APPENDIX L: TRAFFIC IMPACT STUDY

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT STUDY

OVERNIGHT SOLAR PROJECT

San Bernardino County, California
April 5, 2024

LLG Ref. 3-23-3717

Prepared by:
Renald Espiritu
Transportation Engineer III

Under the Supervision of:
John Boarman, P.E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

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OVERNIGHT SOLAR PROJECT

San Bernardino County, California
April 5, 2024

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared this Traffic Impact Study to assess the potential impacts to the street system as a result of the Overnight Solar Project. The Project is a new facility proposed to be constructed on an approximately 825- acre parcel located in unincorporated San Bernardino County, adjacent to the existing Mojave Solar Project. In addition, a 1.1-mile gen-tie is proposed connecting the Project site and the existing gen-tie to the east.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Traffic Study Approach and Methodology
- Vehicle Miles Traveled (VMT) Assessment
- LOS Substantial Effect Criteria
- Analysis of Existing Conditions
- Construction Period Trip Generation / Distribution / Assignment
- Analysis of Near-Term During Construction Conditions
- Conclusions / Recommendations

2.0 PROJECT DESCRIPTION

The Overnight Solar Project involves the development of 825 acres in unincorporated San Bernardino County. In addition, a 1.1-mile gen-tie is proposed connecting the Project site and the existing gen-tie to the east. The Project is approximately 5.5 miles north of State Route (SR) -58 and 1 mile west of Harper Lake Road, and will include a control building containing protective relays and communications infrastructure and an operations and maintenance building (O&M Building) to house technicians, documents and equipment. Access to the site will be via SR-58 to Harper Lake Road. The site is currently zoned Rural Living (RL) and will require a rezone to Resource Conservation and redesignation to Resource/Land Management (RLM).

Figure 2–1 shows the Project vicinity. ***Figure 2–2*** shows a more detailed Project area map. ***Figure 2–3*** shows the Project Site Plan.

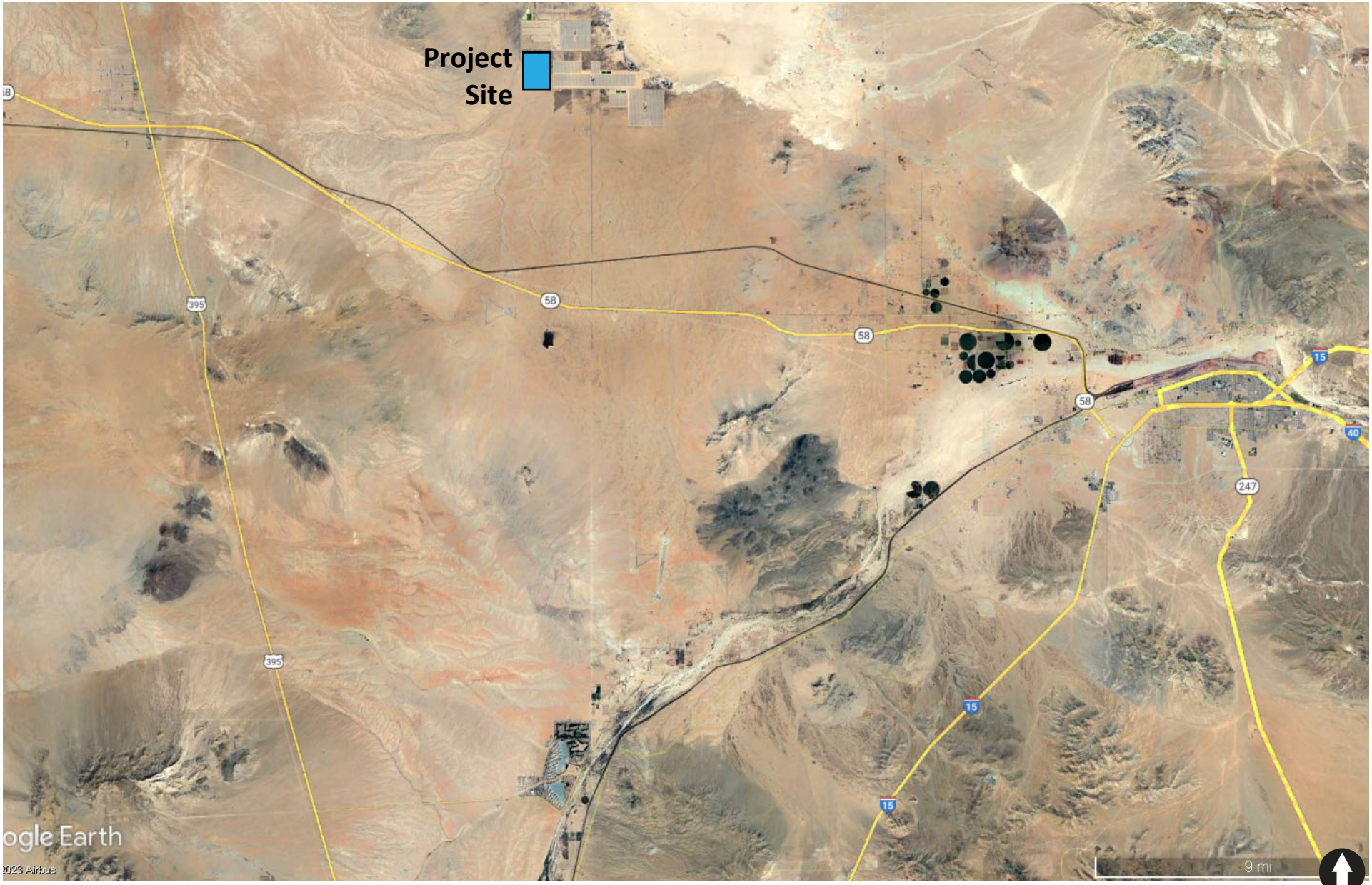

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Figure 2-1

Vicinity Map

OVERNIGHT SOLAR PROJECT

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Figure 2-2

Project Area Map

OVERNIGHT SOLAR PROJECT

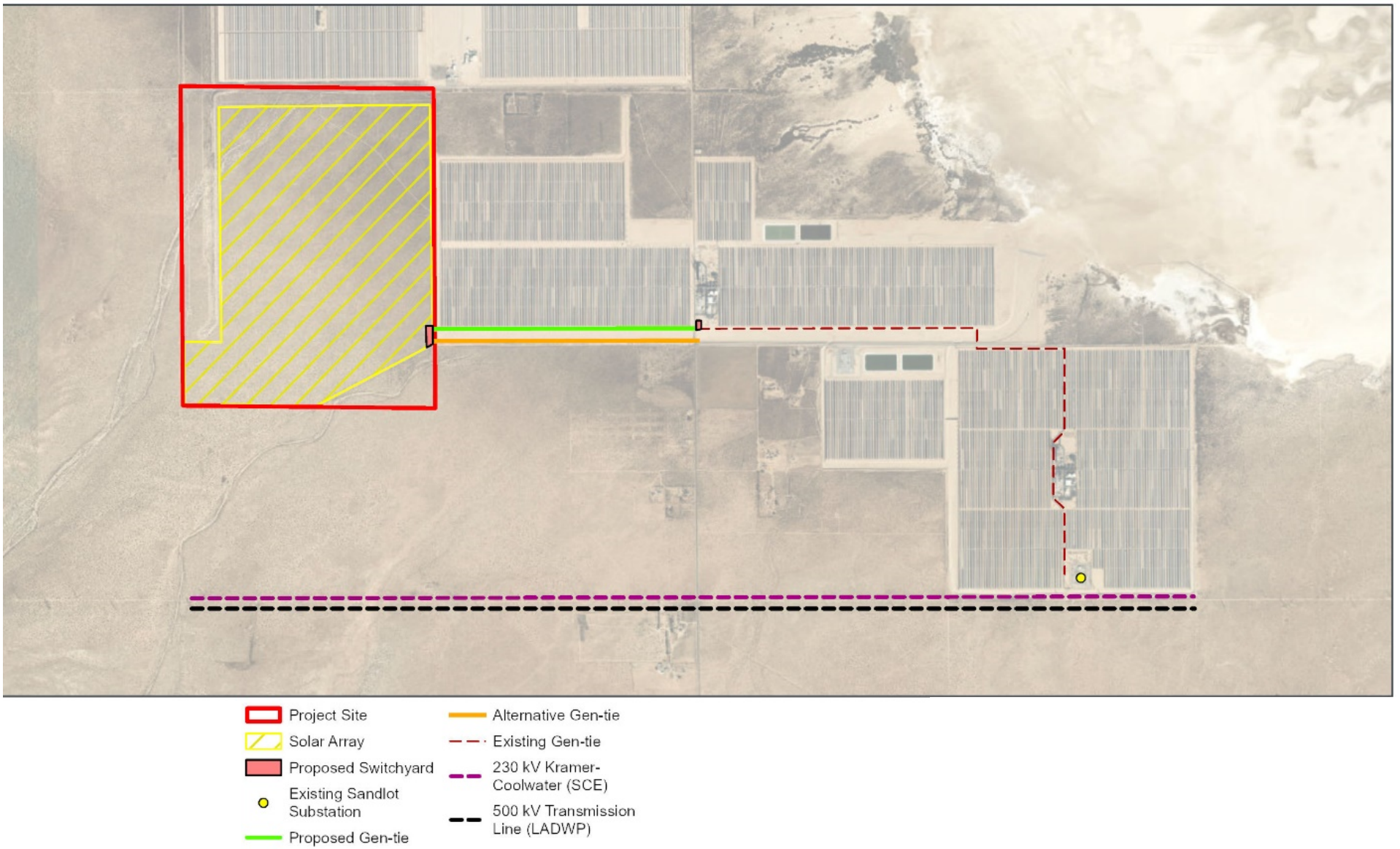

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Figure 2-3

Site Plan

OVERNIGHT SOLAR PROJECT

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the Project requires an understanding of the existing transportation system within the Project area. Based on coordination with the applicant, construction workers and heavy vehicles would access the Project site from Harper Lake Road via SR-58, with most workers commuting to the Project site from communities such as Boron, Barstow, Victorville, Hesperia and San Bernardino. Therefore, the following intersections were included in the analysis study area:

1. Harper Lake Road / Hoffman Road
2. Harper Lake Road / Lockhart Ranch Road
3. Harper Lake Road / SR-58

Figure 3–1 shows an existing conditions diagram, including the above-listed intersections and its lane configurations.

3.1 Existing Transportation Conditions

The following is a description of the existing street network in the study area.

State Route 58 (SR-58) is classified as a State Highway in the *San Bernardino County Roadway Network* and is currently constructed as a 4-lane divided roadway. Sidewalks are not provided. The posted speed limit is 65 miles per hour (mph).

Harper Lake Road is classified as a Controlled/Limited Access Collector in the *San Bernardino County Roadway Network* and is currently constructed as a 2-lane undivided roadway. Sidewalks are not provided. The posted speed limit is 55 mph.

Hoffman Road is an unclassified roadway in the *San Bernardino County Roadway Network* and is currently constructed as a 2-lane undivided roadway. Sidewalks are not provided. There is no posted speed limit.

Lockhart Ranch Road is an unclassified roadway in the *San Bernardino County Roadway Network* and is currently constructed as a 2-lane undivided roadway. Sidewalks are not provided. There is no posted speed limit.

3.2 Existing Traffic Volumes

Peak hour intersection turning movement volume counts were conducted at the study area intersections on Thursday, June 8, 2023.

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the intersection manual count sheets.

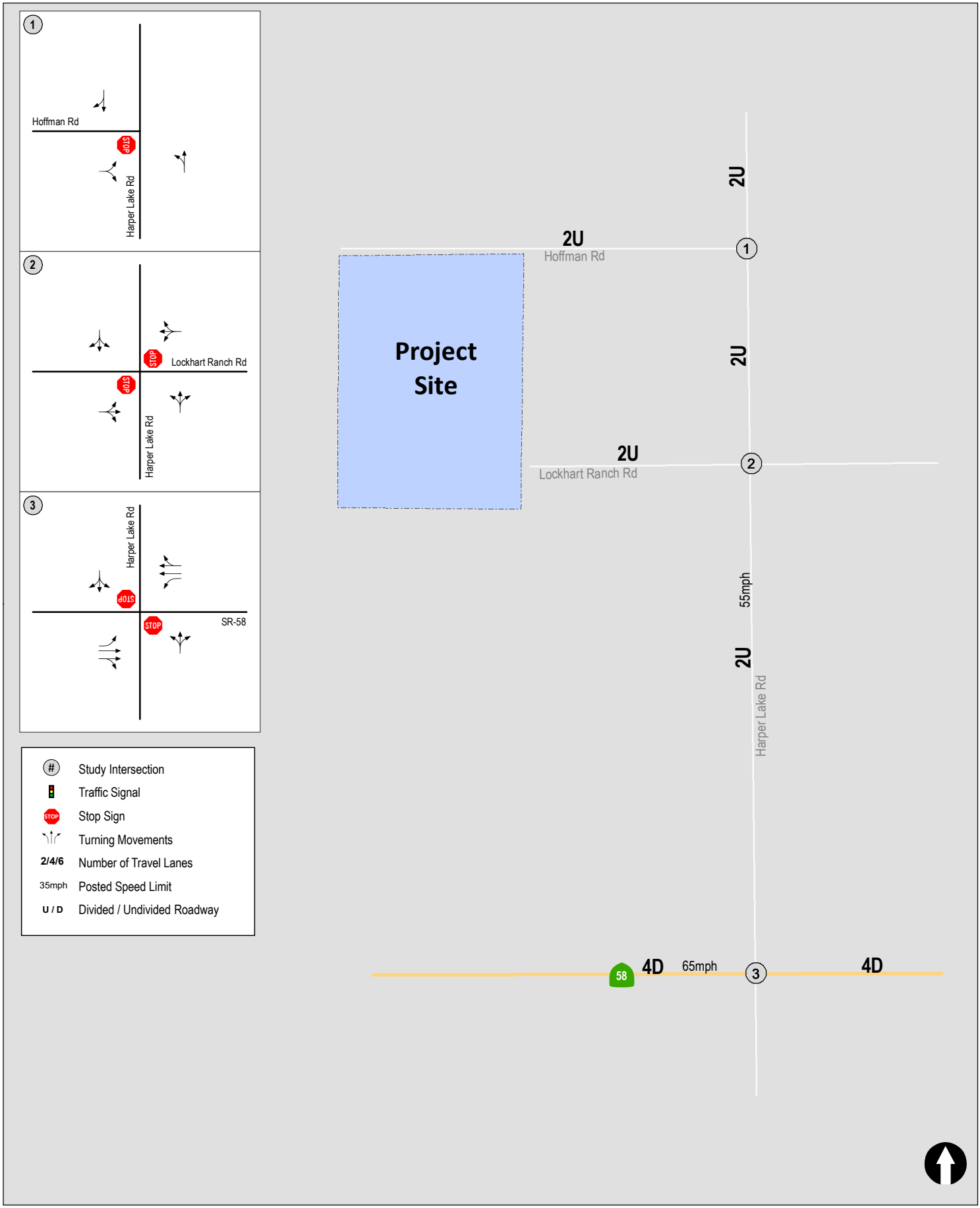

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Figure 3-1

Existing Conditions Diagram

OVERNIGHT SOLAR PROJECT

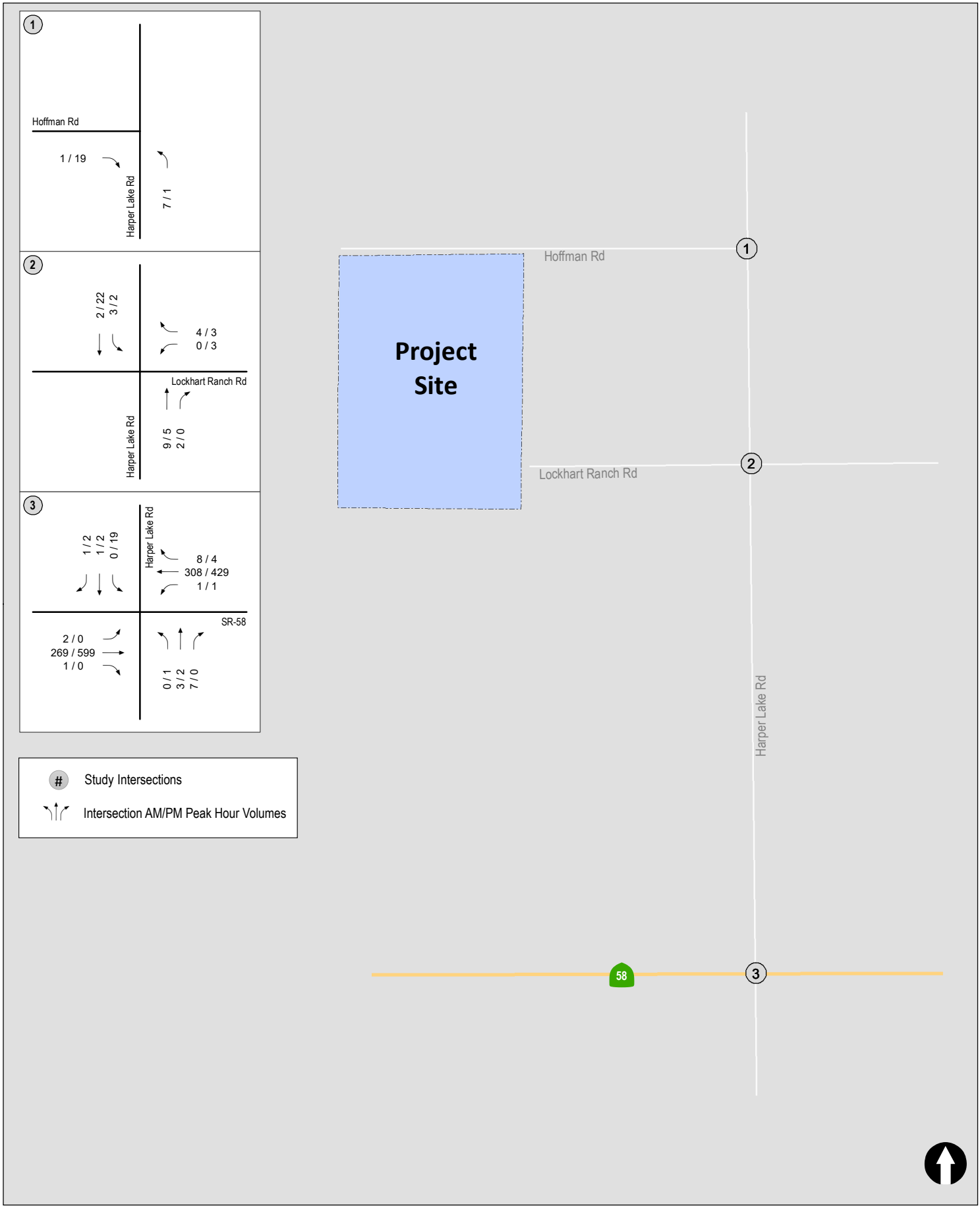

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Figure 3-2

Existing Traffic Volumes

Overnight Solar Project

4.0 TRAFFIC STUDY APPROACH AND METHODOLOGY

4.1 Analysis Approach

The traffic analysis assesses the study area intersections in the following scenarios to determine the potential impacts to the road network. The construction traffic would occur over a 26-month period. Therefore, the anticipated completion year of the construction is 2026. The peak number of workers on the Project site at any one time is anticipated to be 300. In addition to the daily workers traveling to the site, there would be up to 25 truck trips per day at peak construction activity when the trenching and solar array installation phases overlap. Therefore, a total of up to approximately 325 inbound trips per day are anticipated during peak construction activities.

The operation of the Project site will be staffed with a small amount of full-time and part-time employees, such as a plant manager, maintenance manager, solar technicians and environmental specialists. The most labor-intense maintenance activity would include solar panel washing, which would be required potentially up to 4 times per year. Panel washing may require up to 12 employees and water trucks to deliver water. The amount of operation-related traffic will be much less than the construction traffic, therefore, only the construction traffic was covered in the Level of Service (LOS) and Vehicle Miles Traveled (VMT) analyses. The following scenarios were included in the LOS analysis:

- Existing
- Near-Term
- Near-Term During Construction

In addition to LOS analysis, a VMT analysis was also conducted and is summarized in *Section 5.0*.

4.2 Analysis Methodology

LOS is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapters 20 and 21 of the *HCM 6th Edition*, with the assistance of the *Synchro* (version 11) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS.

5.0 VEHICLE MILES TRAVELED (VMT) ASSESSMENT

An assessment was conducted to determine the impacts of the Construction Project Traffic in terms of VMT. This assessment utilizes methodologies presented within the Governor's Office of Planning and Research (OPR) Technical Advisory developed to assist with implementation of Senate Bill 743 (SB 743), which resulted in a shift in the measure of effectiveness for determining transportation impacts from Level of Service (LOS) and vehicular delay to VMT. VMT analyses are required for use in all California Environmental Quality Act (CEQA) documents no later than July 1, 2020.

In reference to CEQA Guidelines Proposed Section 15064.3, the OPR states that "'vehicle miles traveled' refers to the amount of distance of automobile travel attributable to a project. Here, the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." Therefore, heavy vehicles generated by the construction traffic are not included in the VMT analysis. In addition, since the construction traffic would only be temporary in nature, Project VMT impacts for construction were presumed to be less than significant.

As mentioned in *Section 4.1*, the number of employees involved in operating and maintaining the site is very minimal, at most 12 per day. This equates to 24 average daily traffic (ADT). Based on the County of San Bernardo Transportation Impact Study Guidelines (dated July 2019), *Section 4.1*, projects that generate less than 110 ADT are exempt from needing to conduct a VMT analysis, and impacts are presumed to be less than significant. Therefore, VMT impacts were presumed to be less than significant for the Project operations.

6.0 LOS SUBSTANTIAL EFFECT CRITERIA

Consistent with the acceptable LOS for the Desert region as described in the *San Bernardino County Transportation Impact Study Guidelines*, the following unsignalized intersection criteria should be considered when identifying operational deficiencies:

An operational improvement would be required if the study determines that either section a) or both sections b) and c) occur:

a. The addition of project related traffic causes the intersection to degrade from an LOS C or better to an LOS D or worse.

OR

b. The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS D, E, or F.

AND

c. One or both of the following conditions are met:
    1. The project adds ten (10) or more trips to any minor street approach.
    2. The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

If the conditions above are satisfied, improvements should be identified that achieve the following:

- Improvements should be identified that would achieve LOS C or better for case a) above or to pre-project LOS and delay for case b) above

Similarly, Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D.

7.0 ANALYSIS OF EXISTING CONDITIONS

The analysis of existing conditions includes the assessment of the study area intersections using the methodologies described in *Section 4.0*.

Intersection analyses were conducted for the study area intersections under Existing conditions. ***Table 7–1*** summarizes the existing peak hour intersection operations. As shown in *Table 7–1*, all study area intersections are calculated to currently operate at LOS B or better.

Appendix B contains the Existing intersection analysis worksheets.

TABLE 7–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Harper Lake Rd / Hoffman Rd	TWSC [c]	AM	8.5	A
		PM	8.6	A
2. Harper Lake Rd / Lockhart Ranch Rd	TWSC [c]	AM	8.6	A
		PM	8.9	A
3. Harper Lake Rd / SR-58	TWSC [c]	AM	10.8	B
		PM	14.8	B

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC – Two-Way Stop Controlled intersection. Minor street left-turn delay is reported.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

8.0 CONSTRUCTION PERIOD TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Construction Project Traffic trip generation calculations and the distribution and assignment.

8.1 Trip Generation

CONSTRUCTION TRAFFIC

Based on coordination with the applicant, the construction of the Project would be accomplished in multiple phases consisting of fencing, site preparation, grading and preparation of staging areas and on-site access routes. Construction of each phase will occur separately over a 26-month period. An average of 150 workers would be on-site during each phase of construction, depending on the activities. The peak number of workers on the Project site at any one time is anticipated to be 300. The workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel. A worst case assumption is that each worker would generate one round trip to the Project site per workday (i.e. no carpooling). It is anticipated that the work would be completed in 8- to 12-hour shifts, with a total of five shifts per week (Monday through Friday). These work shifts will likely not coincide with commuter peak hours. However, to be conservative, half of the workers were assumed to arrive/depart during these peak hours with no carpooling assumed.

In addition to the daily workers traveling to the site, there would be up to approximately 25 truck trips per day at peak construction activity when the trenching and solar array installation phases overlap. The heavy vehicle traffic was assumed to be spread throughout an 8-hour shift. Per the *Highway Capacity Manual (6th Edition)*, a Passenger-Car Equivalent (PCE) factor of 2.5 was applied towards the heavy vehicle truck traffic to account for the fact that heavy vehicles are more impactive in the roadway system than passenger vehicles.

Table 8–1 shows the forecast trip generation for the construction traffic. As shown in *Table 8–1*, the Project is calculated to generate 725 ADT, with 171 trips during the AM peak hour (158 inbound and 13 outbound), and 171 trips during the PM peak hour (13 inbound and 158 outbound).

OPERATION TRAFFIC

The Project site will be staffed with a small amount of full-time and part-time employees, such as a plant manager, maintenance manager, solar technicians and environmental specialists. The most labor-intense maintenance activity would include solar panel washing, which would be required potentially up to 4 times per year. Panel washing may require up to 12 employees and water trucks to deliver water. This is a very small amount of traffic that does not warrant an analysis. While the operation of the Project facilities will generate some traffic, construction traffic will be much greater. Therefore, only construction traffic was analyzed since it is the worst case.

TABLE 8–1
CONSTRUCTION PROJECT TRIP GENERATION

Use	Quantity	PCE[a]	Daily Trip Ends (ADTs)[b]		AM Peak Hour			PM Peak Hour		
			Rate[a]	Volume	Volume			Volume		
					In	Out	Total	In	Out	Total
Construction Workers[c]	300	1	2/vehicle	600	150	5	155	5	150	155
Heavy Vehicles (Trucks)[d]	25	2.5	2/vehicle	125	8	8	16	8	8	16
Total				***725***	***158***	***13***	***171***	***13***	***158***	***171***

Footnotes:

a. PCE – Passenger-Car Equivalent. Assumes PCE factor of 2.5 was applied to heavy vehicle trucks per the Highway Capacity Manual.
b. ADT – Average Daily Traffic
c. Shifts will likely not coincide with commuter peak hours. To be conservative, half of the workers were assumed to arrive/depart during these peak hours.
d. Heavy vehicle traffic is spread throughout an 8 hour work day.

General Notes:

1. To be conservative, no carpooling was assumed.

8.2 Trip Distribution/Assignment

Construction workers and heavy vehicles would access the Project site from Harper Lake Road via SR-58. Most workers would commute to the Project site from nearby communities, such as Boron and Barstow, with some traveling from more distant areas, such as Victorville, Hesperia, and San Bernardino. Based on the provided information, the construction traffic distribution assumes 50% of trips oriented to/from the west and 50% oriented to/from the east.

Figure 8–1 shows the construction traffic distribution. ***Figure 8–2*** shows the construction traffic volumes.

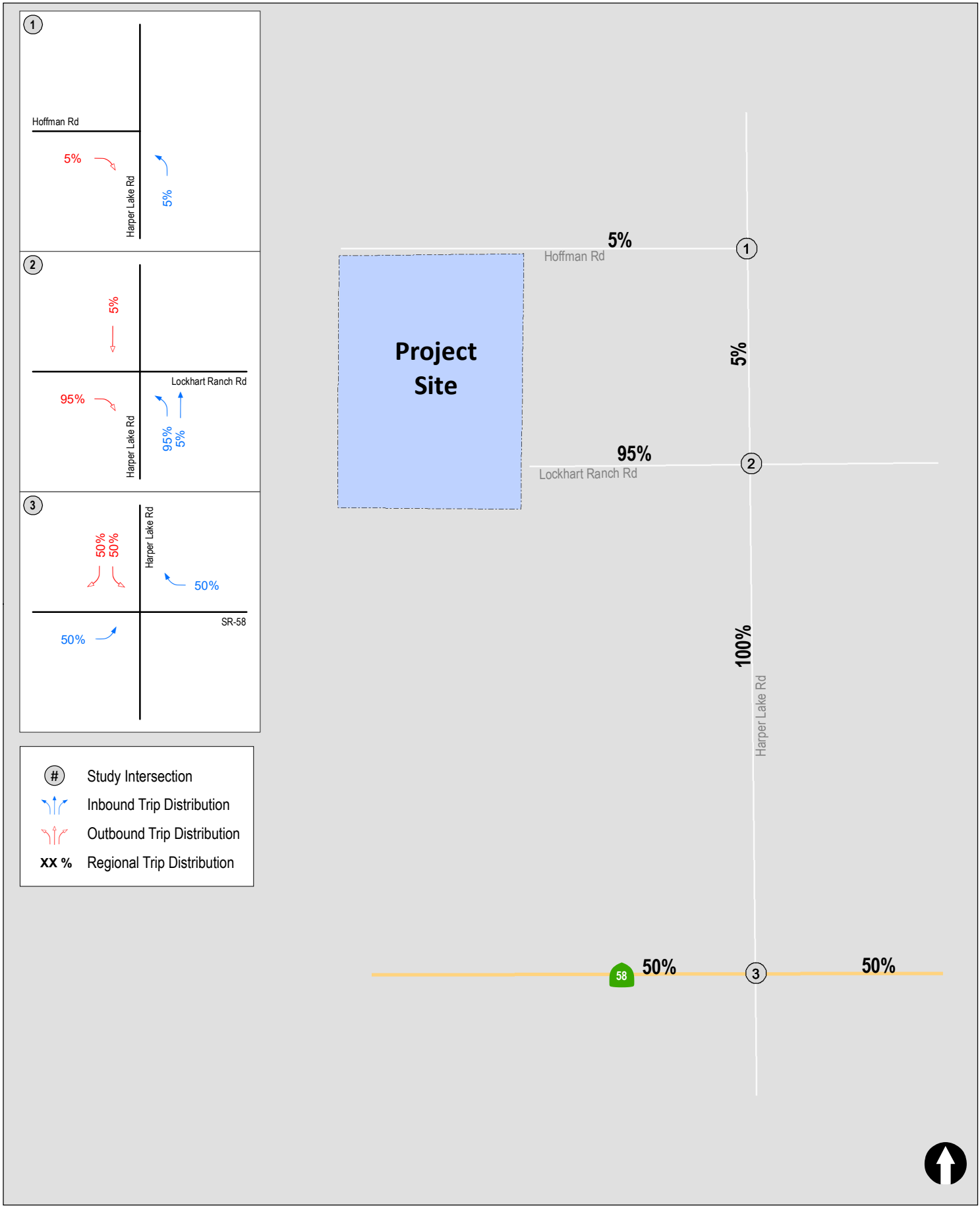

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Figure 8-1

Construction Project Traffic Distribution

OVERNIGHT SOLAR PROJECT

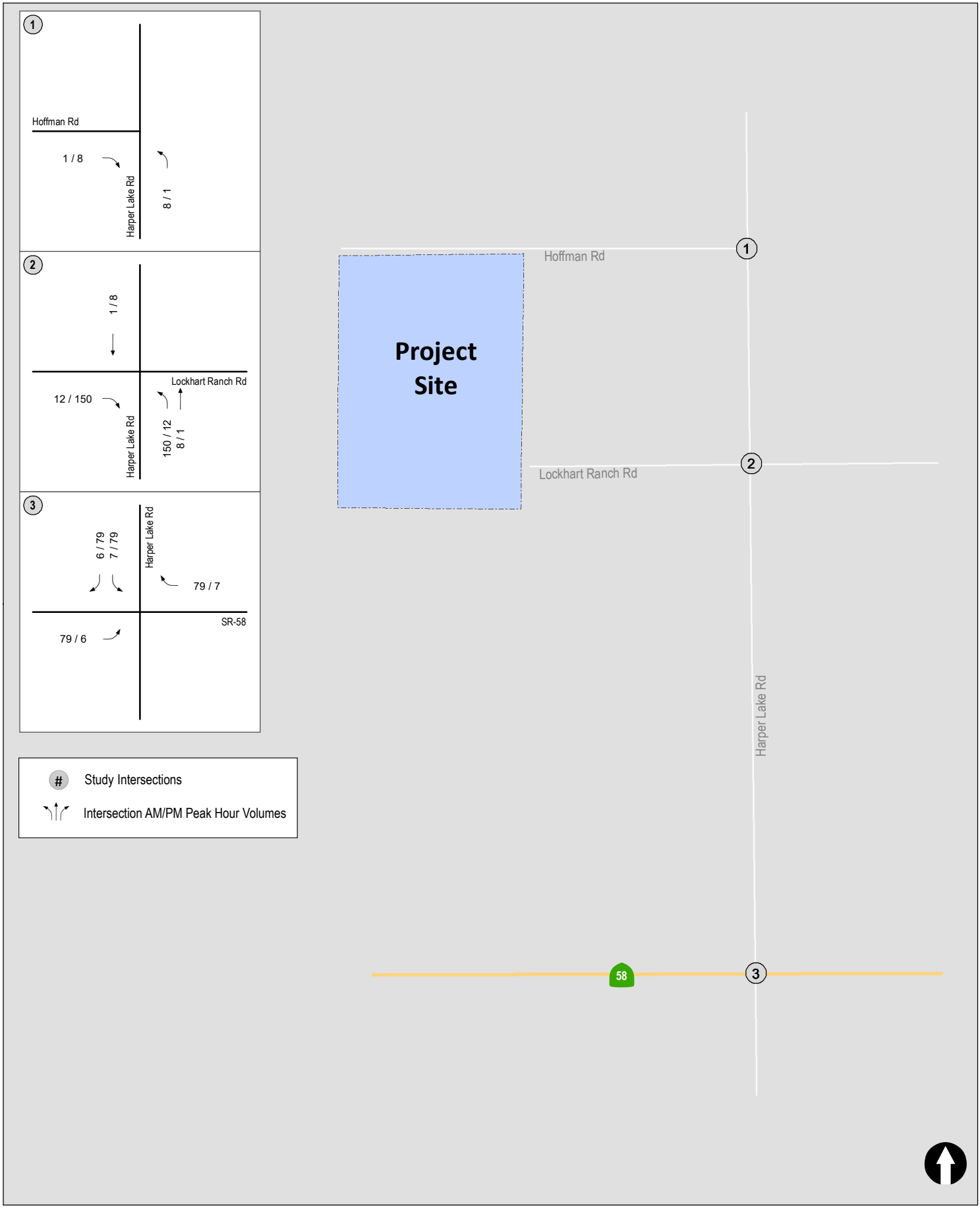

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Figure 8-2

Construction Project Traffic Volumes

Overnight Solar Project

9.0 ANALYSIS OF NEAR-TERM DURING CONSTRUCTION

The following section presents the analysis of study area locations under Near-Term and Near-Term During Construction conditions. The Near-Term Condition includes nearby cumulative development projects and general growth, but not the construction traffic.

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG conducted research to identify relevant, pending cumulative projects in the study area that could be constructed and generating traffic in the study area vicinity during the Project's 26-month construction period. Based on this research, no cumulative projects were identified within close proximity of the Project site.

In order to forecast future traffic volumes for Near-Term Conditions, a growth rate of 1% per year for 3 years was deemed appropriate to use as ambient growth and applied to the existing traffic volumes to develop the Near-Term Conditions. The construction traffic was added to the Near-Term Conditions traffic volumes to develop the Near-Term During Construction Traffic Volumes.

Figure 9–1 shows the Near-Term Traffic Volumes. ***Figure 9–2*** shows the Near-Term During Construction Traffic Volumes.

9.1 Near-Term

Intersection analyses were conducted for the study area intersections under Background Conditions without Construction Traffic. ***Table 9–1*** summarizes the peak hour intersection operations for Background Conditions without Construction Traffic. As shown in *Table 9–1*, all study area intersections are calculated to operate at LOS C or better.

Appendix C contains the Background Conditions without Construction Traffic intersection analysis worksheets.

9.2 Near-Term During Construction

Intersection analyses were conducted for the study area intersections under Near-Term During Construction. *Table 9–1* summarizes the peak hour intersection operations for the Near-Term During Construction. As shown in *Table 9–1*, all study area intersections are calculated to operate at LOS C or better with the exception of the southbound left-turn movement at the Harper Lake Road / SR-58 intersection, which is calculated to operate at LOS D during the PM peak hour. Based on the substantial effect criteria discussed in *Section 6.0*, improvements should be recommended to reduce the intersection operations back to an acceptable level. In addition, a construction management plan will be prepared in a report under separate cover.

Appendix D contains the Near-Term During Construction intersection analysis worksheets.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Near-Term		Near-Term During Construction		Δ[c]
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	
1. Harper Lake Rd / Hoffman Rd	TWSC [d]	AM	8.5	A	8.5	A	8.5	A	0.0
		PM	8.6	A	8.6	A	8.7	A	0.1
2. Harper Lake Rd / Lockhart Ranch Rd	TWSC [d]	AM	8.6	A	8.6	A	8.6	A	0.0
		PM	8.9	A	8.9	A	10.3	B	1.4
3. Harper Lake Rd / SR-58	TWSC [d]	AM	10.8	B	10.8	B	12.1	B	1.3
		PM	14.8	B	15.1	C	28.4	D	13.3

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to Project.
d. TWSC – Two-Way Stop Controlled intersection. Minor street left-turn delay is reported.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

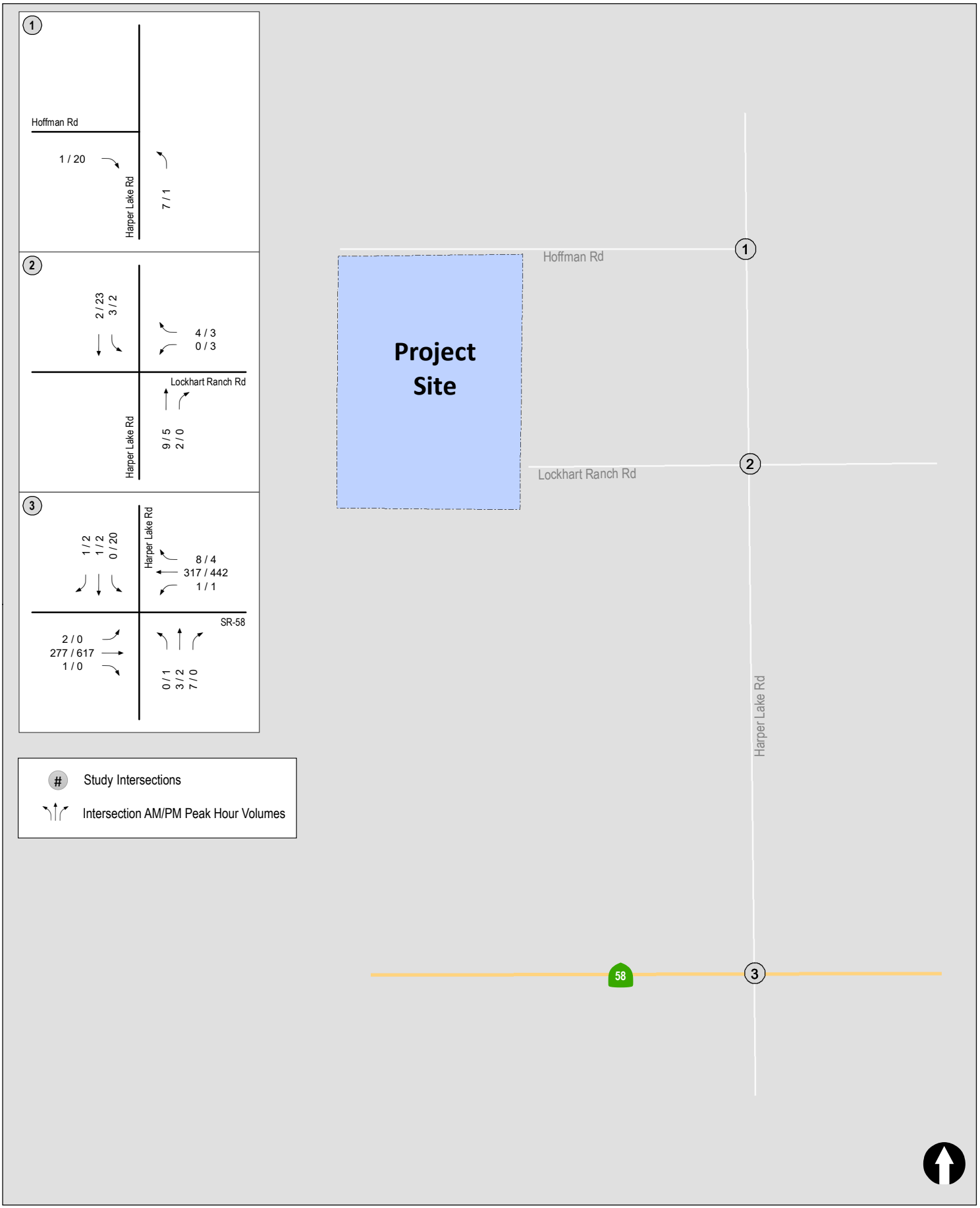

Figure 9-1

Background Conditions without Construction Traffic Volumes

Overnight Solar Project

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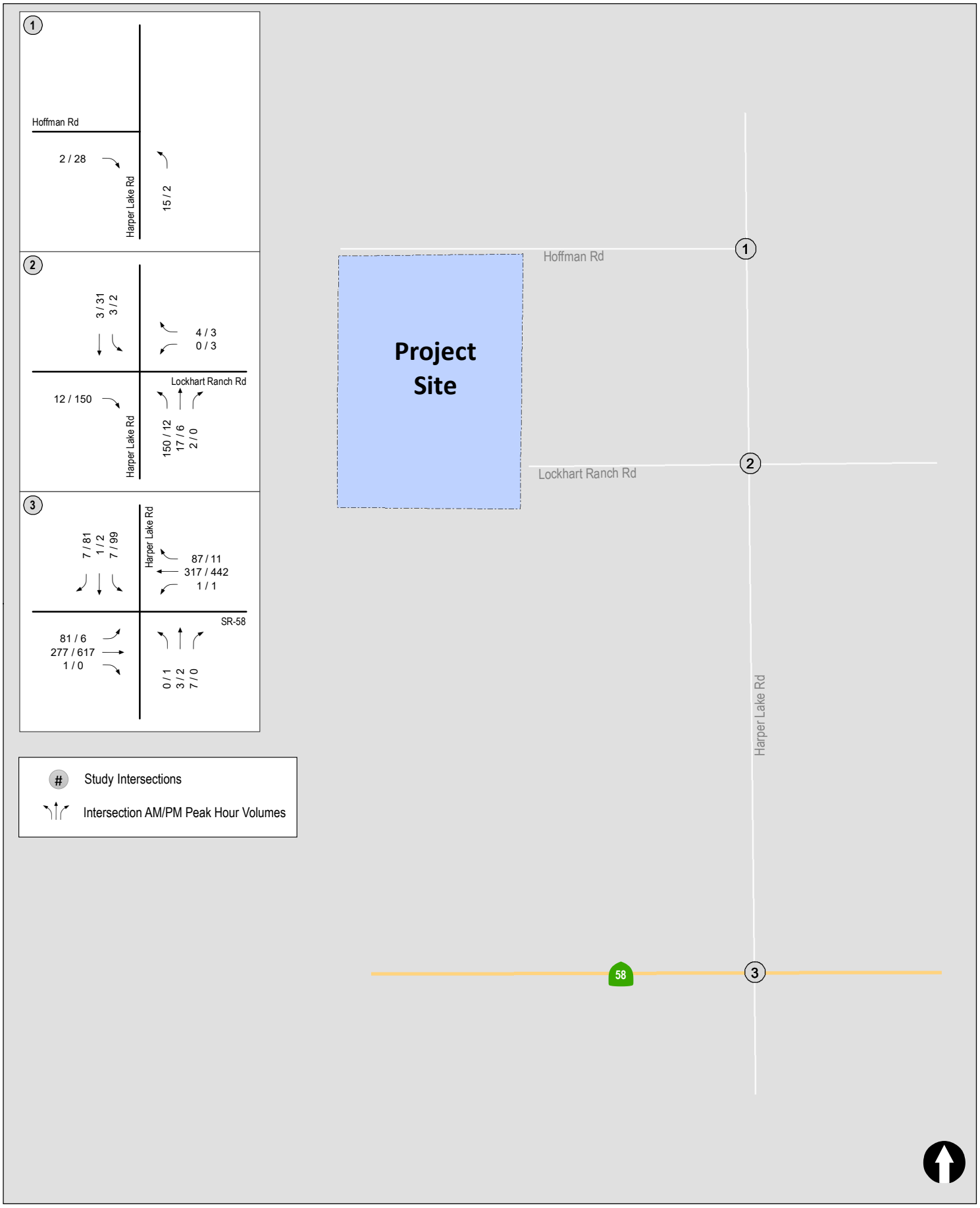

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Figure 9-2

Background Conditions with Construction Traffic Volumes

Overnight Solar Project

10.0 CONCLUSIONS / RECOMMENDATIONS

The Overnight Solar Project is proposed to be constructed on an approximately 825- acre parcel located in unincorporated San Bernardino County, adjacent to the existing Mojave Solar Project in Hinkley, California. Access to the site will be via SR-58 to Harper Lake Road. The potential impacts to the street system due to the construction traffic that the Project will generate was evaluated.

VMT

As stated in the OPR Technical Advisory, "'vehicle miles traveled' refers to the amount of distance of automobile travel attributable to a project. Here, the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." Therefore, heavy vehicles generated by the construction traffic are not included in the VMT analysis. In addition, since the construction traffic would only be temporary in nature, Project VMT impacts for construction were presumed to be less than significant. VMT impacts were also presumed to be less than significant for the Project operations since the number of employees involved in operating and maintaining the site is very minimal, at most 12 per day, as discussed in *Section 8.1*. This equates to 24 ADT. Based on the County of San Bernardo Transportation Impact Study Guidelines (dated July 2019), *Section 4.1*, projects that generate less than 110 ADT are exempt from needing to conduct a VMT analysis, and impacts are presumed to be less than significant.

LOS

As shown in *Table 9–1*, the study area intersections are calculated to operate acceptably at LOS C or better during the AM and PM peak hours under all scenarios with the exception of the southbound left-turn movement at the Harper Lake Road / SR-58 intersection, which is calculated to operate at LOS D during the PM peak hour under the Near-Term During Construction scenario. Lane queues are expected to form on Harper Lake Road approaching SR-58 after the afternoon shift ends.

Therefore, the following is recommended:

- Maintain a minimum roadway width of 24 feet on-site to allow bi-directional movement for construction traffic and consist of either pavement or compacted soil in accordance with County standards.
- Repair any construction Project-related damage to local roadway surfaces to pre-construction condition.
- Stagger employee shifts to begin outside of the typical AM commuter peak period of 7:00 – 9:00 AM and end outside of the typical PM commuter peak period of 4:00 – 6:00 PM.

APPENDIX A

INTERSECTION MANUAL COUNT SHEETS

National Data & Surveying Services Intersection Turning Movement Count

Location: Harper Lake Rd & Hoffman Rd
City: Hinkley
Control: No Control

Project ID: 23-060029-001
Date: 6/8/2023

Data - Totals

NS/EW Streets:	Harper Lake Rd				Harper Lake Rd				Hoffman Rd				Hoffman Rd				
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	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	12
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	8
PEAK HR FACTOR :	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.667
	0.875				0.000				0.250								

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	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6
4:45 PM	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	4
5:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	24
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	20
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.528	0.000	0.000	0.000	0.000	0.000	0.556
	0.250				0.000				0.528								

Prepared by National Data & Surveying Services

Harper Lake Rd & Hoffman Rd

Peak Hour Turning Movement Count

ID: 23-060029-001
City: Hinkley

Day: Thursday
Date: 6/8/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Harper Lake Rd)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Hoffman Rd)

AM	NOON	PM		
7	0	1	⇦	
0	0	0	↶	0
0	0	0	↱	0
0	0	0	→	1
1	0	19	↴	0
AM	NOON	PM		

WESTBOUND (Hoffman Rd)

PM	NOON	AM		
0	0	0	↰	0
0	0	0	←	0
0	0	0	↰	0
0	0	0	↰	0
0	0	0	⇨	
PM	NOON	AM		

NORTHBOUND (Harper Lake Rd)

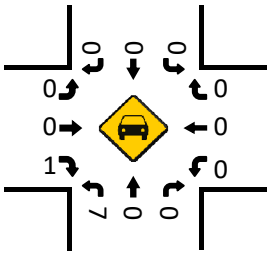
PM	19	0	1	0	0	PM
NOON	0	0	0	0	0	NOON
AM	1	0	7	0	0	AM

CONTROL

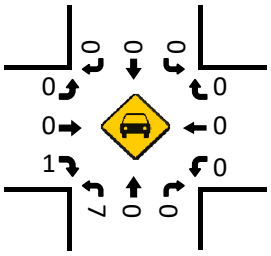
No Control

TEV	8 AM	0 NOON	20 PM
PHF	0.67		0.56

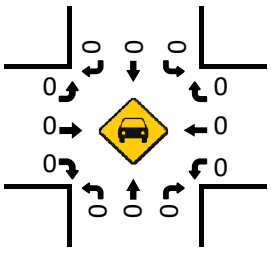
Totals (AM)



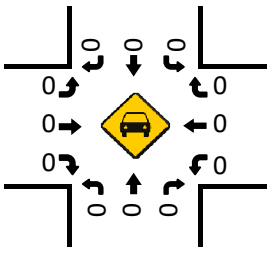
Totals (AM)



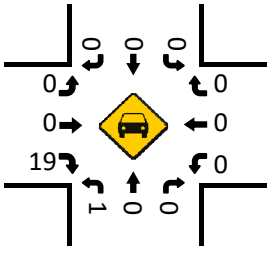
Totals (NOON)



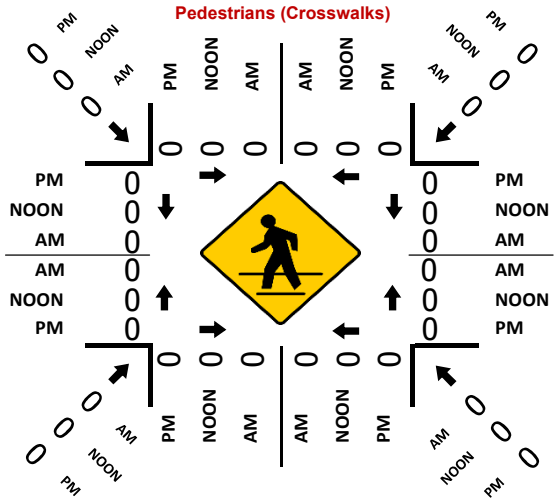
Totals (NOON)



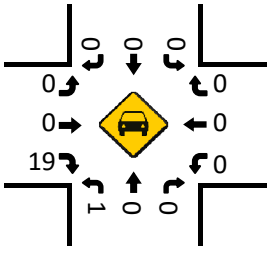
Totals (PM)



Pedestrians (Crosswalks)



Totals (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Harper Lake Rd & Lockhart Ranch Rd
City: Hinkley
Control: 1-Way Stop(WB)

Project ID: 23-060029-002
Date: 6/8/2023

Data - Totals

NS/EW Streets:	Harper Lake Rd				Harper Lake Rd				Lockhart Ranch Rd				Lockhart Ranch 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	3	1	0	1	0	0	0	0	0	0	0	0	0	1	0	6
7:15 AM	0	3	1	0	1	1	0	0	0	0	0	0	0	0	2	0	8
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3
8:45 AM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	4	0	5	3	0	0	0	0	0	0	0	0	6	0	33
APPROACH %'s :	0.00%	78.95%	21.05%	0.00%	62.50%	37.50%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	9	2	0	3	2	0	0	0	0	0	0	0	0	4	0	20
PEAK HR FACTOR :	0.000	0.750	0.500	0.000	0.750	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.625
		0.688				0.625								0.500			

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	0	0	0	0	11	0	0	0	0	0	0	1	0	2	0	14
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	4
4:30 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	1	0	8
4:45 PM	0	5	0	0	1	3	0	0	0	0	0	0	0	0	0	0	9
5:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	4
5:15 PM	0	1	1	0	1	7	0	0	0	0	0	0	1	0	1	0	12
5:30 PM	0	1	0	0	2	6	0	0	0	0	0	0	0	0	0	0	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	1	0	5	35	0	0	0	0	0	0	6	0	5	0	61
APPROACH %'s :	0.00%	90.00%	10.00%	0.00%	12.50%	87.50%	0.00%	0.00%					54.55%	0.00%	45.45%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	5	0	0	2	22	0	0	0	0	0	0	3	0	3	0	35
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.375	0.000	0.625
		0.250				0.545								0.500			

Prepared by National Data & Surveying Services

Harper Lake Rd & Lockhart Ranch Rd

Peak Hour Turning Movement Count

ID: 23-060029-002
City: Hinkley

Day: Thursday
Date: 6/8/2023

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

CONTROL: 1-Way Stop(WB)

	AM	NOON	PM
TEV	20	0	35
PHF	0.63		0.63

SOUTHBOUND (Harper Lake Rd)

	Left	Thru	Right	U-Turn	
AM	0	2	3	0	13
NOON	0	0	0	0	0
PM	0	22	2	0	8

EASTBOUND (Lockhart Ranch Rd)

	Left	Thru	Right	U-Turn
AM	0	0	0	0
NOON	0	0	0	0
PM	0	0	0	1
	0	0	0	0

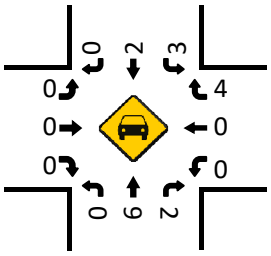
WESTBOUND (Lockhart Ranch Rd)

	Left	Thru	Right	U-Turn
PM	3	0	4	0
NOON	0	0	0	1
AM	3	0	0	0
	0	0	0	0
	2	0	5	

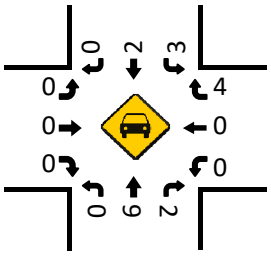
NORTHBOUND (Harper Lake Rd)

	Left	Thru	Right	U-Turn	
PM	25	0	0	5	0
NOON	0	0	0	0	0
AM	2	0	0	9	2

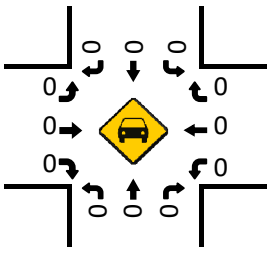
Totals (AM)



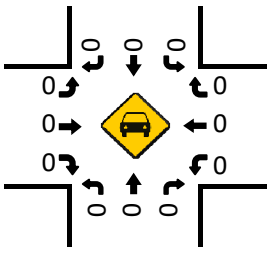
Totals (AM)



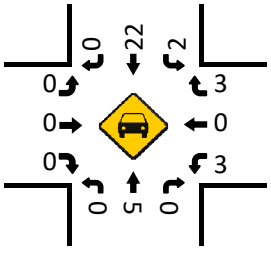
Totals (NOON)



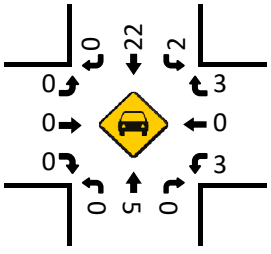
Totals (NOON)



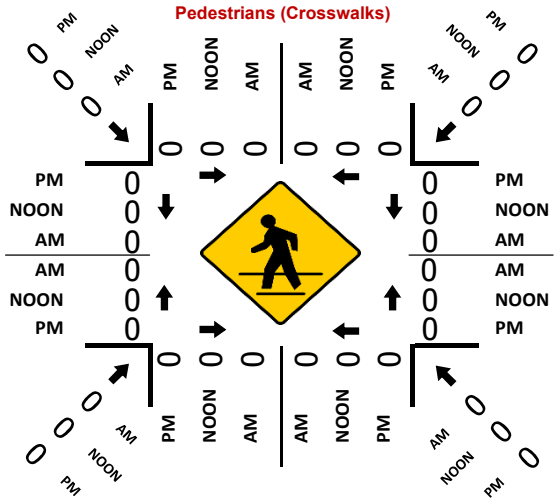
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services Intersection Turning Movement Count

Location: Helendale Rd/Harper Lake Rd & Mojave-Barstow Hwy
City: Hinkley
Control: 2-Way Stop(NB/SB)

Project ID: 23-060029-003
Date: 6/8/2023

Data - Totals

NS/EW Streets:	Helendale Rd/Harper Lake Rd				Helendale Rd/Harper Lake Rd				Mojave-Barstow Hwy				Mojave-Barstow Hwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	1	0	0	0	59	0	0	0	52	5	0	119
7:15 AM	0	2	0	0	1	1	0	0	1	51	0	0	0	70	2	0	128
7:30 AM	0	0	2	0	0	0	0	0	0	62	0	0	0	73	2	0	139
7:45 AM	0	2	2	0	0	2	0	0	0	74	0	0	0	65	0	0	145
8:00 AM	0	0	2	0	0	0	1	0	1	71	0	0	1	77	3	0	156
8:15 AM	0	1	4	0	0	1	0	0	1	66	0	0	0	82	1	0	156
8:30 AM	0	2	1	0	0	0	0	0	0	72	1	0	0	64	2	0	142
8:45 AM	0	0	0	0	0	0	0	0	0	60	0	0	0	85	2	0	147
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	8	11	0	1	5	1	0	3	515	1	0	1	568	17	0	1132
APPROACH %'s :	5.00%	40.00%	55.00%	0.00%	14.29%	71.43%	14.29%	0.00%	0.58%	99.23%	0.19%	0.00%	0.17%	96.93%	2.90%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	3	7	0	0	1	1	0	2	269	1	0	1	308	8	0	601
PEAK HR FACTOR :	0.000	0.375	0.438	0.000	0.000	0.250	0.250	0.000	0.500	0.934	0.250	0.000	0.250	0.906	0.667	0.000	0.963
		0.500				0.500				0.932				0.911			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	10	1	1	0	0	151	0	0	1	106	0	0	270
4:15 PM	1	0	0	0	1	0	0	0	0	162	0	0	0	113	0	0	277
4:30 PM	0	1	0	0	7	0	0	0	0	151	0	0	0	118	1	0	278
4:45 PM	0	1	0	0	1	1	1	0	0	135	0	0	0	92	3	0	234
5:00 PM	0	0	1	0	2	0	1	0	0	151	0	0	0	106	2	0	263
5:15 PM	0	0	0	0	4	0	1	0	1	153	0	0	0	100	2	0	261
5:30 PM	0	0	1	0	7	0	1	0	0	131	1	0	1	113	0	0	255
5:45 PM	0	0	0	0	1	0	0	0	0	139	1	0	1	101	2	0	245
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	2	0	33	2	5	0	1	1173	2	0	3	849	10	0	2083
APPROACH %'s :	20.00%	40.00%	40.00%	0.00%	82.50%	5.00%	12.50%	0.00%	0.09%	99.74%	0.17%	0.00%	0.35%	98.49%	1.16%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	2	0	0	19	2	2	0	0	599	0	0	1	429	4	0	1059
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.475	0.500	0.500	0.000	0.000	0.924	0.000	0.000	0.250	0.909	0.333	0.000	0.952
		0.750				0.479				0.924				0.912			

Prepared by National Data & Surveying Services

Helendale Rd/Harper Lake Rd & Mojave-Barstow Hwy

Peak Hour Turning Movement Count

ID: 23-060029-003
City: Hinkley

Day: Thursday
Date: 6/8/2023

PEAK HOURS
AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS
AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

CONTROL: 2-Way Stop(NB/SB)

	AM	NOON	PM
TEV	601	0	1059
PHF	0.96		0.95

SOUTHBOUND (Helendale Rd/Harper Lake Rd)

	Left	Thru	Right	U-Turn	Total
AM	1	1	0	0	13
NOON	0	0	0	0	0
PM	2	2	19	0	6

EASTBOUND (Mojave-Barstow Hwy)

	Left	Thru	Right	U-Turn
AM	309	0	432	
NOON	0	0	0	0
PM	2	0	0	1
AM	269	0	599	2
NOON	1	0	0	0

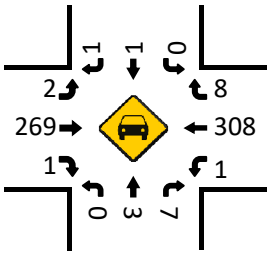
WESTBOUND (Mojave-Barstow Hwy)

	Left	Thru	Right	U-Turn
PM	4	0	8	0
NOON	429	0	308	2
AM	1	0	1	1
PM	0	0	0	0
NOON	618	0	276	

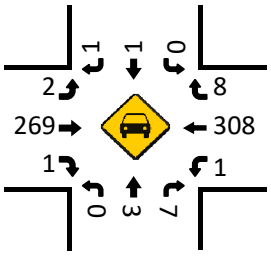
NORTHBOUND (Helendale Rd/Harper Lake Rd)

	Left	Thru	Right	U-Turn	Total
PM	3	0	1	2	0
NOON	0	0	0	0	0
AM	3	0	0	3	7

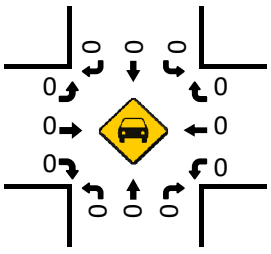
Totals (AM)



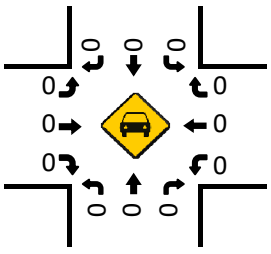
Totals (AM)



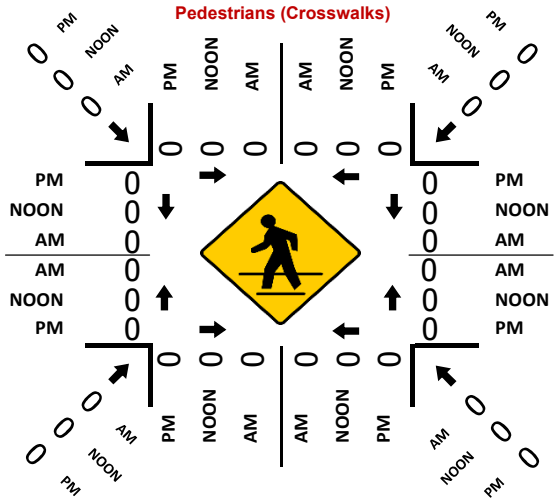
Totals (NOON)



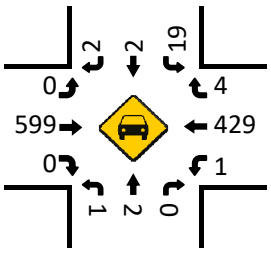
Totals (NOON)



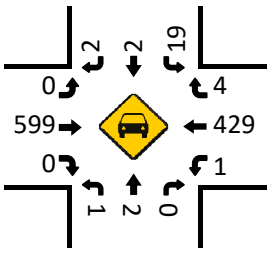
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



APPENDIX B

EXISTING PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	7	0	0	0
Future Vol, veh/h	0	1	7	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	25	88	88	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	8	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	37	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	973	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	949	1034	1587	-	-	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.005	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	0	0	4	0	9	2	3	2	0
Future Vol, veh/h	0	0	0	0	0	4	0	9	2	3	2	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	69	69	69	62	62	62
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	8	0	13	3	5	3	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	52	49	23	48	48	35	13	0	0	26	0	0
Stage 1	23	23	-	25	25	-	-	-	-	-	-	-
Stage 2	29	26	-	23	23	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	944	841	1051	950	842	1035	1599	-	-	1582	-	-
Stage 1	993	874	-	990	872	-	-	-	-	-	-	-
Stage 2	985	872	-	993	874	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	917	822	1031	930	823	1015	1584	-	-	1567	-	-
Mov Cap-2 Maneuver	917	822	-	930	823	-	-	-	-	-	-	-
Stage 1	983	863	-	980	863	-	-	-	-	-	-	-
Stage 2	968	863	-	981	863	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.6	0	4.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1584	-	-	-	1015	1567	-	-
HCM Lane V/C Ratio	-	-	-	-	0.008	0.003	-	-
HCM Control Delay (s)	0	-	-	0	8.6	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	269	1	1	308	8	0	3	7	0	1	1
Future Vol, veh/h	2	269	1	1	308	8	0	3	7	0	1	1
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	91	91	91	50	50	50	50	50	50
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	289	1	1	338	9	0	6	14	0	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	357	0	0	300	0	0	486	663	165	517	659	194
Stage 1	-	-	-	-	-	-	304	304	-	355	355	-
Stage 2	-	-	-	-	-	-	182	359	-	162	304	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1191	-	-	1251	-	-	462	378	847	439	380	812
Stage 1	-	-	-	-	-	-	678	659	-	632	626	-
Stage 2	-	-	-	-	-	-	799	623	-	821	659	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1180	-	-	1239	-	-	450	369	831	419	371	797
Mov Cap-2 Maneuver	-	-	-	-	-	-	593	516	-	561	518	-
Stage 1	-	-	-	-	-	-	671	651	-	625	619	-
Stage 2	-	-	-	-	-	-	786	616	-	791	651	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	10.3	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	702	1180	-	-	1239	-	-	628
HCM Lane V/C Ratio	0.028	0.002	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.3	8.1	-	-	7.9	-	-	10.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	1	0	0	0
Future Vol, veh/h	0	19	1	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	53	53	25	25	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	36	4	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	29	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	18	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	983	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	960	1034	1587	-	-	-
Mov Cap-2 Maneuver	960	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.003	-	0.035	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	3	0	3	0	5	0	2	22	0
Future Vol, veh/h	0	0	0	3	0	3	0	5	0	2	22	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	25	25	25	55	55	55
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	6	0	6	0	20	0	4	40	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	91	88	60	88	88	40	50	0	0	30	0	0
Stage 1	58	58	-	30	30	-	-	-	-	-	-	-
Stage 2	33	30	-	58	58	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	891	800	1003	895	800	1028	1550	-	-	1576	-	-
Stage 1	951	845	-	984	868	-	-	-	-	-	-	-
Stage 2	981	868	-	951	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	867	782	984	876	782	1009	1535	-	-	1561	-	-
Mov Cap-2 Maneuver	867	782	-	876	782	-	-	-	-	-	-	-
Stage 1	941	834	-	974	859	-	-	-	-	-	-	-
Stage 2	966	859	-	939	834	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.9	0	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	-	938	1561	-	-
HCM Lane V/C Ratio	-	-	-	-	0.013	0.002	-	-
HCM Control Delay (s)	0	-	-	0	8.9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	599	0	1	429	4	1	2	0	19	2	2
Future Vol, veh/h	0	599	0	1	429	4	1	2	0	19	2	2
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	91	91	91	75	75	75	48	48	48
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	651	0	1	471	4	1	3	0	40	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	661	0	0	911	1148	346	822	1146	258
Stage 1	-	-	-	-	-	-	661	661	-	485	485	-
Stage 2	-	-	-	-	-	-	250	487	-	337	661	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1067	-	-	917	-	-	228	196	647	264	196	738
Stage 1	-	-	-	-	-	-	416	455	-	530	547	-
Stage 2	-	-	-	-	-	-	729	546	-	648	455	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1057	-	-	908	-	-	220	192	635	257	192	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	368	-	441	368	-
Stage 1	-	-	-	-	-	-	412	450	-	525	541	-
Stage 2	-	-	-	-	-	-	712	540	-	638	450	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.8	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	370	1057	-	-	908	-	-	449
HCM Lane V/C Ratio	0.011	-	-	-	0.001	-	-	0.107
HCM Control Delay (s)	14.8	0	-	-	9	-	-	14
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4

APPENDIX C

NEAR-TERM PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	7	0	0	0
Future Vol, veh/h	0	1	7	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	25	88	88	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	8	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	37	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	973	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	949	1034	1587	-	-	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.005	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	0	0	4	0	9	2	3	2	0
Future Vol, veh/h	0	0	0	0	0	4	0	9	2	3	2	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	69	69	69	62	62	62
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	0	0	8	0	13	3	5	3	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	52	49	23	48	48	35	13	0	0	26	0	0
Stage 1	23	23	-	25	25	-	-	-	-	-	-	-
Stage 2	29	26	-	23	23	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	944	841	1051	950	842	1035	1599	-	-	1582	-	-
Stage 1	993	874	-	990	872	-	-	-	-	-	-	-
Stage 2	985	872	-	993	874	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	917	822	1031	930	823	1015	1584	-	-	1567	-	-
Mov Cap-2 Maneuver	917	822	-	930	823	-	-	-	-	-	-	-
Stage 1	983	863	-	980	863	-	-	-	-	-	-	-
Stage 2	968	863	-	981	863	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.6	0	4.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1584	-	-	-	1015	1567	-	-
HCM Lane V/C Ratio	-	-	-	-	0.008	0.003	-	-
HCM Control Delay (s)	0	-	-	0	8.6	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	277	1	1	317	8	0	3	7	0	1	1
Future Vol, veh/h	2	277	1	1	317	8	0	3	7	0	1	1
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	91	91	91	50	50	50	50	50	50
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	298	1	1	348	9	0	6	14	0	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	309	0	0	500	682	170	531	678	199
Stage 1	-	-	-	-	-	-	313	313	-	365	365	-
Stage 2	-	-	-	-	-	-	187	369	-	166	313	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1181	-	-	1241	-	-	451	369	841	429	371	806
Stage 1	-	-	-	-	-	-	670	653	-	624	619	-
Stage 2	-	-	-	-	-	-	794	617	-	817	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1170	-	-	1229	-	-	439	361	825	409	362	791
Mov Cap-2 Maneuver	-	-	-	-	-	-	585	510	-	553	511	-
Stage 1	-	-	-	-	-	-	663	645	-	617	612	-
Stage 2	-	-	-	-	-	-	781	610	-	787	645	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	10.3	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	696	1170	-	-	1229	-	-	621
HCM Lane V/C Ratio	0.029	0.002	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.3	8.1	-	-	7.9	-	-	10.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	1	0	0	0
Future Vol, veh/h	0	20	1	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	53	53	25	25	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	38	4	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	29	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	18	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	983	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	960	1034	1587	-	-	-
Mov Cap-2 Maneuver	960	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.003	-	0.036	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	3	0	3	0	5	0	2	23	0
Future Vol, veh/h	0	0	0	3	0	3	0	5	0	2	23	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	25	25	25	55	55	55
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	6	0	6	0	20	0	4	42	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	93	90	62	90	90	40	52	0	0	30	0	0
Stage 1	60	60	-	30	30	-	-	-	-	-	-	-
Stage 2	33	30	-	60	60	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	888	798	1000	892	798	1028	1548	-	-	1576	-	-
Stage 1	949	843	-	984	868	-	-	-	-	-	-	-
Stage 2	981	868	-	949	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	864	780	981	873	780	1009	1533	-	-	1561	-	-
Mov Cap-2 Maneuver	864	780	-	873	780	-	-	-	-	-	-	-
Stage 1	940	832	-	974	859	-	-	-	-	-	-	-
Stage 2	966	859	-	937	832	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.9	0	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	-	936	1561	-	-
HCM Lane V/C Ratio	-	-	-	-	0.013	0.002	-	-
HCM Control Delay (s)	0	-	-	0	8.9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	617	0	1	442	4	1	2	0	20	2	2
Future Vol, veh/h	0	617	0	1	442	4	1	2	0	20	2	2
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	91	91	91	75	75	75	48	48	48
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	671	0	1	486	4	1	3	0	42	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	500	0	0	681	0	0	938	1183	356	847	1181	265
Stage 1	-	-	-	-	-	-	681	681	-	500	500	-
Stage 2	-	-	-	-	-	-	257	502	-	347	681	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1053	-	-	901	-	-	218	187	638	254	187	730
Stage 1	-	-	-	-	-	-	404	446	-	519	539	-
Stage 2	-	-	-	-	-	-	722	538	-	639	446	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1043	-	-	892	-	-	211	183	626	248	183	716
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	360	-	431	360	-
Stage 1	-	-	-	-	-	-	400	442	-	514	533	-
Stage 2	-	-	-	-	-	-	705	532	-	629	442	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	15.1	14.3
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	361	1043	-	-	892	-	-	438
HCM Lane V/C Ratio	0.011	-	-	-	0.001	-	-	0.114
HCM Control Delay (s)	15.1	0	-	-	9	-	-	14.3
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4

APPENDIX D

NEAR-TERM DURING CONSTRUCTION PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	15	0	0	0
Future Vol, veh/h	0	2	15	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	25	88	88	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	8	17	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	55	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	44	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	950	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	1034	1587	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.011	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	12	0	0	4	150	17	2	3	3	0
Future Vol, veh/h	0	0	12	0	0	4	150	17	2	3	3	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	69	69	69	62	62	62
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	13	0	0	8	217	25	3	5	5	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	500	497	25	503	496	47	15	0	0	38	0	0
Stage 1	25	25	-	471	471	-	-	-	-	-	-	-
Stage 2	475	472	-	32	25	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	480	473	1048	477	474	1019	1596	-	-	1566	-	-
Stage 1	990	872	-	571	558	-	-	-	-	-	-	-
Stage 2	569	557	-	982	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	417	398	1028	412	399	1000	1581	-	-	1551	-	-
Mov Cap-2 Maneuver	417	398	-	412	399	-	-	-	-	-	-	-
Stage 1	844	861	-	487	475	-	-	-	-	-	-	-
Stage 2	481	475	-	957	861	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.6	6.8	3.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1581	-	-	1028	1000	1551	-	-
HCM Lane V/C Ratio	0.138	-	-	0.013	0.008	0.003	-	-
HCM Control Delay (s)	7.6	0	-	8.5	8.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	274	1	1	314	87	0	3	7	7	1	7
Future Vol, veh/h	81	274	1	1	314	87	0	3	7	7	1	7
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	91	91	91	50	50	50	50	50	50
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	87	295	1	1	345	96	0	6	14	14	2	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	451	0	0	306	0	0	666	933	168	740	885	241
Stage 1	-	-	-	-	-	-	480	480	-	405	405	-
Stage 2	-	-	-	-	-	-	186	453	-	335	480	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1099	-	-	1244	-	-	343	263	844	303	281	757
Stage 1	-	-	-	-	-	-	533	550	-	591	594	-
Stage 2	-	-	-	-	-	-	795	566	-	650	550	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1089	-	-	1232	-	-	309	237	828	271	253	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	439	382	-	437	418	-
Stage 1	-	-	-	-	-	-	486	501	-	538	587	-
Stage 2	-	-	-	-	-	-	769	560	-	575	501	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0	11.1	12.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	613	1089	-	-	1232	-	-	539
HCM Lane V/C Ratio	0.033	0.08	-	-	0.001	-	-	0.056
HCM Control Delay (s)	11.1	8.6	-	-	7.9	-	-	12.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	2	0	0	0
Future Vol, veh/h	0	27	2	0	0	0
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	53	53	25	25	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	51	8	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	37	21	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	973	1054	1602	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	949	1034	1587	-	-	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1034	-	-
HCM Lane V/C Ratio	0.005	-	0.049	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	150	3	0	3	12	6	0	2	30	0
Future Vol, veh/h	0	0	150	3	0	3	12	6	0	2	30	0
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	25	25	25	55	55	55
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	163	6	0	6	48	24	0	4	55	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	206	203	75	285	203	44	65	0	0	34	0	0
Stage 1	73	73	-	130	130	-	-	-	-	-	-	-
Stage 2	133	130	-	155	73	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	750	691	984	665	691	1023	1531	-	-	1571	-	-
Stage 1	934	832	-	871	787	-	-	-	-	-	-	-
Stage 2	868	787	-	845	832	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	712	654	965	528	654	1004	1516	-	-	1556	-	-
Mov Cap-2 Maneuver	712	654	-	528	654	-	-	-	-	-	-	-
Stage 1	896	821	-	835	754	-	-	-	-	-	-	-
Stage 2	827	754	-	693	821	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.3	5	0.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1516	-	-	965	692	1556	-	-
HCM Lane V/C Ratio	0.032	-	-	0.169	0.017	0.002	-	-
HCM Control Delay (s)	7.5	0	-	9.5	10.3	7.3	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	0	-	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	611	0	1	438	11	1	2	0	98	2	81
Future Vol, veh/h	6	611	0	1	438	11	1	2	0	98	2	81
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	590	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	91	91	91	75	75	75	48	48	48
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	664	0	1	481	12	1	3	0	204	4	169

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	503	0	0	674	0	0	943	1193	352	857	1187	267
Stage 1	-	-	-	-	-	-	688	688	-	499	499	-
Stage 2	-	-	-	-	-	-	255	505	-	358	688	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1051	-	-	906	-	-	216	184	641	249	186	728
Stage 1	-	-	-	-	-	-	400	443	-	519	539	-
Stage 2	-	-	-	-	-	-	724	536	-	630	443	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	897	-	-	159	179	629	242	181	714
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	354	-	426	356	-
Stage 1	-	-	-	-	-	-	394	435	-	511	533	-
Stage 2	-	-	-	-	-	-	543	530	-	616	435	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	15.5	28.4
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	346	1041	-	-	897	-	-	518
HCM Lane V/C Ratio	0.012	0.006	-	-	0.001	-	-	0.728
HCM Control Delay (s)	15.5	8.5	-	-	9	-	-	28.4
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	6