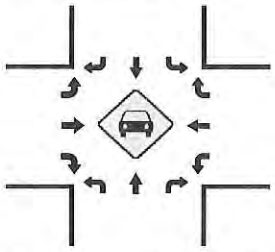
PM	NOON	AM	
26	0	20	0 ↶
4	0	0	1 ←
0	0	0	0 ↰
0	0	0	0 ↷
13	0	8	⇨
PM	NOON	AM	

I-8 Access Rd — NORTHBOUND

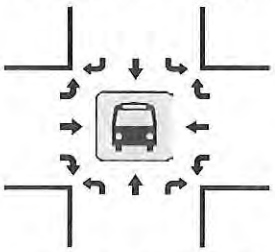
PM	38	0	1	25	1	PM
NOON	0	0	0	0	0	NOON
AM	32	0	0	20	2	AM

CONTROL			
2-Way Yield (EB/WB)			
TEV	102 AM	0 NOON	128 PM
PHF	0.69		0.86

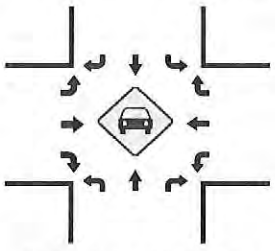
Total Vehicles (AM)



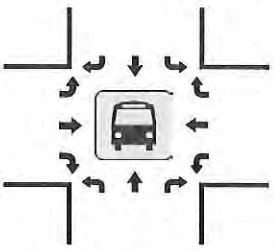
Total Vehicles (AM)



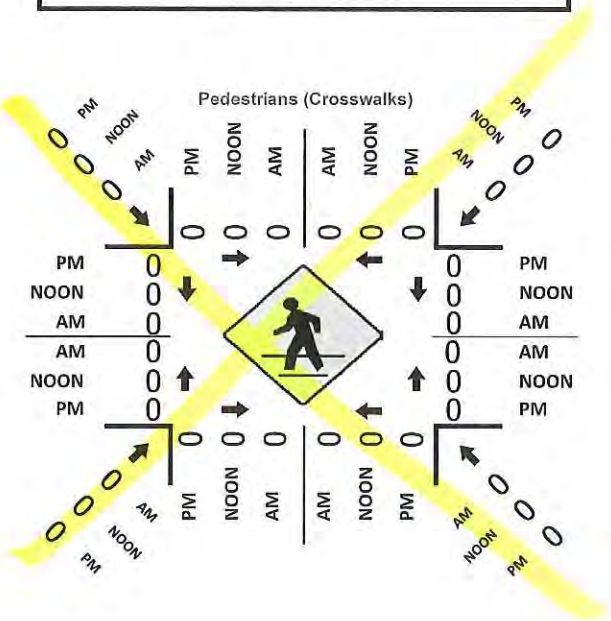
Total Vehicles (NOON)



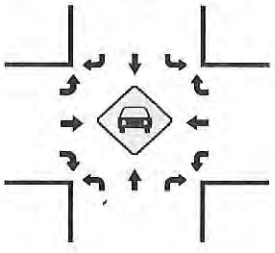
Total Vehicles (NOON)



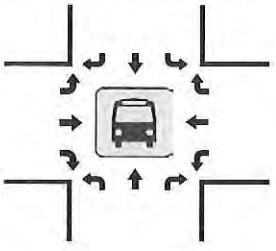
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



Prepared by NDS/ATD

VOLUME

Old Hwy 80 Bet. Campo St & Carrizo Gorge Rd

Day: Wednesday
Date: 3/6/2019

City: Jacumba Hot Springs
Project #: CA19_4108_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	198	201	399

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			4		10		14	
00:15			0		1		1		12:15			3		3		6	
00:30			0		0		0		12:30			5		4		9	
00:45			2	2	1	2	3	4	12:45			4	16	1	18	5	34
01:00			0		1		1		13:00			3		7		10	
01:15			2		2		4		13:15			4		4		8	
01:30			1		2		3		13:30			3		2		5	
01:45			0	3	1	6	1	9	13:45			7	17	4	17	11	34
02:00			1		0		1		14:00			11		6		17	
02:15			0		0		0		14:15			3		8		11	
02:30			1		0		1		14:30			5		7		12	
02:45			0	2	2	2	2	4	14:45			3	22	5	26	8	48
03:00			0		2		2		15:00			1		2		3	
03:15			0		0		0		15:15			1		7		8	
03:30			1		2		3		15:30			6		0		6	
03:45			2	3	0	4	2	7	15:45			3	11	4	13	7	24
04:00			0		0		0		16:00			2		1		3	
04:15			0		1		1		16:15			3		1		4	
04:30			0		0		0		16:30			7		2		9	
04:45			1	1	0	1	1	2	16:45			4	16	7	11	11	27
05:00			0		3		3		17:00			0		5		5	
05:15			2		0		2		17:15			1	14	3	15	4	
05:30			1		0		1		17:30			1		3		4	
05:45			1	4	1	4	2	8	17:45			2	4	1	12	3	16
06:00			6		6		12		18:00			2		4		6	
06:15			2		0		2		18:15			2		2		4	
06:30			1		4		5		18:30			0		0		0	
06:45			2	11	2	12	4	23	18:45			1	5	1	7	2	12
07:00			3		1		4		19:00			1		1		2	
07:15			1		1		2		19:15			1		1		2	
07:30			4		1		5		19:30			0		1		1	
07:45			4	12	0	3	4	15	19:45			1	3	1	4	2	7
08:00			3		1		4		20:00			0		2		2	
08:15			0		1		1		20:15			0		2		2	
08:30			2		1		3		20:30			2		2		4	
08:45			6	11	1	4	7	15	20:45			0	2	2	8	2	10
09:00			0		3		3		21:00			0		1		1	
09:15			3		3		6		21:15			1		1		2	
09:30			6		2		8		21:30			0		0		0	
09:45			4	13	1	9	5	22	21:45			1	2	2	4	3	6
10:00			2		2		4		22:00			2		2		4	
10:15			3		6		9		22:15			1		0		1	
10:30			2		0		2		22:30			0		0		0	
10:45			2	9	1	9	3	18	22:45			1	4	2	4	3	8
11:00			4		5		9		23:00			1		1		2	
11:15			6		3		9		23:15			1		0		1	
11:30			4		3		7		23:30			1		2		3	
11:45			7	21	7	18	14	39	23:45			1	4	0	3	1	7
TOTALS				92		74		166	TOTALS				106		127		233
SPLIT %				55.4%		44.6%		41.6%	SPLIT %				45.5%		54.5%		58.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	198	201	399

AM Peak Hour			11:00	11:45	11:15	PM Peak Hour	13:45	14:00	13:45
AM Pk Volume			21	24	44	PM Pk Volume	26	26	51
Pk Hr Factor			0.750	0.600	0.786	Pk Hr Factor	0.591	0.813	0.750
7 - 9 Volume	0	0	23	7	30	4 - 6 Volume	20	23	43
7 - 9 Peak Hour			07:00	08:00	07:00	4 - 6 Peak Hour	16:00	16:45	16:15
7 - 9 Pk Volume	0	0	12	4	15	4 - 6 Pk Volume	16	18	29
Pk Hr Factor	0.000	0.000	0.750	1.000	0.750	Pk Hr Factor	0.571	0.643	0.659

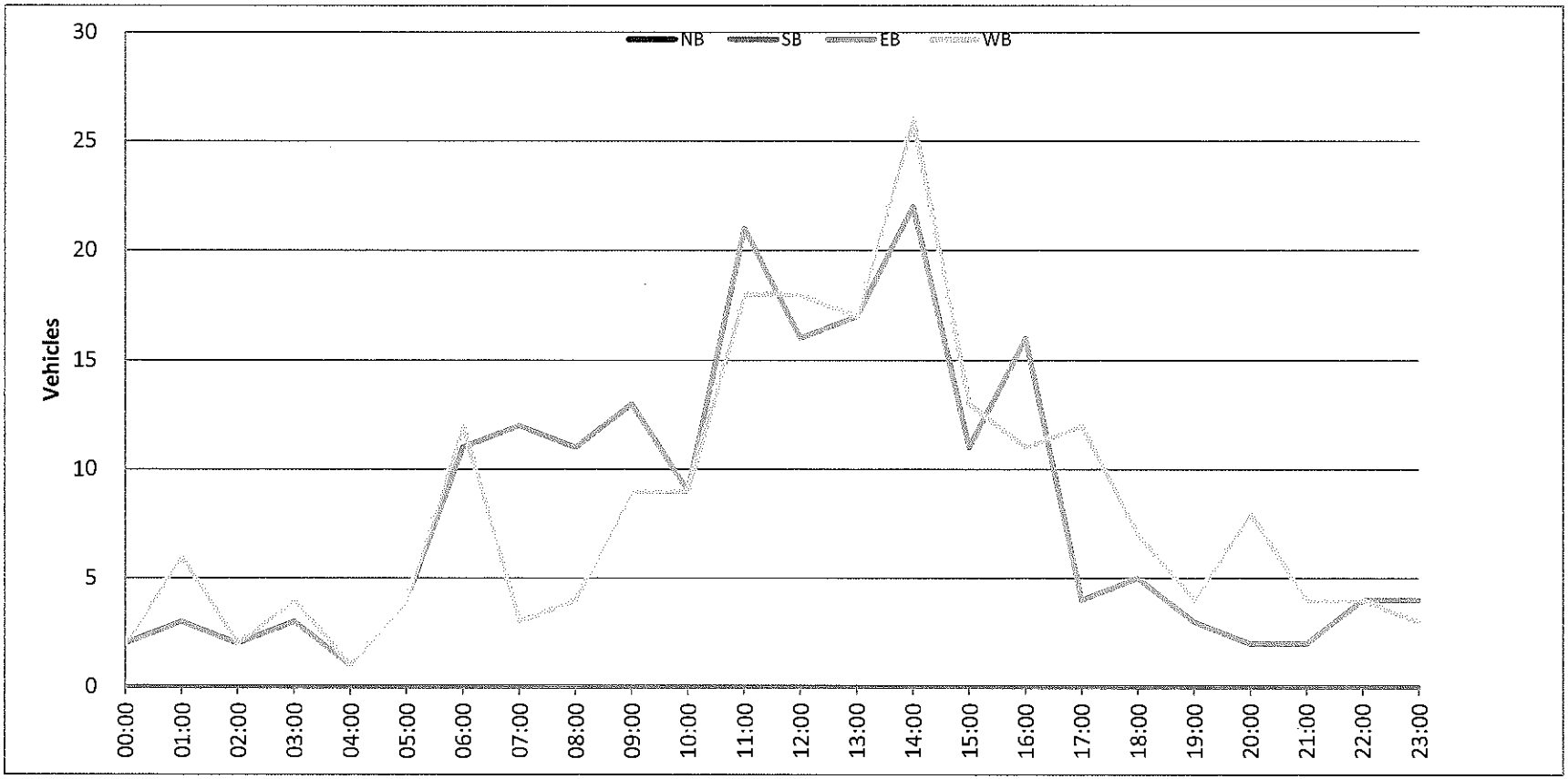
PHF = $\frac{15}{4(7)}$ = 0.536

PHF = $\frac{29}{4(11)}$ = 0.659

Prepared by NDS/ATD

Project #: CA19_4108_001 **City:** Jacumba Hot Springs

Location: Old Hwy 80 Bet. Campo St & Carrizo Gorge **Date:** 3/6/2019



Prepared by NDS/ATD

VOLUME

Carrizo Gorge Rd E/O I-8 Access Rd

Day: Wednesday
Date: 3/6/2019

City: Jacumba Hot Springs
Project #: CA19_4108_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	150	144	294

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			6		4		10	
00:15			1	SB	0	NB	1		12:15			3	SB	3	NB	6	
00:30			0		0		0		12:30			3		3		6	
00:45			2	3	0		2	3	12:45			2	14	4	14	6	28
01:00			1		0		1		13:00			4		3		7	
01:15			2		3		5		13:15			2		3		5	
01:30			2		1		3		13:30			1		4		5	
01:45			0	5	0	4	0	9	13:45			3	10	2	12	5	22
02:00			0		3		3		14:00			6		8		14	
02:15			0		0		0		14:15			5		3		8	
02:30			0		1		1		14:30			4		2		6	
02:45			0		0	4	0	4	14:45			4	19	3	16	7	35
03:00			1		0		1		15:00			1		2		3	
03:15			0		0		0		15:15			2		1		3	
03:30			2		0		2		15:30			0		1		1	
03:45			0	3	1	1	1	4	15:45			2	5	4	8	6	13
04:00			0		2		2		16:00			0		1		1	
04:15			2		1		3		16:15			0		1		1	
04:30			0		0		0		16:30			4		5		9	
04:45			1	3	1	4	2	7	16:45			4	8	2	9	6	17
05:00			2		0		2		17:00			3		2		5	
05:15			0		1		1		17:15			3	11	0	10	3	
05:30			1		0		1		17:30			1		0		1	
05:45			1	4	1	2	2	6	17:45			2	9	2	4	4	13
06:00			3		2		5		18:00			2		2		4	
06:15			1		2		3		18:15			2		1		3	
06:30			2		0		2		18:30			0		1		1	
06:45			0	6	2	6	2	12	18:45			0	4	0	4	0	8
07:00			0		1		1		19:00			1		0		1	
07:15			1		0		1		19:15			1		1		2	
07:30			1		3		4		19:30			1		0		1	
07:45			0	2	1	5	1	7	19:45			2	5	3	4	5	9
08:00			0		4		4		20:00			1		1		2	
08:15			1		0		1		20:15			2		0		2	
08:30			0		0		0		20:30			4		2		6	
08:45			1	2	3	7	4	9	20:45			0	7	0	3	0	10
09:00			1		0		1		21:00			1		0		1	
09:15			2		3		5		21:15			1		0		1	
09:30			2		2		4		21:30			1		1		2	
09:45			0	5	4	9	4	14	21:45			3	6	1	2	4	8
10:00			3		2		5		22:00			2		1		3	
10:15			4		2		6		22:15			1		1		2	
10:30			2		4		6		22:30			1		2		3	
10:45			1	10	2	10	3	20	22:45			2	6	1	5	3	11
11:00			2		2		4		23:00			1		0		1	
11:15			1		2		3		23:15			0		0		0	
11:30			4		2		6		23:30			1		0		1	
11:45			5	12	4	10	9	22	23:45			0	2	1	1	1	3
TOTALS				55		62		117	TOTALS				95		82		177
SPLIT %				47.0%		53.0%		39.8%	SPLIT %				53.7%		46.3%		60.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	150	144	294

AM Peak Hour		11:30	11:45	11:30	PM Peak Hour	14:00	13:15	14:00
AM Pk Volume		18	14	31	PM Pk Volume	19	17	35
Pk Hr Factor		0.750	0.875	0.775	Pk Hr Factor	0.792	0.531	0.625
7 - 9 Volume		4	12	16	4 - 6 Volume	17	13	30
7 - 9 Peak Hour		07:00	07:15	07:15	4 - 6 Peak Hour	16:30	16:15	16:30
7 - 9 Pk Volume		2	8	10	4 - 6 Pk Volume	14	10	23
Pk Hr Factor	0.000	0.500	0.500	0.625	Pk Hr Factor	0.875	0.500	0.639

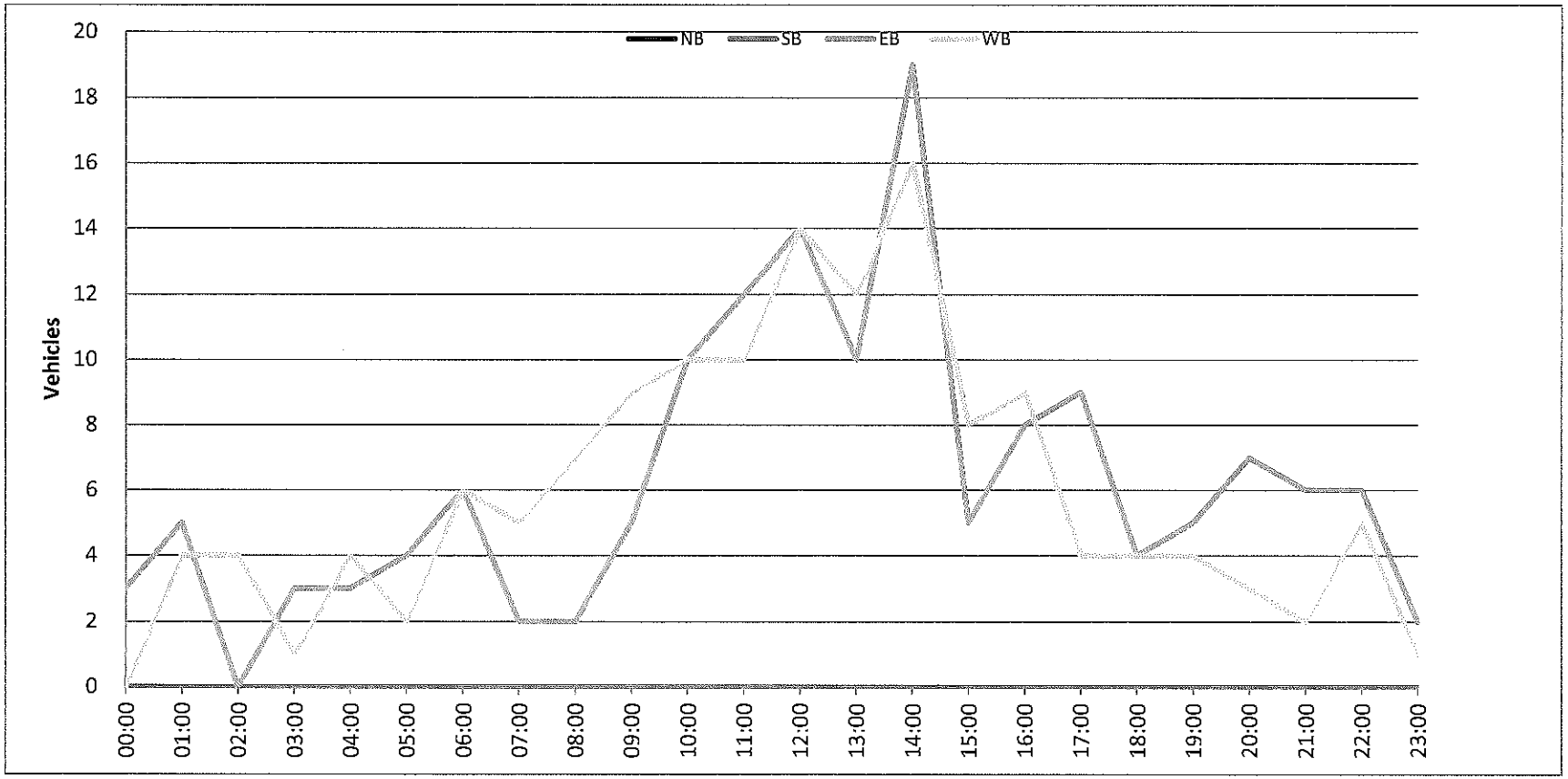
$PHF = \frac{9}{4(4)} = 0.5625$

$PHF = \frac{21}{4(9)} = 0.583$

Prepared by NDS/ATD

Project #: CA19_4108_002 **City:** Jacumba Hot Springs

Location: Carrizo Gorge Rd E/O I-8 Access Rd **Date:** 3/6/2019



APPENDIX D

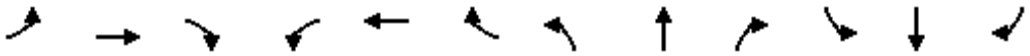
INTERSECTION LOS WORKSHEETS

1: I-8 Access Road & I-8 WB On Ramp/I-8 WB Off Ramp

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	18	0	22	0
Future Volume (Veh/h)	0	0	18	0	22	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	0	0	27	0	33	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	66	0	66	66	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	0	66	66	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	97	100	98	
cM capacity (veh/h)	808	1085	913	808	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	27	33
Volume Left	27	33
Volume Right	0	0
cSH	913	1623
Volume to Capacity	0.03	0.02
Queue Length 95th (ft)	2	2
Control Delay (s)	9.1	7.3
Lane LOS	A	A
Approach Delay (s)	9.1	7.3
Approach LOS	A	

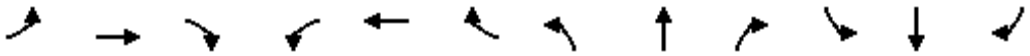
Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	29	0	0	0	0	22	29	0	18	0
Future Volume (Veh/h)	0	1	29	0	0	0	0	22	29	0	18	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	1	35	0	0	0	0	27	35	0	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66	84	22	102	66	44	22			62		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66	84	22	102	66	44	22			62		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	100	100			100		
cM capacity (veh/h)	927	806	1055	849	824	1025	1593			1541		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	62	22
Volume Left	0	0	0
Volume Right	35	35	0
cSH	1046	1700	1541
Volume to Capacity	0.03	0.04	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

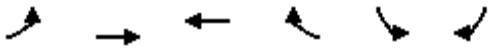
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	0	0	0	20	0	20	2	5	32	12
Future Volume (Veh/h)	10	1	0	0	0	20	0	20	2	5	32	12
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	14	1	0	0	0	29	0	29	3	7	46	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	128	100	54	100	108	30	63			32		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128	100	54	100	108	30	63			32		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	97	100			100		
cM capacity (veh/h)	819	786	1012	878	779	1044	1540			1580		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	29	32	70
Volume Left	14	0	0	7
Volume Right	0	29	3	17
cSH	817	1044	1540	1580
Volume to Capacity	0.02	0.03	0.00	0.00
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.5	8.5	0.0	0.8
Lane LOS	A	A		A
Approach Delay (s)	9.5	8.5	0.0	0.8
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	4	2	0	0	2
Future Volume (Veh/h)	7	4	2	0	0	2
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	13	7	4	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4				37	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4				37	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1618				968	1080

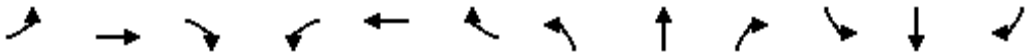
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	4	4
Volume Left	13	0	0
Volume Right	0	0	4
cSH	1618	1700	270
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	4.7	0.0	18.5
Lane LOS	A		C
Approach Delay (s)	4.7	0.0	18.5
Approach LOS			C

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	20	0	23	0
Future Volume (Veh/h)	0	0	20	0	23	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	0	28	0	32	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	64	0	64	64	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64	0	64	64	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	97	100	98	
cM capacity (veh/h)	810	1085	916	810	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	28	32
Volume Left	28	32
Volume Right	0	0
cSH	916	1623
Volume to Capacity	0.03	0.02
Queue Length 95th (ft)	2	2
Control Delay (s)	9.1	7.3
Lane LOS	A	A
Approach Delay (s)	9.1	7.3
Approach LOS	A	

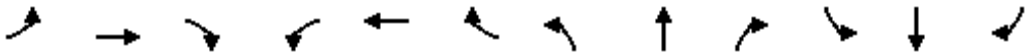
Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	38	0	0	0	0	23	40	0	20	0
Future Volume (Veh/h)	0	1	38	0	0	0	0	23	40	0	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	41	0	0	0	0	25	43	0	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	68	90	22	110	68	46	22			68		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68	90	22	110	68	46	22			68		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	96	100	100	100	100			100		
cM capacity (veh/h)	924	800	1055	834	822	1023	1593			1533		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	42	68	22
Volume Left	0	0	0
Volume Right	41	43	0
cSH	1047	1700	1533
Volume to Capacity	0.04	0.04	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

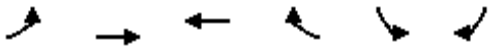
Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	13.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	4	0	0	4	26	1	25	1	8	38	13
Future Volume (Veh/h)	8	4	0	0	4	26	1	25	1	8	38	13
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	9	5	0	0	5	30	1	29	1	9	44	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	134	102	52	104	108	30	59			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	134	102	52	104	108	30	59			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	99	97	100			99		
cM capacity (veh/h)	806	784	1016	868	777	1045	1545			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	35	31	68
Volume Left	9	0	1	9
Volume Right	0	30	1	15
cSH	798	996	1545	1583
Volume to Capacity	0.02	0.04	0.00	0.01
Queue Length 95th (ft)	1	3	0	0
Control Delay (s)	9.6	8.7	0.2	1.0
Lane LOS	A	A	A	A
Approach Delay (s)	9.6	8.7	0.2	1.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	4	4	0	0	11
Future Volume (Veh/h)	10	4	4	0	0	11
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	15	6	6	0	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	6				42	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6				42	6
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				960	1077

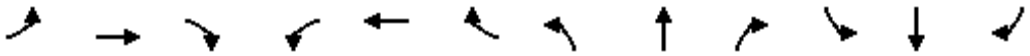
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	6	17
Volume Left	15	0	0
Volume Right	0	0	17
cSH	1615	1700	269
Volume to Capacity	0.01	0.00	0.06
Queue Length 95th (ft)	1	0	5
Control Delay (s)	5.2	0.0	19.3
Lane LOS	A		C
Approach Delay (s)	5.2	0.0	19.3
Approach LOS			C

Intersection Summary			
Average Delay	9.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	101	0	37	0
Future Volume (Veh/h)	0	0	101	0	37	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	110	0	40	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	80	0	80	80	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80	0	80	80	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	88	100	98	
cM capacity (veh/h)	790	1085	891	790	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	110	40
Volume Left	110	40
Volume Right	0	0
cSH	891	1623
Volume to Capacity	0.12	0.02
Queue Length 95th (ft)	11	2
Control Delay (s)	9.6	7.3
Lane LOS	A	A
Approach Delay (s)	9.6	7.3
Approach LOS	A	

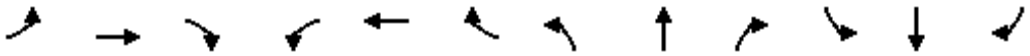
Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	222	0	0	0	0	37	35	0	101	0
Future Volume (Veh/h)	0	1	222	0	0	0	0	37	35	0	101	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	241	0	0	0	0	40	38	0	110	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	169	188	110	410	169	59	110			78		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	169	188	110	410	169	59	110			78		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	74	100	100	100	100			100		
cM capacity (veh/h)	795	707	943	410	724	1007	1480			1520		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	242	78	110
Volume Left	0	0	0
Volume Right	241	38	0
cSH	942	1700	1520
Volume to Capacity	0.26	0.05	0.00
Queue Length 95th (ft)	26	0	0
Control Delay (s)	10.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.1	0.0	0.0
Approach LOS	B		

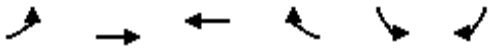
Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	24.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	0	0	0	41	0	20	2	281	32	12
Future Volume (Veh/h)	10	1	0	0	0	41	0	20	2	281	32	12
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	1	0	0	0	45	0	22	2	305	35	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	720	676	42	675	681	23	48			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	720	676	42	675	681	23	48			24		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	100	100	100	96	100			81		
cM capacity (veh/h)	280	303	1029	313	301	1054	1559			1591		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	45	24	353
Volume Left	11	0	0	305
Volume Right	0	45	2	13
cSH	282	1054	1559	1591
Volume to Capacity	0.04	0.04	0.00	0.19
Queue Length 95th (ft)	3	3	0	18
Control Delay (s)	18.3	8.6	0.0	6.9
Lane LOS	C	A		A
Approach Delay (s)	18.3	8.6	0.0	6.9
Approach LOS	C	A		

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	4	4	4	0	112
Future Volume (Veh/h)	24	4	4	4	0	112
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	4	4	4	0	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	8				62	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8				62	6
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	89
cM capacity (veh/h)	1612				929	1077

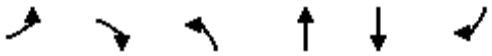
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	30	8	122
Volume Left	26	0	0
Volume Right	0	4	122
cSH	1612	1700	269
Volume to Capacity	0.02	0.00	0.45
Queue Length 95th (ft)	1	0	55
Control Delay (s)	6.3	0.0	29.0
Lane LOS	A		D
Approach Delay (s)	6.3	0.0	29.0
Approach LOS			D

Intersection Summary			
Average Delay	23.3		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	3	25	2	28	250
Future Volume (Veh/h)	0	3	25	2	28	250
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	27	2	30	272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	360	28			29	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360	28			29	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			98	
cM capacity (veh/h)	627	1047			1584	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	29	302
Volume Left	0	0	30
Volume Right	3	2	0
cSH	1047	1700	1584
Volume to Capacity	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	8.4	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	8.4	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	0	4	23	195	55
Future Volume (Veh/h)	4	0	4	23	195	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	4	25	212	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	275	242	272			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	275	242	272			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	712	797	1291			

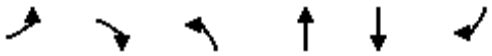
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	29	272
Volume Left	4	4	0
Volume Right	0	0	60
cSH	712	1291	1700
Volume to Capacity	0.01	0.00	0.16
Queue Length 95th (ft)	0	0	0
Control Delay (s)	10.1	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.1	1.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	2	25	3	28	167
Future Volume (Veh/h)	0	2	25	3	28	167
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	27	3	30	182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	270	28			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270	28			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			98	
cM capacity (veh/h)	705	1046			1583	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	30	212
Volume Left	0	0	30
Volume Right	2	3	0
cSH	1046	1700	1583
Volume to Capacity	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	8.4	0.0	1.2
Lane LOS	A		A
Approach Delay (s)	8.4	0.0	1.2
Approach LOS	A		

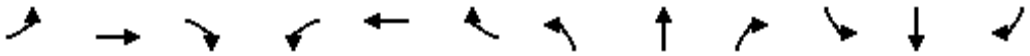
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	0	4	24	112	55
Future Volume (Veh/h)	4	0	4	24	112	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	4	26	122	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	186	152	182			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	186	152	182			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	801	894	1393			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	30	182
Volume Left	4	4	0
Volume Right	0	0	60
cSH	801	1393	1700
Volume to Capacity	0.00	0.00	0.11
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.5	1.0	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	1.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	20	9	56	4	56	1	0	4	4	0	1
Future Volume (Veh/h)	3	20	9	56	4	56	1	0	4	4	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	22	10	61	4	61	1	0	4	4	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	65			32			190	220	27	194	194	34
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	65			32			190	220	27	194	194	34
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	100	100	99	100	100
cM capacity (veh/h)	1537			1580			745	651	1048	739	672	1039

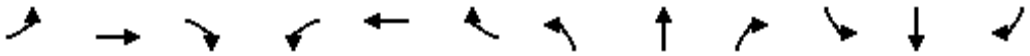
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	126	5	5
Volume Left	3	61	1	4
Volume Right	10	61	4	1
cSH	1537	1580	969	785
Volume to Capacity	0.00	0.04	0.01	0.01
Queue Length 95th (ft)	0	3	0	0
Control Delay (s)	0.6	3.7	8.7	9.6
Lane LOS	A	A	A	A
Approach Delay (s)	0.6	3.7	8.7	9.6
Approach LOS			A	A

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	23.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	26	0	216	0
Future Volume (Veh/h)	0	0	26	0	216	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	28	0	235	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	470	0	470	470	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	470	0	470	470	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	94	100	86	
cM capacity (veh/h)	420	1085	448	420	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	28	235
Volume Left	28	235
Volume Right	0	0
cSH	448	1623
Volume to Capacity	0.06	0.14
Queue Length 95th (ft)	5	13
Control Delay (s)	13.6	7.6
Lane LOS	B	A
Approach Delay (s)	13.6	7.6
Approach LOS	B	

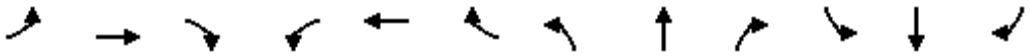
Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	53	0	0	0	0	216	123	0	26	0
Future Volume (Veh/h)	0	1	53	0	0	0	0	216	123	0	26	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	58	0	0	0	0	235	134	0	28	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	330	397	28	388	330	302	28			369		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330	397	28	388	330	302	28			369		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	100	100			100		
cM capacity (veh/h)	623	540	1047	538	589	738	1585			1190		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	59	369	28
Volume Left	0	0	0
Volume Right	58	134	0
cSH	1031	1700	1190
Volume to Capacity	0.06	0.22	0.00
Queue Length 95th (ft)	5	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

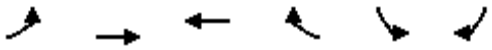
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	28.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	4	0	0	4	302	1	25	1	29	38	13
Future Volume (Veh/h)	8	4	0	0	4	302	1	25	1	29	38	13
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	4	0	0	4	328	1	27	1	32	41	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	472	142	48	144	148	28	55			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	472	142	48	144	148	28	55			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	100	100	99	69	100			98		
cM capacity (veh/h)	338	734	1021	809	728	1048	1550			1585		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	332	29	87
Volume Left	9	0	1	32
Volume Right	0	328	1	14
cSH	406	1042	1550	1585
Volume to Capacity	0.03	0.32	0.00	0.02
Queue Length 95th (ft)	2	35	0	2
Control Delay (s)	14.2	10.1	0.3	2.8
Lane LOS	B	B	A	A
Approach Delay (s)	14.2	10.1	0.3	2.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	36.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	6	4	0	4	28
Future Volume (Veh/h)	120	6	4	0	4	28
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	7	4	0	4	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4				271	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4				271	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	97
cM capacity (veh/h)	1618				661	1080

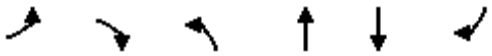
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	137	4	34
Volume Left	130	0	4
Volume Right	0	0	30
cSH	1618	1700	1223
Volume to Capacity	0.08	0.00	0.03
Queue Length 95th (ft)	7	0	2
Control Delay (s)	7.1	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	7.1	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	28	258	0	3	29
Future Volume (Veh/h)	2	28	258	0	3	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	30	280	0	3	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	318	280			280	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318	280			280	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	674	759			1283	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	280	35
Volume Left	2	0	3
Volume Right	30	0	0
cSH	753	1700	1283
Volume to Capacity	0.04	0.16	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	10.0	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	4	0	203	27	4
Future Volume (Veh/h)	55	4	0	203	27	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	4	0	221	29	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	252	31	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	31	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	100	100			
cM capacity (veh/h)	737	1043	1579			

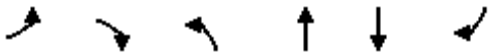
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	64	221	33
Volume Left	60	0	0
Volume Right	4	0	4
cSH	750	1579	1700
Volume to Capacity	0.09	0.00	0.02
Queue Length 95th (ft)	7	0	0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	28	175	0	2	29
Future Volume (Veh/h)	3	28	175	0	2	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	30	190	0	2	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	226	190			190	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	190			190	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	761	852			1384	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	190	34
Volume Left	3	0	2
Volume Right	30	0	0
cSH	843	1700	1384
Volume to Capacity	0.04	0.11	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.4	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	0.5
Approach LOS	A		

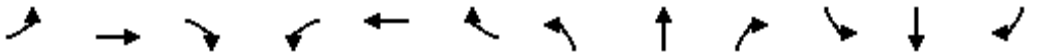
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	4	0	120	28	4
Future Volume (Veh/h)	55	4	0	120	28	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	4	0	130	30	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	162	32	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162	32	34			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	829	1042	1578			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	64	130	34
Volume Left	60	0	0
Volume Right	4	0	4
cSH	840	1578	1700
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	14	1	4	24	4	3	0	56	56	0	3
Future Volume (Veh/h)	1	14	1	4	24	4	3	0	56	56	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	1	4	26	4	3	0	61	61	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	30			16			56	56	16	114	54	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			16			56	56	16	114	54	28
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	94	92	100	100
cM capacity (veh/h)	1583			1602			936	833	1064	811	835	1047

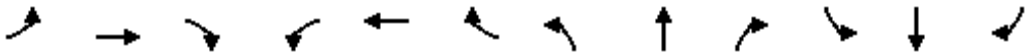
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	34	64	64
Volume Left	1	4	3	61
Volume Right	1	4	61	3
cSH	1583	1602	1057	820
Volume to Capacity	0.00	0.00	0.06	0.08
Queue Length 95th (ft)	0	0	5	6
Control Delay (s)	0.4	0.9	8.6	9.8
Lane LOS	A	A	A	A
Approach Delay (s)	0.4	0.9	8.6	9.8
Approach LOS			A	A

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	20	0	24	0
Future Volume (Veh/h)	0	0	20	0	24	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	0	0	30	0	36	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	72	0	72	72	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	0	72	72	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	97	100	98	
cM capacity (veh/h)	800	1085	904	800	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	30	36
Volume Left	30	36
Volume Right	0	0
cSH	904	1623
Volume to Capacity	0.03	0.02
Queue Length 95th (ft)	3	2
Control Delay (s)	9.1	7.3
Lane LOS	A	A
Approach Delay (s)	9.1	7.3
Approach LOS	A	

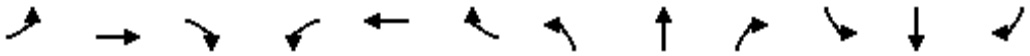
Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	32	0	0	0	0	24	30	0	20	0
Future Volume (Veh/h)	0	1	32	0	0	0	0	24	30	0	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	1	39	0	0	0	0	29	37	0	24	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	72	90	24	111	72	48	24			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72	90	24	111	72	48	24			66		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	96	100	100	100	100			100		
cM capacity (veh/h)	920	800	1052	834	819	1022	1591			1536		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	40	66	24
Volume Left	0	0	0
Volume Right	39	37	0
cSH	1044	1700	1536
Volume to Capacity	0.04	0.04	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

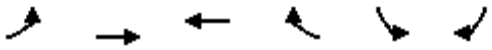
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	0	0	0	23	0	20	2	10	32	12
Future Volume (Veh/h)	10	1	0	0	0	23	0	20	2	10	32	12
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	14	1	0	0	0	33	0	29	3	14	46	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	146	114	54	114	122	30	63			32		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	114	54	114	122	30	63			32		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	97	100			99		
cM capacity (veh/h)	791	769	1012	857	762	1044	1540			1580		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	33	32	77
Volume Left	14	0	0	14
Volume Right	0	33	3	17
cSH	790	1044	1540	1580
Volume to Capacity	0.02	0.03	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.6	8.6	0.0	1.4
Lane LOS	A	A		A
Approach Delay (s)	9.6	8.6	0.0	1.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	23.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	4	2	0	0	2
Future Volume (Veh/h)	7	4	2	0	0	2
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	13	7	4	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4				37	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4				37	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1618				968	1080

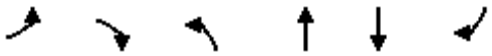
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	4	4
Volume Left	13	0	0
Volume Right	0	0	4
cSH	1618	1700	270
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	4.7	0.0	18.5
Lane LOS	A		C
Approach Delay (s)	4.7	0.0	18.5
Approach LOS			C

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	10	0	0	7
Future Volume (Veh/h)	0	0	10	0	0	7
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	0	0	18	0	0	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	31	18			18	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31	18			18	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	983	1061			1599	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	18	13
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1599
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	10	7	0
Future Volume (Veh/h)	0	0	0	10	7	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	0	0	0	18	13	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	31	13	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31	13	13			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	983	1067	1606			

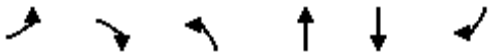
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	18	13
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1606	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	10	0	0	7
Future Volume (Veh/h)	0	0	10	0	0	7
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	0	0	18	0	0	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			837			
pX, platoon unblocked						
vC, conflicting volume	31	18			18	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31	18			18	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	983	1061			1599	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	18	13
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1599
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

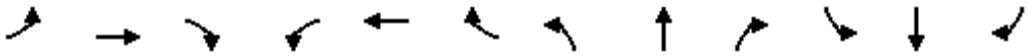
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	0	0	7	2	5
Future Volume (Veh/h)	3	0	0	7	2	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	5	0	0	13	4	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22	8	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	8	13			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	995	1073	1606			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	13	13
Volume Left	5	0	0
Volume Right	0	0	9
cSH	995	1606	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	11	0	0	4	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	11	0	0	4	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	20	0	0	7	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	7			20			27	27	20	27	27	7
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	7			20			27	27	20	27	27	7
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1614			1596			983	866	1058	983	866	1075

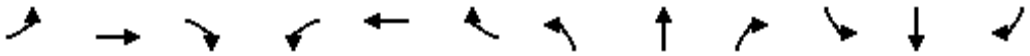
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	7	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1614	1596	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	0.0
Approach LOS			A	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	21	0	26	0
Future Volume (Veh/h)	0	0	21	0	26	0
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	0	29	0	36	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	72	0	72	72	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	0	72	72	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	97	100	98	
cM capacity (veh/h)	800	1085	904	800	1623	

Direction, Lane #	WB 1	NB 1
Volume Total	29	36
Volume Left	29	36
Volume Right	0	0
cSH	904	1623
Volume to Capacity	0.03	0.02
Queue Length 95th (ft)	2	2
Control Delay (s)	9.1	7.3
Lane LOS	A	A
Approach Delay (s)	9.1	7.3
Approach LOS	A	

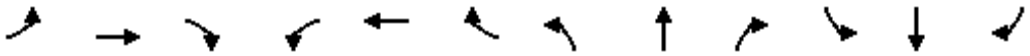
Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	13.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	40	0	0	0	0	26	42	0	21	0
Future Volume (Veh/h)	0	1	40	0	0	0	0	26	42	0	21	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	43	0	0	0	0	28	46	0	23	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	74	97	23	118	74	51	23			74		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	74	97	23	118	74	51	23			74		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	96	100	100	100	100			100		
cM capacity (veh/h)	916	793	1054	823	816	1017	1592			1526		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	44	74	23
Volume Left	0	0	0
Volume Right	43	46	0
cSH	1046	1700	1526
Volume to Capacity	0.04	0.04	0.00
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

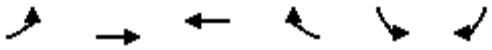
Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	13.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	4	0	0	4	31	1	25	1	11	38	13
Future Volume (Veh/h)	8	4	0	0	4	31	1	25	1	11	38	13
Sign Control		Yield			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	9	5	0	0	5	36	1	29	1	13	44	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	148	110	52	112	116	30	59			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	148	110	52	112	116	30	59			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	99	97	100			99		
cM capacity (veh/h)	783	774	1016	856	767	1045	1545			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	41	31	72
Volume Left	9	0	1	13
Volume Right	0	36	1	15
cSH	780	1001	1545	1583
Volume to Capacity	0.02	0.04	0.00	0.01
Queue Length 95th (ft)	1	3	0	1
Control Delay (s)	9.7	8.8	0.2	1.4
Lane LOS	A	A	A	A
Approach Delay (s)	9.7	8.8	0.2	1.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	21.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	4	4	0	0	11
Future Volume (Veh/h)	10	4	4	0	0	11
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	15	6	6	0	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	6				42	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6				42	6
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				960	1077

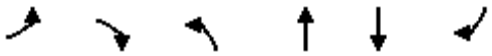
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	6	17
Volume Left	15	0	0
Volume Right	0	0	17
cSH	1615	1700	269
Volume to Capacity	0.01	0.00	0.06
Queue Length 95th (ft)	1	0	5
Control Delay (s)	5.2	0.0	19.3
Lane LOS	A		C
Approach Delay (s)	5.2	0.0	19.3
Approach LOS			C

Intersection Summary			
Average Delay	9.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	15	0	0	14
Future Volume (Veh/h)	0	0	15	0	0	14
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	0	0	26	0	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50	26			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	26			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	959	1050			1588	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	26	24
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1588
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

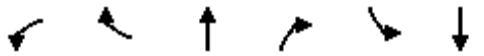
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	15	14	0
Future Volume (Veh/h)	0	0	0	15	14	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	0	0	0	26	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50	24	24			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	24	24			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	959	1052	1591			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	26	24
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1591	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

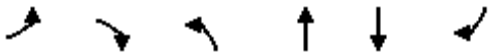
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	15	0	0	14
Future Volume (Veh/h)	0	0	15	0	0	14
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	0	0	26	0	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			837			
pX, platoon unblocked						
vC, conflicting volume	50	26			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	26			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	959	1050			1588	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	26	24
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1588
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

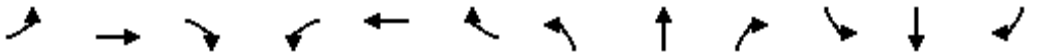
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	10	11	3
Future Volume (Veh/h)	5	0	0	10	11	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	9	0	0	17	19	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	38	22	24			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	22	24			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	973	1056	1591			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	9	17	24
Volume Left	9	0	0
Volume Right	0	0	5
cSH	973	1591	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	14	0	0	15	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	14	0	0	15	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	0	21	0	0	23	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	23			21			44	44	21	44	44	23
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23			21			44	44	21	44	44	23
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1592			1595			958	848	1056	958	848	1054

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	23	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1592	1595	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	0.0
Approach LOS			A	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			