FINAL Traffic Assessment

July 7, 2023

To:	Rincon Consultants, Inc.	**Project:**	Sienna Solar and Storage Traffic Assessment
Attn:	David Daitch, Ph.D., Principal, RC Inc.		
From:	Peter Galloway; Senior Transportation Planner, Kiera Bryant, EIT	**Ref/Job No.:**	12617192 (12557185 archive)
CC:	Andrea Maben, Senior Environmental Project Manager, RC Inc.; Frank Penry, PE, PE, GHD	**File No.:**	12617192-Sienna Solar and Storage Traffic Assessment.docx
RE:	**FINAL Traffic Assessment**		

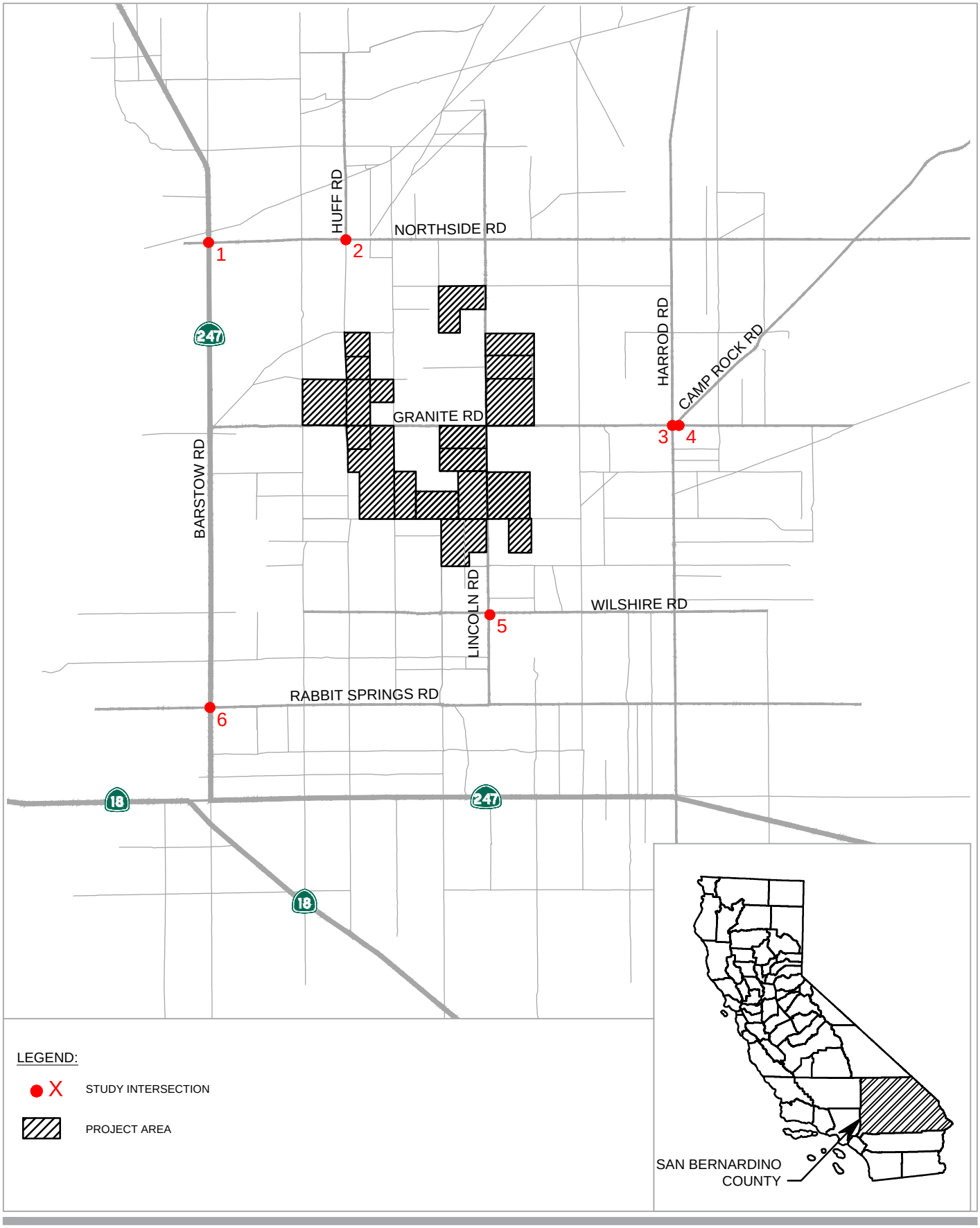
1. Introduction

The purpose of this Traffic Assessment is to present analysis for transportation impacts potentially related to construction and operation of the Sienna Solar Farm (Project) in San Bernardino County, California (reference Figure 1, Project Location Map). The proposed Sienna Solar Project is a 525-megawatt (MW) utility-scale solar farm with 525 MW battery storage located in unincorporated San Bernardino County. The site is located east of Barstow Road/State Route (SR) 247 roughly between Northside Road and Wilshire Road, northeast of the community of Lucerne Valley.

The project consists of the installation of a photovoltaic (PV) solar facility, Battery Energy Storage System (BESS), project substation, Operations and Maintenance building(s), underground collection system, a 230 kV generation-interconnect (gen-tie) line. The Sienna Project will interconnect at the SCE Calcite Substation (currently pending environmental clearance and construction) via a proposed overhead and/or underground 230-kV gen-tie line in addition to other ancillary features utilizing private and potentially public ROWs. The Project area encompasses 1,854 acres with an additional 77-acre substation site. Approximately 39 miles of collector lines and gen-tie alternatives will be analyzed in Traffic Assessment, although not all routes will be developed.

The information in this Traffic Assessment has been prepared using information provided by the Project proponent and reference to past studies for similar solar facilities. Primary users of the transportation system will be during the construction phase (roughly 12-24 months) and on-site personnel (operations and routine maintenance). Personnel is considered under two categories: 1) construction workers and 2) an estimated fifteen (15) employees charged with operations and maintenance when the facility is expected to be operating.

GHD
30 River Park Place West Suite 220 Fresno California United States
T +1 559 326 5900 **F** +1 559 412 2820 **W** www.ghd.com



N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

STUDY AREA MAP

Project No. **12557185**
Report No. **001**
Date **1/31/2023**

FIGURE 1

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 31 January 2023 - 4:26 PM

Source:

2. Existing Conditions

2.1 Existing Roadway System

Encompassing 20,105 square miles, San Bernardino County is California's largest county in land area. It is located in southern California and is bounded by Inyo County to the north; Orange and Riverside Counties to the south; Los Angeles and Kern Counties to the west; and Clark County (Nevada) and Mohave County (Arizona) to the east. San Bernardino County includes a diverse geography of mountainous areas, distinct valleys, agricultural/mineral lands, sparse and high-density urban areas, and desert areas.

Roadways that provide primary circulation in the vicinity of the Project area include Barstow Road (State Route 247), State Route 18, Rabbit Springs Road, and Camp Rock Road.

State Route 247 (Barstow Road) serves as a north-south route in San Bernardino County. This 2-4 lane highway passes through the Mojave Desert, connecting State Route 62 in Yucca Valley to Interstate 15 (I-15) in Barstow. Near I-15, State Route 247 is a 4-lane facility with the remaining 2-lane route extending through the Project study area and beyond. State Route 247 is eligible for the State Scenic Highway System but is not officially designated as a scenic highway by Caltrans.

According to *2019 Traffic Volumes on the California State Highways*, State Route 247 annual average daily traffic (AADT) ranges between 2,300 and 2,900. Higher volumes are found near Barstow; however, this area is outside of the study area.

State Route 18 is an east-west state highway primarily located in western San Bernardino County. This highway serves as a primary route into the San Bernardino Mountains, both from the Riverside-San Bernardino metropolitan area from the south and the Mojave Desert from the north.

State Route 18 extends between State Route 210 in San Bernardino and State Route 138 in Llano (Los Angeles County). Near the study area, AADT is estimated to be 9,000 (*2019 Traffic Volumes on the California State Highways*). State Route 18 is generally a two-lane undivided highway with limited and/or no shoulders.

Rabbit Springs Road is an east-west oriented facility that provides access to several properties, including educational, industrial, and agricultural. Currently, Rabbit Springs Road extends from State Route 18 and Kendall Road in the west connecting to Camp Rock Road south and east of the study area. Rabbit Springs Road is an undivided, two-lane road with limited and/or no shoulders. Lucerne Valley Middle/High School, with an enrollment of over 400 students, is located on Rabbit Springs Road just east of State Route 247 (Barstow Avenue).

Camp Rock Road is a two-lane undivided north-south local street. This roadway extends from State Route 18 northward to Northside Road. North of Northside Road, Camp Rock Road continues as a dirt road where it terminates as State Route 40 in Daggett, which is just east of Barstow. Camp Rock Road bisects the proposed solar farm facility and will provide access to the site.

2.1.1 Existing Traffic Data

Peak period (7:00-9:00 a.m. & 4:00-6:00 p.m.) intersection turning movement counts encompassing the proposed site were conducted on Tuesday, July 20, 2021, under favorable weather and traffic operating conditions. The following intersections are analyzed for peak hour operating conditions as follows:

Intersections:

- Northside Road/Barstow Road (State Route 247)
- Northside Road/Huff Road
- Granite Road/Harrod Road
- Granite Road/Camp Rock Road
- Wilshire Road/Lincoln Road
- Rabbit Springs Road/Barstow Road (State Route 247)

In addition to intersection analyses, average daily traffic (ADT) volumes were collected on the following roadway segments:

Roadway Segments:

- Barstow Road n/o Rabbit Springs Road
- Northside Road e/o Barstow Road
- Rabbit Springs Road e/o Barstow Road
- State Route 247: Camp Rock Road to State Route 18
- State Route 247: State Route 18 to Rabbit Springs Road
- State Route 247: Rabbit Springs Road to Lucerne Valley Cutoff Road
- State Route 18: Lucerne Valley, Jct. State Route 247

Existing AM and PM peak hour intersection volumes and roadway segment ADT are shown in Figure 3.

3. Level of Service Methodology and Guidelines

Intersection level of services (LOS) have been calculated for all control types using the methods documented in the Transportation Research Board Publication *Highway Capacity Manual 2016 (HCM 6)* and *Highway Capacity Manual 2000 (HCM 2000).* Traffic operations have been quantified through the determination of "Level of Service" (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection of roadway segment representing progressively worsening traffic conditions.

The following section outlines the methodology and analysis parameters used to quantify existing conditions.

3.1 Intersection Capacity

For All-Way-Stop-Control (AWSC) intersections, overall intersection delay and LOS represent the average delay for all intersection approaches. For Two-Way Stop-Control (TWSC) intersections, LOS is based upon worst approach delay for the stop-sign controlled movement(s). Table 3.1 presents the delay-based LOS criteria for different types of intersection control.

Table 3.1 – Level of Service (LOS) Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle		
				Signalized	Un-signalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	<10.0	<10.0	<10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and <20.0	>10.0 and <15.0	>10.0 and <15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and <35.0	>15.0 and <25.0	>15.0 and <25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and <55.0	>25.0 and <35.0	>25.0 and <35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and <80.0	>35.0 and <50.0	>35.0 and <50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0	>50.0

Reference: Highway Capacity Manual 6th Edition

3.2 Agency LOS Guidelines

3.2.1 San Bernadino County LOS Guidelines[1]

San Bernadino County Level of Service Assessment for General Plan Consistency: *Consistent with the acceptable LOS for the Desert, Valley, and Mountain regions as described in the General Plan, the County should consider the following unsignalized intersection criteria when identifying operational deficiencies:*

Intersections:

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 D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the Desert region.

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 E or F in the Valley and Mountain regions or at an LOS D, E, or F in the Desert region (per Section 10.5.2 b))

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 (per Section 10.5.2 c)).

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

• In the Valley and Mountain regions, improvements should be identified that would achieve LOS D or better for case a) above or to pre-project LOS and delay for case b) above.

• In the Desert region, 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.

Roadway Segments:

Consistent with the acceptable LOS for the Desert, Valley, and Mountain regions as described in the current General Plan, the County should consider the following roadway segment thresholds and improvement requirements:

[1] San Bernadino County, Transportation Impact Study Guidelines, July 9, 2019.

- Any study roadway segment in the Valley or Mountain regions that is operating at an LOS D or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS E or F should identify improvements to achieve LOS D.

    - Any study roadway segment in the Desert region that is operating at an LOS C or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS D, E, or F should identify improvements to achieve LOS D.

    - Any roadway segment that operates unacceptably in the no project scenario where the project adds traffic in excess of 5% of the roadway capacity (e.g., a volume-to-capacity ratio increase of 0.05) should identify improvements to add capacity to the segment.

For this analysis, LOS "C" is the minimum standard that will be used for all County intersection control types in this report. Based on the County's Land Use Map (*Policy Map LU-1C North Desert Region, Victor Valley & Barstow*), the proposed project area would be located in the North Desert. LOS "C" will be also used for state facilities.

3.3 Intersection Operation Analysis Software

Synchro 10 software suite was used to analyze the LOS analysis for unsignalized intersections analyzed within this study. This software is based upon the latest assumptions provided in the *Highway Capacity Manual* (HCM), 6th Edition.

3.4 Technical Analysis Parameters

This assessment provides evaluation of traffic operating conditions by incorporating appropriate heavy vehicle adjustment factors, peak hour factors (PHF), and reports the resulting intersection delays and LOS as estimated using *Synchro 10*. The following section describes all technical parameters incorporated into intersection analysis. Table 3.2 presents technical parameters that were applied to study intersections during the analysis.

Table 3.2 – Intersection LOS: Technical Analysis Parameters

Technical Parameters	Assumption
% Trucks	Intersection approach, based on existing counts, min. 2%
PHF for Existing	Intersection approach, based on existing counts
PHF for Future Conditions Scenarios	Intersection overall, 0.92 or higher
Grade	2% or less at all intersections
Passenger Car Equivalent (PCE)	2.0 passenger cars per heavy duty vehicle

Additionally, in terms of factors that affect how a road or intersection operates, PHFs are a significant measure of how concentrated traffic is during the busiest portion of the peak hour. A PHF at a given intersection is the sum of the traffic entering the intersection over the busiest 60 minutes divided by four times the entering volume of the busiest 15-minutes within the hour. A PHF of 1.0 means traffic levels are

evenly spread out over the whole hour, where a lower number means traffic spikes for a short period (e.g., school site drop-offs/pick-ups).

3.5 Roadway Capacity

Roadway segment LOS were estimated using *Highway Capacity Manual* (HCM 6th Edition) methodologies. For standard roadways, LOS was estimated using ADT-based LOS thresholds, as presented in Table 3.3.

Table 3.3 Daily Roadway Capacity by Facility Type

	Average Daily Traffic (ADT) – Total of Both Directions				
Roadway Type	A	B	C	D	E
Six-Lane Freeway	42,000	64,800	92,400	111,600	120,000
Four-Lane Freeway	28,000	43,200	61,600	74,400	80,000
Six-Lane Divided Expressway	35,500	42,200	46,200	55,800	60,000
Four-Lane Divided Expressway	23,667	28,133	30,800	37,200	40,000
Four-Lane Divided Arterial	22,000	25,000	29,000	32,500	36,000
Four-Lane Arterial (w/LTL)	22,000	25,000	29,000	32,500	36,000
Four-Lane Arterial (No LTL)	18,000	21,000	24,000	27,000	30,000
Two-Lane Divided Arterial	11,000	12,500	14,500	16,000	18,000
Two-Lane Arterial (w/LTL)	11,000	12,500	14,500	16,000	18,000
Two-Lane Arterial (No LTL)	9,000	10,500	12,000	13,500	15,000
Two-Lane Roundabout Arterial	14,300	16,250	18,850	20,800	23,400
Four-Lane Collector	12,000	15,000	18,000	21,000	24,000
Two-Lane Collector	6,000	7,500	9,000	10,500	12,000
Two-Lane Local	1,000	2,000	3,000	4,000	5,000

Notes:
1. *w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.*
2. *No LTL indicates arterials without left turn lanes (LTL) at most major intersections.*
3. *Daily volume to capacity on roadway types does not supplant the need to perform peak-hour HCM-based analysis.*

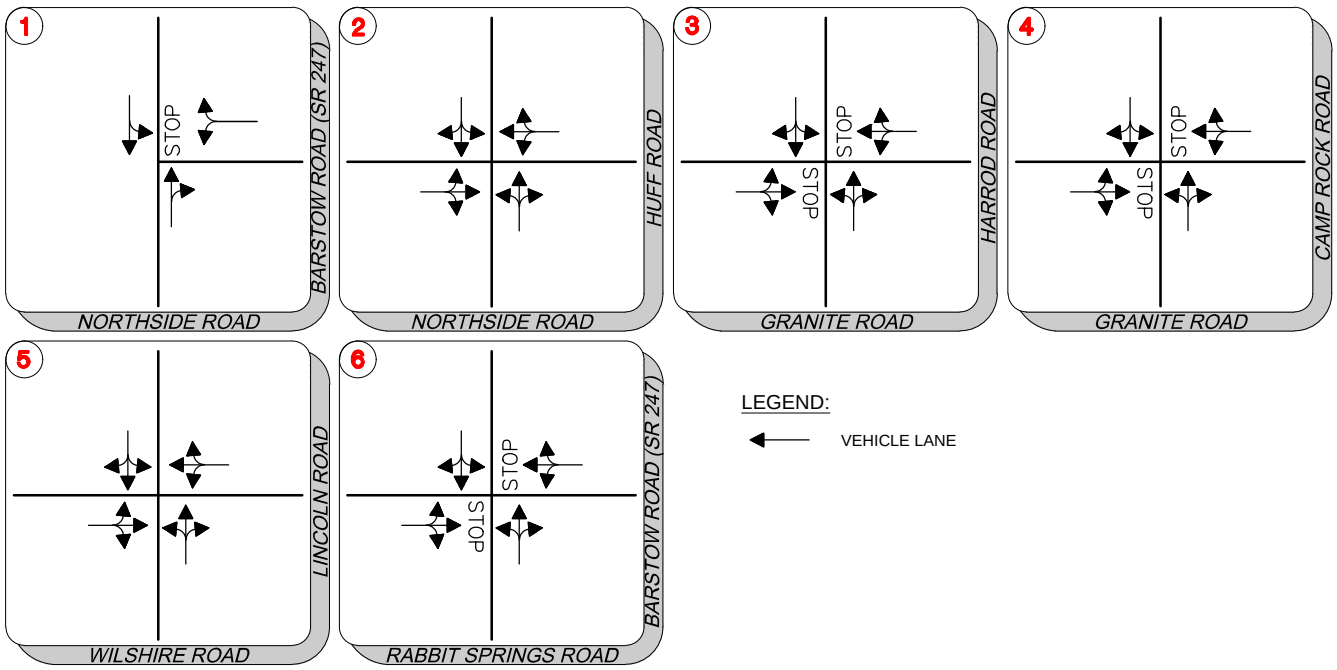
4. Existing Conditions

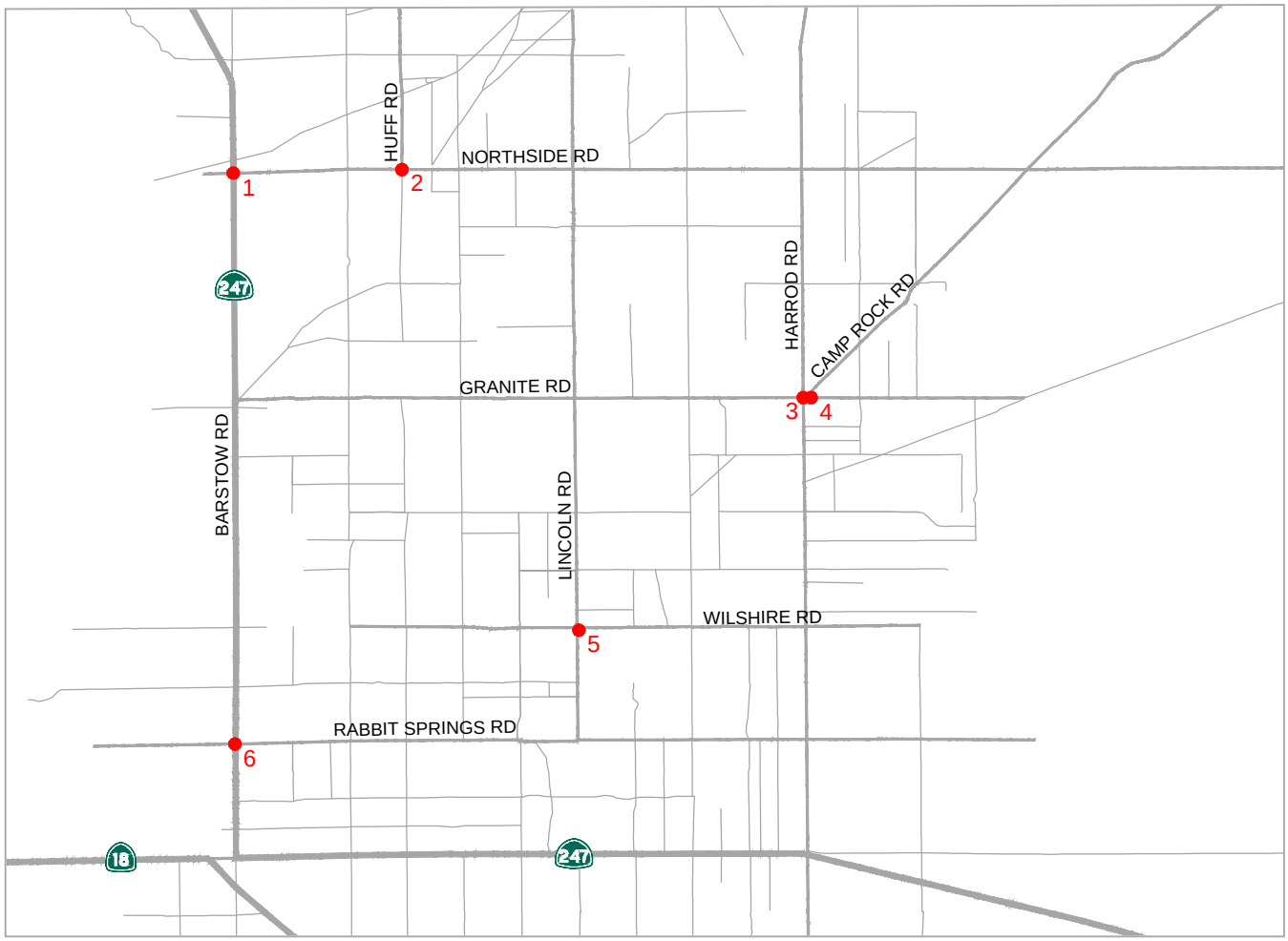
Existing conditions is the analysis scenario in which current operations at study locations are analyzed and establishes the baseline traffic conditions. Traffic counts were conducted while school was not in session; however, local school peak hour volumes from the Lucerne Valley Elementary and Middle Schools (10788 Barstow Road) with 440 students were added to existing volume data to develop Existing Base conditions. *ITE Trip Generation* was utilized to calculate school trips for Daily, AM and PM peak periods as shown in Attachment A.

Existing Lane Geometrics and Control for the Project study intersections is shown in Figure 2. Existing peak hour and daily traffic volumes are shown in Figure 3.

4.1 Existing Intersection Operations

Existing weekday AM and PM peak hour intersection traffic operations were quantified utilizing the existing traffic volumes and intersection lane geometrics and control. Table 4.1 presents intersection operations for the *Existing* conditions.





N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

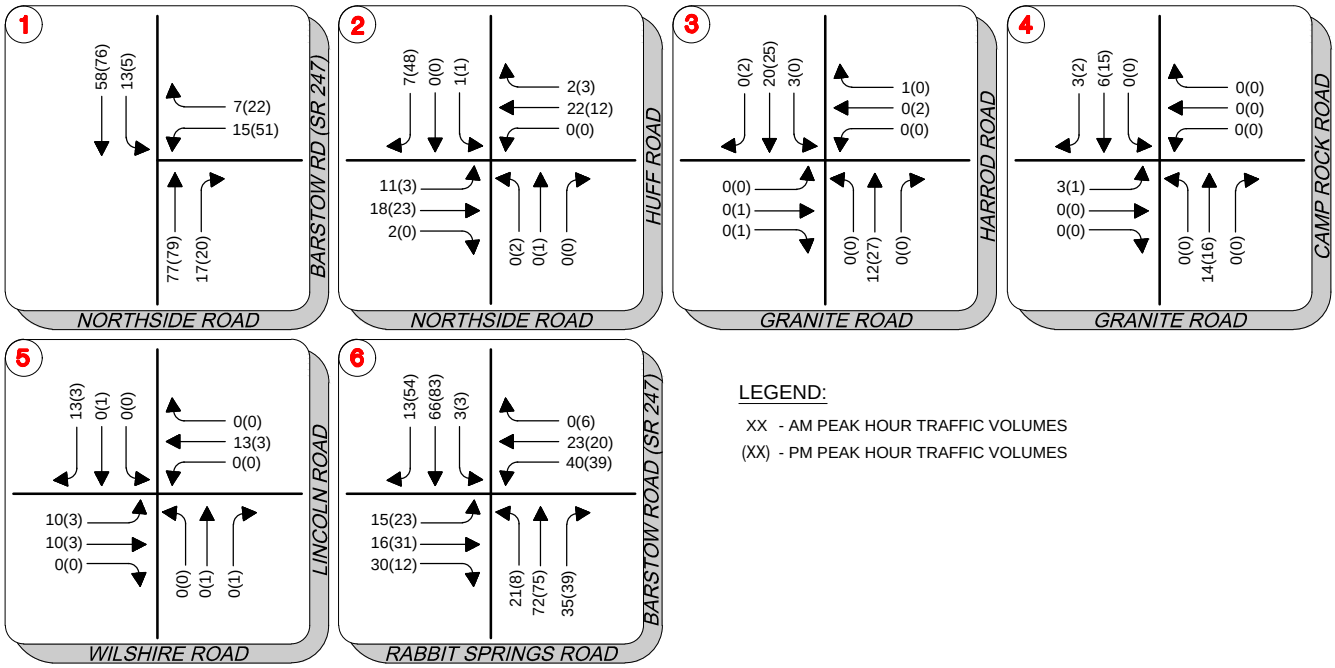
EXISTING LANE GEOMETRICS AND CONTROL

Project No. 12557185
Report No. 001
Date 8/27/2021

FIGURE 2

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 27 August 2021 - 4:02 PM

Source:



N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

EXISTING PEAK HOUR TRAFFIC VOLUMES

Project No. 12557185
Report No. 001
Date 8/27/2021

FIGURE 3

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 27 August 2021 - 4:01 PM

Source:

Table 4.1 – Existing Intersection Operations

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	Northside Road/Barstow Road	TWSC	C	9.7	A	No	10.0	A	No
2	Northside Road/Huff Road	Yield	C	8.8	A	No	5.2	A	No
3	Granite Road/Harrod Road	TWSC	C	8.7	A	No	9.6	A	No
4	Granite Road/Camp Rock Road	TWSC	C	8.9	A	No	9.0	A	No
5	Wilshire Road/Lincoln Road	Yield	C	7.3	A	No	8.0	A	No
6	Rabbit Springs Road/Barstow Road	TWSC	C	11.6	B	No	12.6	B	No

Notes:
1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT
3. Warrant = Based on California MUTCD Warrant 3
*4. **Bold** = Unacceptable Conditions*

As presented in Table 4.1, all study intersections for Existing conditions currently operate at acceptable LOS B conditions or better during the AM and/or PM peak hour conditions.

4.2 Existing Roadway Segment Operations

LOS for the traffic counts were established using the capacities in Table 3.3. Table 4.2 contains a summary of the Existing roadway segment analysis and LOS conditions.

Table 4.2 Existing Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	Barstow Road	n/o Rabbit Springs Rd.	Two-Lane Collector	C	2,920	A
2	Northside Road	e/o Barstow Road	Two-Lane Collector	C	700	A
3	Rabbit Springs Rd.	e/o Barstow Road	Two-Lane Collector	C	1,980	A
4	State Route 247	Camp Rock Rd.-SR 18	Two-Lane Highway	C	2,200	A
	State Route 247	SR 18-Rabbit Springs Rd	Two-Lane Highway	C	2,100	A
	State Route 247	Rabbit Springs Rd.-LVCR	Two-Lane Highway	C	2,350	A
	State Route 18	Lucerne Valley-Jct. SR247	Two-Lane Highway	C	8,500	A

Notes:
1. No LTL arterials without left turn lanes (LTL) at most major intersections (within study area).
2. Daily volume to capacity on roadways does not supplant the need to perform peak-hour HCM-based analysis.

As presented in Table 4.2, all roadway segments are operating at acceptable LOS A conditions under Existing conditions scenario.

5. Approved/Pending Projects

In order to determine if any approved/pending projects in Lucerne Valley, San Bernardino County, fall within a 2-mile radius of the Project, GHD contacted the San Bernardino Land Use Services Department of the Planning Division. Through their website, GHD was able to review two years of all building permits in Supervisor District 3, which includes the Lucerne Valley.

Based upon our review, it was determined that there are no critical approved/pending projects near the study site. Many of the planning applications that were reviewed were lot line adjustments, inclusion of a second home, re-modeling efforts, minor zone changes, etc. There were no high trip generating land use proposals within Lucerne Valley. As such, a short-term cumulative analysis scenario is not required. It should be noted that projects identified in the EIRs and NOPs are included in the long-term cumulative analysis (Year 2040) in a subsequent section of this report.

6. Existing plus Project

6.1 Project Description

As described in the introduction, the proposed Sienna Solar Project is a 525-megawatt (MW) utility-scale solar farm with 525 MW battery storage located in unincorporated San Bernardino County. The site is located east of Barstow Road/State Route (SR) 247 roughly between Northside Road and Wilshire Road, northeast of the community of Lucerne Valley.

The project consists of the installation of a photovoltaic (PV) solar facility, Battery Energy Storage System (BESS), project substation, Operations and Maintenance building(s), underground collection system, a 230 kV generation-interconnect (gen-tie) line. The Sienna Project will interconnect at the SCE Calcite Substation (currently pending environmental clearance and construction) via a proposed overhead and/or underground 230-kV gen-tie line in addition to other ancillary features utilizing private and potentially public ROWs. The Project area encompasses 1,854 acres with an additional 77-acre substation site. Approximately 39 miles of collector lines and gen-tie alternatives will be analyzed in Traffic Assessment, although not all routes will be developed.

6.2 Construction Vehicle and Passenger Car Equivalent (PCE) Trip Generation

As indicated in the Introduction, the proposed Project is a commercial solar-generating facility situated in San Bernardino County as identified in Figure 1. Typically, trip generation rates would be estimated utilizing documentation from the *Institute of Transportation Engineers (ITE)*. However, the proposed land use is not a represented in *ITE Trip Generation (10th Edition)*. Therefore, in order to calculate trip generation for the proposed Project, GHD corresponded with the applicant, or Project proponent, to discuss operations.

Detailed trip generation was estimated for six phases: 1) Site Preparation; 2) Grading and Earthwork; 3) Foundations; 4) Steel Installation; 5) Electrical Installation; and 6) Collector Line Installation. Each phase

describes off-road equipment, construction vehicle types, number of units, phase duration, daily hours, and daily mileage per vehicle. Types of vehicles include passenger (commuters), and truck type (pickup, water, flatbed, gravel, concreted, delivery trucks, etc.).

Because the six phases are staggered and overlap, i.e., they will not occur simultaneously, GHD assumed the worst-case construction phases (based upon vehicle/truck trips) that could potentially occur at the same time. This is based upon the Project Schedule provided by the applicant. It was determined that the combination of Phases 3, 4 and 5 make up the most trips that could potentially overlap with a total of 860 workers and associated construction equipment. As a result, Attachment B provides a detailed summary of Sienna Solar Farm Project Trip Generation implemented for this analysis.

In addition, a passenger car equivalent (PCE) was applied to vehicle type. A PCE is a metric used in transportation engineering to assess traffic-flow rate on a highway. A PCE is essentially the impact that a mode of transport has on highway variable (e.g., headway, speed, density, etc.) compared to a single passenger car. For this analysis, a conservative PCE of 2.0 was applied to account for large trucks. This is consistent with the methodology presented in *HCM 6th Edition*.

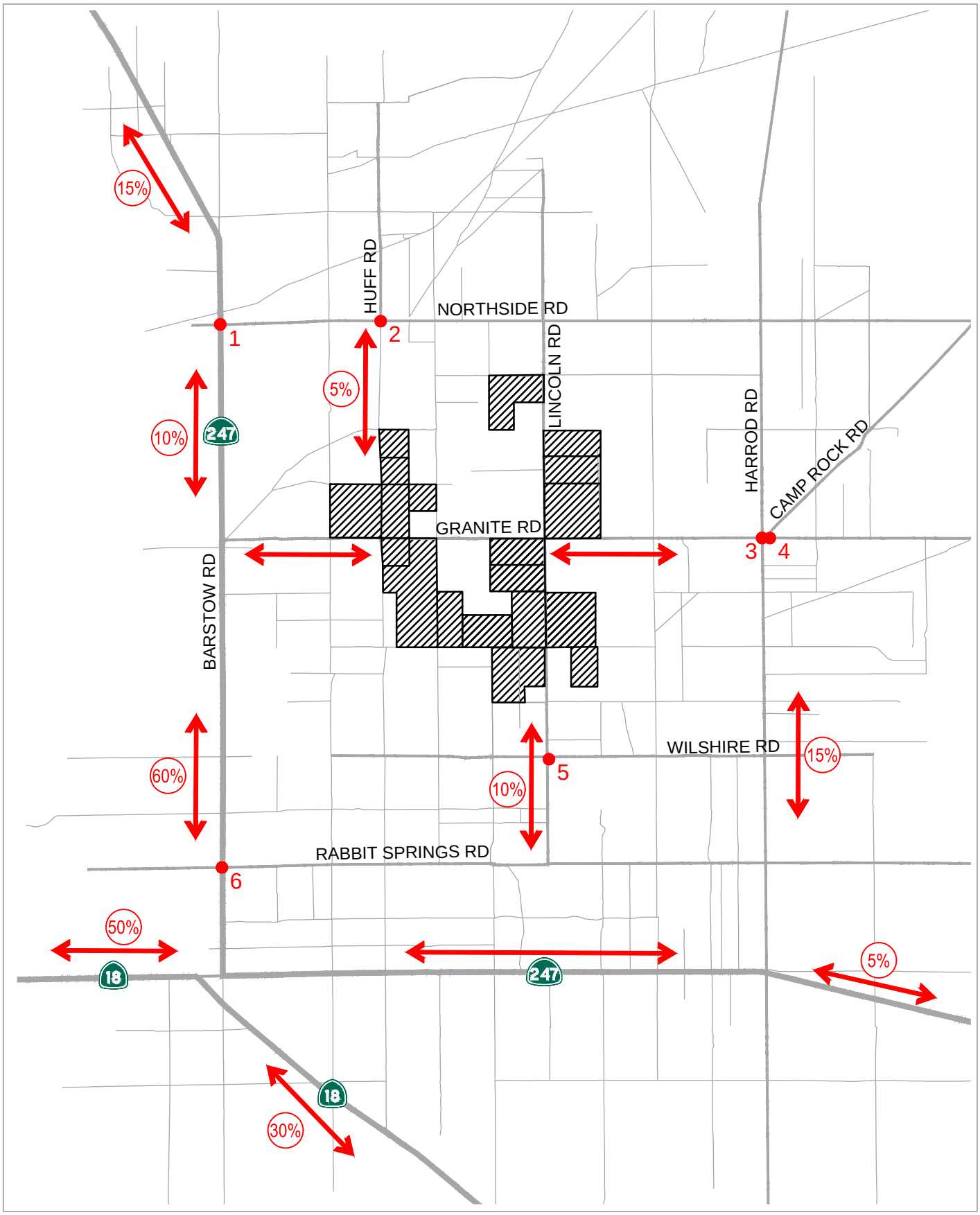
Trip generation for the construction phase is based on types of vehicles used and number of workers that are anticipated to report to the job site. Based on San Bernadino County Ordinance 83.01.080 (Noise); "Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., (except Sundays and Federal holidays)" are considered exempt from County noise regulations. Therefore, construction may occur during the a.m. peak (7:00 – 9:00 a.m.) and the p.m. peak (4:00 to 6:00 p.m.) commute periods, even though construction activities will occur throughout the day.

In order to simulate the worst-case trip generation scenario, construction workers are assumed to arrive in the a.m. peak hour and leave during the p.m. peak hour each weekday. Although some construction workers may carpool, this is not assumed, i.e., each worker will drive alone to/from work. Based upon our understanding of the Project, a PCE of 860 construction workers are anticipated to commute to and from the proposed Project area during phases 3 through 5 (worst-case scenario).

As shown in Attachment B, 1,830 daily trips (including PCE factor) are forecasted to be generated for short-term construction purposes. This would include short-term AM and PM peak hour trips of 813 in and out, respectively, during construction phases. Following construction, it is estimated that day to day operations and maintenance trips would be minimal, i.e., 17 peak hour trips per day (discussed further under Cumulative plus Project conditions). This would include 15 full-time employees (commute and lunch break trips) with any deliveries and/or visitors.

6.3 Project Trip Distribution

The Project is expected to "generate" and "attract" construction-related trips throughout the County and from other locations throughout the region. However, the majority of Project trips will be to/from the west and east on State Route 18. Remaining Project trips are expected to be to/from State Route 247 via northern and southern origins. Based upon existing traffic flow patterns, geographical location of Project area, location of lodging and/or employment bases, and previous traffic impact studies, these considerations resulted in a distribution of Project trip types throughout the study area shown in Figure 4 and as follows:



N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

TRIP DISTRIBUTION

Project No. **12557185**
Report No. **001**
Date **1/31/2023**

FIGURE 4

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 31 January 2023 - 4:30 PM

Source:

Estimated Project Trip Distribution:

- 50% to/from State Route 18 (Old Woman Springs Road) west of State Route 247
- 30% to/from State Route 18 south of State Route 247
- 15% to/from State Route 247 (Barstow Road) north of Rabbit Springs Road
- 5% to/from State Route 247 (Old Woman Springs Road) east of Granite Road

6.4 Project Area Access

Given the existing grid network of paved and semi-paved streets providing access to multiple development parcels, access to the Project area is provided by a variety of primary and secondary driveways. Access to the Project driveways would be gained via Barstow Road, Camp Rock Road, Old Woman Springs Road to parcels located in the southern portion of the development area. Parcels located in the northern half would gain access from Haynes Road and No End Road east of State Route 247.

6.5 Existing plus Project Intersection Operations

Existing plus Project weekday AM and PM peak hour intersection traffic operations were quantified by superimposing traffic volumes generated by the proposed Project onto Existing conditions (reference Figure 5). Table 6.1 shows the summary of the Existing plus Project roadway analysis and LOS conditions.

Table 6.1 – Existing plus Project Intersection Operations

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	Northside Road/Barstow Road	TWSC	C	11.2	B	No	10.6	B	No
2	Northside Road/Huff Road	Yield	C	9.4	A	No	7.6	A	No
3	Granite Road/Harrod Road	TWSC	C	8.6	A	No	9.5	A	No
4	Granite Road/Camp Rock Road	TWSC	C	9.0	A	No	9.1	A	No
5	Wilshire Road/Lincoln Road	Yield	C	7.8	A	No	7.5	A	No
6	**Rabbit Springs Road/Barstow Road**	**TWSC**	**C**	21.8	C	No	**26.1**	**D**	**No**
7	Access Road/Barstow Road	TWSC	C	12.0	B	No	24.6	C	No

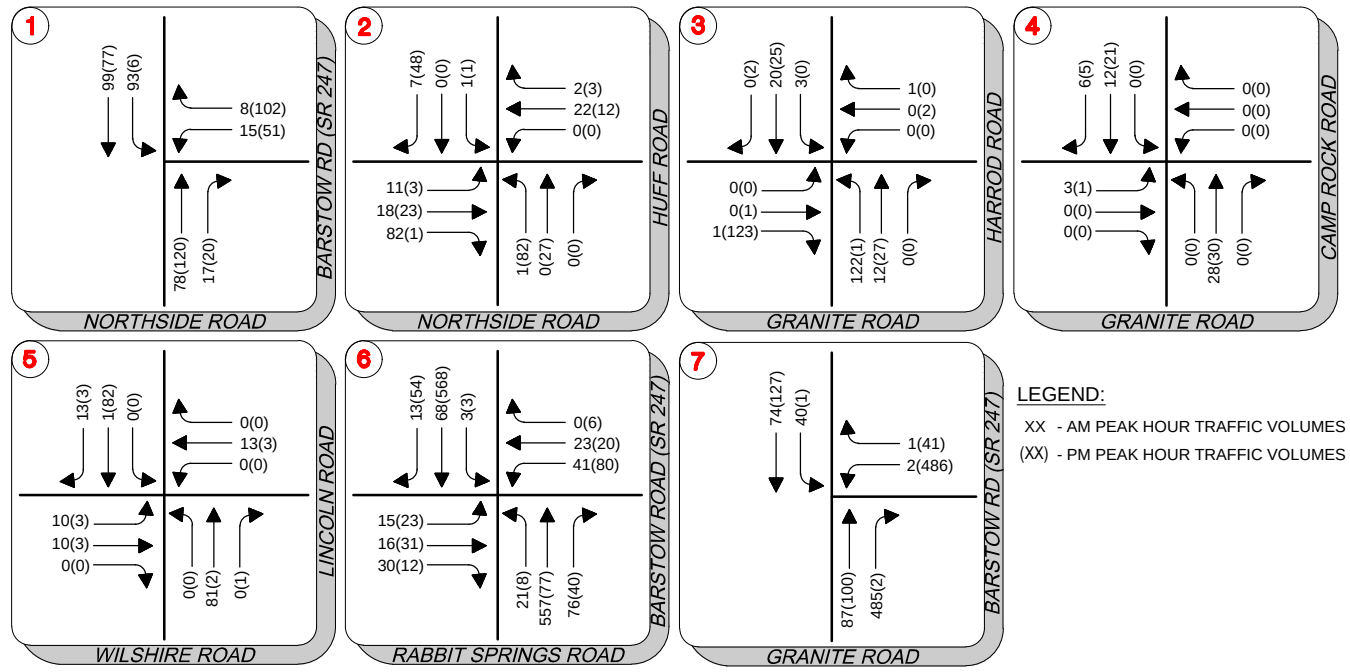
Notes:

1. TWSC = Two Way Stop Control

2. LOS = Delay based on worst minor street approach for TWSC and Yield intersections

3. Warrant = Based on California MUTCD Warrant 3 (70% Factor)

*4. **Bold** = Unacceptable Conditions*



N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

EXISTING PLUS PROJECT
PEAK HOUR TRAFFIC VOLUMES

Project No. 12557185
Report No. 001
Date 8/27/2021

FIGURE 5

As presented in Table 6.1, all intersections are forecasted to operate at acceptable LOS C conditions or better under Existing plus Project conditions scenario with one exception. The Rabbit Springs Road/Barstow Road intersection is projected to operate at LOS D during the PM peak hour. However, this intersection is not anticipated to meet Warrant 4 (70%) under any scenario. Recommended improvements are identified in subsequent section of this report.

6.6 Existing plus Project Roadway Segment Operations

Table 6.2 contains a summary of the Existing plus Project roadway segment analysis and LOS conditions.

Table 6.2 Existing plus Project Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	Barstow Road	n/o Rabbit Springs Rd.	Two-Lane Collector	C	3,950	A
2	Northside Road	e/o Barstow Road	Two-Lane Collector	C	870	A
3	Rabbit Springs Rd.	e/o Barstow Road	Two-Lane Collector	C	2,070	A
4	State Route 247	Camp Rock Rd.-SR 18	Two-Lane Highway	C	2,460	A
	State Route 247	SR 18-Rabbit Springs Rd	Two-Lane Highway	C	2,960	A
	State Route 247	Rabbit Springs Rd.-LVCR	Two-Lane Highway	C	3,210	A
	State Route 18	Lucerne Valley-Jct. SR247	Two-Lane Highway	C	9,020	B

Notes:

1. *No LTL arterials without left turn lanes (LTL) at most major intersections (within study area).*
2. *Daily volume to capacity on roadways does not supplant the need to perform peak-hour HCM-based analysis.*

As presented in Table 6.2, all roadway segments are forecasted to operate at acceptable LOS A or B conditions under Existing plus Project conditions scenario.

7. Cumulative (2040) Conditions

San Bernadino County Transportation Authority (SBCTA) provided 2016 and 2040 outputs from their Regional Travel Demand Forecast Model (Model). The latest General Plans from all agencies land use and circulation elements in San Bernadino County are included in SBTA Model. GHD used the Model's 2016 (validated Base) and 2040 (Cumulative) traffic forecasts to identify the incremental change in traffic volumes by approach and applied the factor to known (existing) traffic counts to forecast 2040 traffic volumes. The count delta method forecasts adjustment is based upon the difference of recent counts from interpolation resulting from Base and Cumulative years. Following this process, GHD checked the forecasted turning movements for reasonableness considering existing and future circulation conditions.

7.1 Cumulative Intersection Operations

Cumulative traffic volumes were forecasted and are shown in Figure 6. Table 7.1 presents a summary of the Cumulative study intersection LOS conditions.

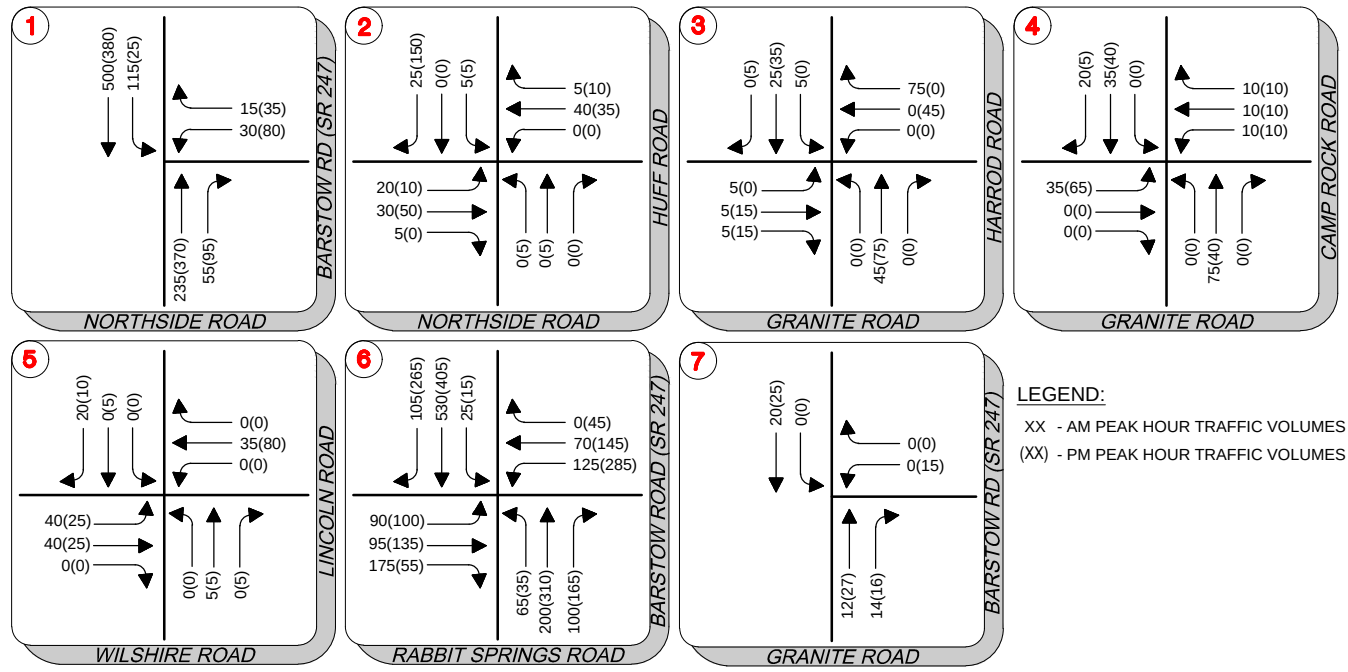
Table 7.1 – Cumulative Intersection Operations

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	Northside Road/Barstow Road	TWSC	C	23.0	C	No	24.9	C	No
2	Northside Road/Huff Road	Yield	C	9.0	A	No	11.3	B	No
3	Granite Road/Harrod Road	TWSC	C	9.7	A	No	10.3	B	No
4	Granite Road/Camp Rock Road	TWSC	C	10.1	B	No	10.1	B	No
5	Wilshire Road/Lincoln Road	Yield	C	7.4	A	No	8.8	A	No
6	**Rabbit Springs Road/Barstow Road**	**TWSC**	**C**	**OVR**	**F**	**Yes**	**OVR**	**F**	**Yes**

Notes:

1. *TWSC = Two Way Stop Control;*
2. *LOS = Delay based on worst minor street approach for TWSC and Yield intersections*
3. *Warrant = Based on California MUTCD Warrant 3 (70% Factor)*
4. ***Bold** = Unacceptable Conditions*
5. *OVR = > 100 seconds delay*

Under Cumulative conditions, all of the study intersections, except for one, are forecasted to operate at acceptable LOS. Intersection #6 (Rabbit Springs Road) is projected operate at LOS F condition and meets the Caltrans' Peak Hour Warrant 3 (70%) under the Cumulative AM and PM peak hour scenarios. All recommended improvements, regardless of relationship to Project, are discussed in a subsequent section of this report.



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

2040 CUMULATIVE
PEAK HOUR TRAFFIC VOLUMES

Project No. 12557185
Report No. 001
Date 8/27/2021

FIGURE 6

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 27 August 2021 - 4:00 PM

Source:

7.2 Cumulative Roadway Segment Operations

Table 7.2 contains a summary of the projected Cumulative roadway segment analysis and LOS conditions.

Table 7.2 Cumulative Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	Barstow Road	n/o Rabbit Springs Rd.	Two-Lane Collector	C	6,270	B
2	Northside Road	e/o Barstow Road	Two-Lane Collector	C	890	A
3	Rabbit Springs Rd.	e/o Barstow Road	Two-Lane Collector	C	3,510	A
4	State Route 247	Camp Rock Rd.-SR 18	Two-Lane Highway	C	7,060	A
	State Route 247	SR 18-Rabbit Springs Rd	Two-Lane Highway	C	6,860	A
	State Route 247	Rabbit Springs Rd.-LVCR	Two-Lane Highway	C	7,630	A
	State Route 18	Lucerne Valley-Jct. SR247	Two-Lane Highway	C	10,900	C

Notes:

1. *No LTL arterials without left turn lanes (LTL) at most major intersections.*
2. *Daily volume to capacity on roadways does not supplant the need to perform peak-hour HCM-based analysis.*

As presented in Table 7.2, all roadway segments are forecasted to operate at acceptable LOS A, B or C conditions under Cumulative conditions scenario.

8. Cumulative plus Project Conditions

Project trip generation under cumulative conditions are much lower than under Existing plus Project conditions that included development of the solar facility. Following completion of the construction phase, it is estimated that fifteen (15) employees will be assigned to the operations plant for maintenance and oversight. To calculate trip generation for post-construction activities, Table 8.1 was developed. It is assumed that that the 15 employees will generate 60 daily trips, including arrival and departure during the peak hour periods. It is further assumed that 4 daily trips would be generated by deliveries or "other" trip types.

Table 8.1 – Cumulative plus Project Trip Generation

Land Use Category	Unit	Daily Trip Rate/Unit	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Solar Maintenance Worker	EMP	4.0	0.25	100%	0%	0.25	0%	100%
Project Name	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	**In**	**Out**	**Total**	**In**	**Out**
Employee	15	60	15	15	0	15	0	15
Deliveries/Other	2	4	2	1	1	2	1	1
Project Trips		**64**	**17**	**16**	**1**	**17**	**1**	**16**

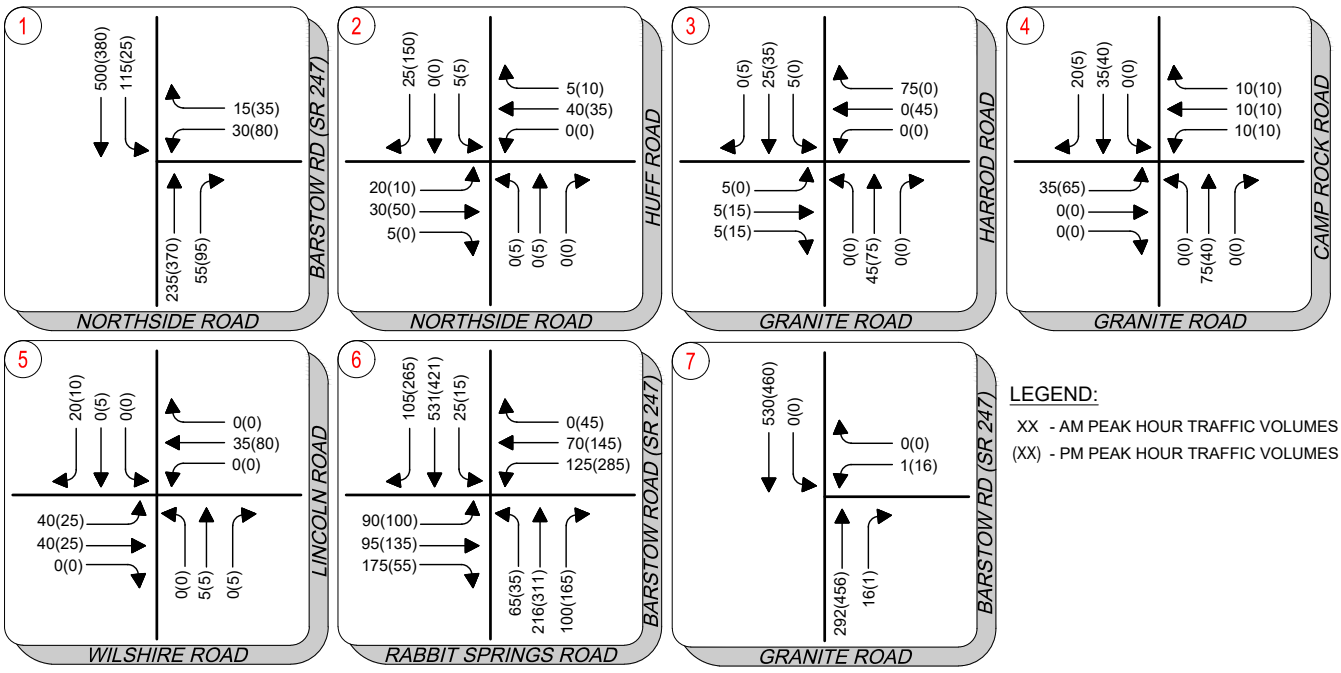
Notes:

1. *Estimated based upon data provided by Project proponent.*
2. *Deliveries are shown during peak hours.*
3. *Errors due to rounding may occur.*

As shown in Table 8.1, the Cumulative plus Project daily trip generation assumes 64 trips, with 17 trips occurring during the AM and PM peak hours, respectively. 64 daily trips were distributed locally within Lucerne Valley.

8.1 Cumulative plus Project Intersection Operations

Cumulative plus Project traffic volumes were forecasted by applying traffic generated by the proposed Project (Table 8.1) onto Cumulative conditions (reference Figure 7). Cumulative plus Project weekday AM and PM peak hour intersection traffic operations are shown in Table 8.2.



LEGEND:

XX - AM PEAK HOUR TRAFFIC VOLUMES

(XX) - PM PEAK HOUR TRAFFIC VOLUMES

N

GHD

Rincon Consultants, Inc.
SIENNA SOLAR FARM TRAFFIC STUDY

2040 CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

Project No. **12557185**
Report No. **001**
Date **7/6/2023**

FIGURE 7

Filename: N:\US\Fresno\Projects\561\12557185\Digital_Design\ACAD\Figures\12557185_TG001.dwg Plot Date: 6 July 2023 - 11:15 AM

Source:

Table 8.2 – Cumulative plus Project Intersection Operations

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?[3]	Delay	LOS	Warrant Met?[3]
1	Northside Road/Barstow Road	TWSC	C	23.0	C	No	24.9	C	No
2	Northside Road/Huff Road	Yield	C	9.0	A	No	11.3	B	No
3	Granite Road/Harrod Road	TWSC	C	9.7	A	No	10.3	B	No
4	Granite Road/Camp Rock Road	TWSC	C	10.1	B	No	10.1	B	No
5	Wilshire Road/Lincoln Road	Yield	C	7.4	A	No	8.8	A	No
6	**Rabbit Springs Road/Barstow Road**	**TWSC**	**C**	**OVR**	**F**	**Yes**	**OVR**	**F**	**Yes**
7	Access Road/Barstow Road	TWSC	C	16.7	C	No	19.2	C	No

Notes:

1. *TWSC = Two Way Stop Control;*
2. *LOS = Delay based on worst minor street approach for TWSC and Yield intersections*
3. *Warrant = Based on California MUTCD Warrant 3 (70% Factor)*
4. ***Bold** = Unacceptable Conditions*
5. *OVR = Overflow Conditions (>100 seconds delay)*

As shown in Table 8.2, six (6) of the study intersections are anticipated to operate at acceptable LOS under Cumulative plus Project conditions. However, Intersection #6 (Rabbit Springs Road/Barstow Road) is projected to operate at unacceptable LOS conditions and meets the Caltrans' Peak Hour Warrant 3 (70%) under the Cumulative plus Project AM and PM peak hour scenarios. Recommended improvements are discussed in a subsequent section of this report.

8.2 Cumulative Roadway Segment Operations

Table 8.3 contains a summary of the forecasted Cumulative roadway segment analysis and LOS conditions.

Table 8.3 Cumulative plus Project Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	Barstow Road	n/o Rabbit Springs Rd.	Two-Lane Collector	C	6,270	B
2	Northside Road	e/o Barstow Road	Two-Lane Collector	C	890	A
3	Rabbit Springs Rd.	e/o Barstow Road	Two-Lane Collector	C	3,510	A
4	State Route 247	Camp Rock Rd.-SR 18	Two-Lane Highway	C	7,060	A
	State Route 247	SR 18-Rabbit Springs Rd	Two-Lane Highway	C	6,870	A
	State Route 247	Rabbit Springs Rd.-LVCR	Two-Lane Highway	C	7,640	A
	State Route 18	Lucerne Valley-Jct. SR247	Two-Lane Highway	C	10,900	C

Notes:

1. *No LTL arterials without left turn lanes (LTL) at most major intersections (within study area).*
2. *Daily volume to capacity on roadways does not supplant the need to perform peak-hour HCM-based analysis.*

As presented in Table 8.3, all roadway segments are forecasted to operate at acceptable LOS A conditions under Cumulative plus Project conditions.

9. Vehicle Miles Travelled (VMT)

Transportation planners have used VMT as a metric for several purposes going back decades. VMT measures the amount of travel for all vehicles in a geographic region over a given period of time. It is calculated by adding up all the miles driven by all the cars and trucks on all the roadways in a region, or simply by multiplying the number of vehicles by distance in miles. This metric plays an integral role in the transportation planning, policymaking, and revenue estimation processes due to its ability to indicate travel demand and behavior.

Per CEQA Guidelines section 15064.3, subdivision (b), VMT analysis under CEQA may be based on the following:

- Qualitative Analysis: If existing models or methods are not available to estimate VMT for the particular project being considered, a lead agency may analyze the project's VMT qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.
- Methodology: A lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the chance in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgement based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project.

CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shifts the focus from driver delay to reduction of vehicular greenhouse gas emissions through creation of multimodal networks, and creation of a mix of land uses that can facilitate fewer and shorter vehicle trips.

VMT is a measure of the total number of miles driven for various purposes and is sometimes expressed as an average per trip or per person. Construction traffic would be temporary and would not permanently affect VMT characteristics in this part of San Bernardino County or elsewhere. Long-term, operational traffic would be limited, with a small work force of fifteen (15) employees. It was assumed that the employ resides near the Project, e.g., greater Lucerne Valley. According to technical guidance issued by the Office of Planning and Research (OPR), projects generating less than 110 or fewer daily vehicle trips may be presumed to have a less than significant impact involving VMT. This Project is anticipated to result in "Low VMT" based upon estimate of 64 daily trips and would have less than significant impact.

10. Recommended Improvements

This section presents a list of potential improvements to be considered for the study intersections and roadways based upon the results of the analysis presented in this report. Recommended improvements have been developed for worst case scenarios to achieve acceptable LOS conditions. The study intersections and roadway segments are projected to operate at acceptable LOS conditions if recommended improvements are implemented. Figure 7 identifies Mitigated Lane Geometrics and Control.

10.1 Existing Conditions

Under *Existing Conditions*, the study intersections and roadways currently operate at acceptable LOS. As such, no improvements at intersections or roadways are recommended.

10.2 Existing plus Project Conditions

Under *Existing plus Project Conditions*, the study intersections and roadways are projected to operate at acceptable LOS, with the exception of one intersection identified below. No improvement at other intersections or roadways are recommended.

***Rabbit Springs Road/Barstow Road (State Route 247)**:* This intersection is projected to operate a LOS "D" conditions during the PM peak hour. It does not meet Warrant 3 (70%) under this scenario. Because this LOS deficiency is related to temporary construction impact, no improvements are recommended.

*It should be noted that **Hours of Operation**, regulated by San Bernardino County noise ordinance and identified earlier in this report, indicate that, "Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., (except Sundays and Federal holidays)" are considered exempt from County noise regulations. Therefore, construction may occur during the a.m. peak (7:00 – 9:00 a.m.) and the p.m. peak (4:00 to 6:00 p.m.) commute periods, even though construction activities will occur throughout the day.*

10.3 Cumulative Conditions

Under *Cumulative Conditions*, one (1) intersection is anticipated to operate at unacceptable LOS "F" conditions. As such the following improvements are recommended:

Rabbit Springs Road/Barstow Road (State Route 247): Install a traffic signal and widen northbound and southbound approaches to include dedicated left, thru and right lanes and widen the eastbound and westbound approaches to include dedicated left turn and thru-right movements. This intersection is forecasted to operate at LOS "D" conditions during the AM and PM peak hour and is anticipated to meet the Caltrans' Peak Hour Warrant 3 (70%). With installation of a traffic signal and modification of approach lanes as described, this intersection is forecasted to operate at LOS "C" under AM and PM peak hour conditions as displayed in Appendix D.

> *[Note that according to the CA MUTCD, the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. Warrant 3 (70%) is one of 9 traffic signal warrants. Should the County desire to pursue a future traffic signal at this location, an engineering study should be prepared to determine if installing a traffic control signal will improve the overall safety and/or operation of the intersection].*

This recommended improvement is a non-project impact, i.e., this intersection is projected to operate poorly with or without the Project. Under this scenario, the applicant has no responsibility. The improvement is identified to assist the local jurisdiction is planning for future improvements at this location.

10.4 Cumulative plus Project Conditions

Under *Cumulative plus Project Conditions*, ***Rabbit Springs Road/Barstow Road (State Route 247)*** is again forecasted to operate at unacceptable LOS "F" conditions. Implementing recommended improvements identified under Cumulative Conditions will similarly result in LOS "C" conditions. The applicant is responsible for 1.08% of the Project cost (installation of a traffic signal and associated widening) based upon the number of trips generated by permanent employees following construction of the solar facility. This calculation is described below.

11. Pro Rata Share

The project applicant is charged with all improvement costs identified in this report that would benefit the proposed project, i.e., "plus Project" impacts. In circumstances where a project proponent will be receiving a substantial benefit from the identified improvements, the project should take full responsibility toward providing the necessary infrastructure, as is the case with CEQA mitigation measures.[2]

Table 11.1 below is a listing of the study intersection warranting improvements, the corresponding improvements that the proposed project would be required to pay a Fair-Share of Improvement cost towards, and the proposed project's equitable share of these improvements. The proposed project's equitable share is calculated using the method for calculating equitable mitigation measures outlined in the Caltrans *Guide for the Preparation of Traffic Impact Studies* (State of California, DOT, December 2002), which is shown below:

$P=T/(T_B - T_E)$

Where:
P = The equitable share for the proposed project's traffic impact.
T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour (vph).
TB = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20-year model or the furthest future model date feasible), vph.
TE = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

Note that the percent Fair-Share calculated using the above formula is reported based upon the highest fair share percentage from AM peak hour scenarios, which were higher than the PM peak hour.

Table 11.1 – Summary of Fair Share Calculations for Intersections

#	Intersection	T	T_B	T_E	P
1	Rabbit Springs Road/Barstow Road	17	1,970	393	**1.08%**

According to the methodology described in Caltrans' *Guide for the Preparation of Traffic Impact Studies*, Table 14 is neither intended as nor does it establish a legal standard for determining equitable responsibility and cost of the project's traffic impact; the intent is to provide:

1. A starting point for early discussions to address traffic mitigation equitably;
2. A means for calculating the equitable share for mitigating traffic impacts; and
3. A means for establishing rough proportionality [Dolan vs. City of Tigard, 1994, 512 U.S. 374 (114 S. Ct. 2309)].

[2] Caltrans' *Guide for the Preparation of Traffic Impact Studies* (December 2002).

Additionally, this formula is not intended in circumstances where a project proponent will be receiving a substantial benefit from the identified mitigation measures. In cases, (e.g., mid-block access and signalization to a shopping center) the project should take full responsibility to toward providing the necessary infrastructure.

Appendix

Attachment A – ITE Trip Generation for Elementary School (520): Weekday, AM and PM Peak Periods

Attachment B – Project Trip Generation

Appendix A – AM and PM Peak Hour Traffic Counts (Metro Traffic Data)

Appendix B – Synchro 10 Worksheet Output Files

Appendix C – California MUTCD Peak Hour Warrant 3 (70%) Worksheets

Appendix D – Mitigated Synchro 10 LOS Output Worksheets

Attachment A – ITE Trip Genera for Elementary School (520): Weekday, AM and PM Peak Periods

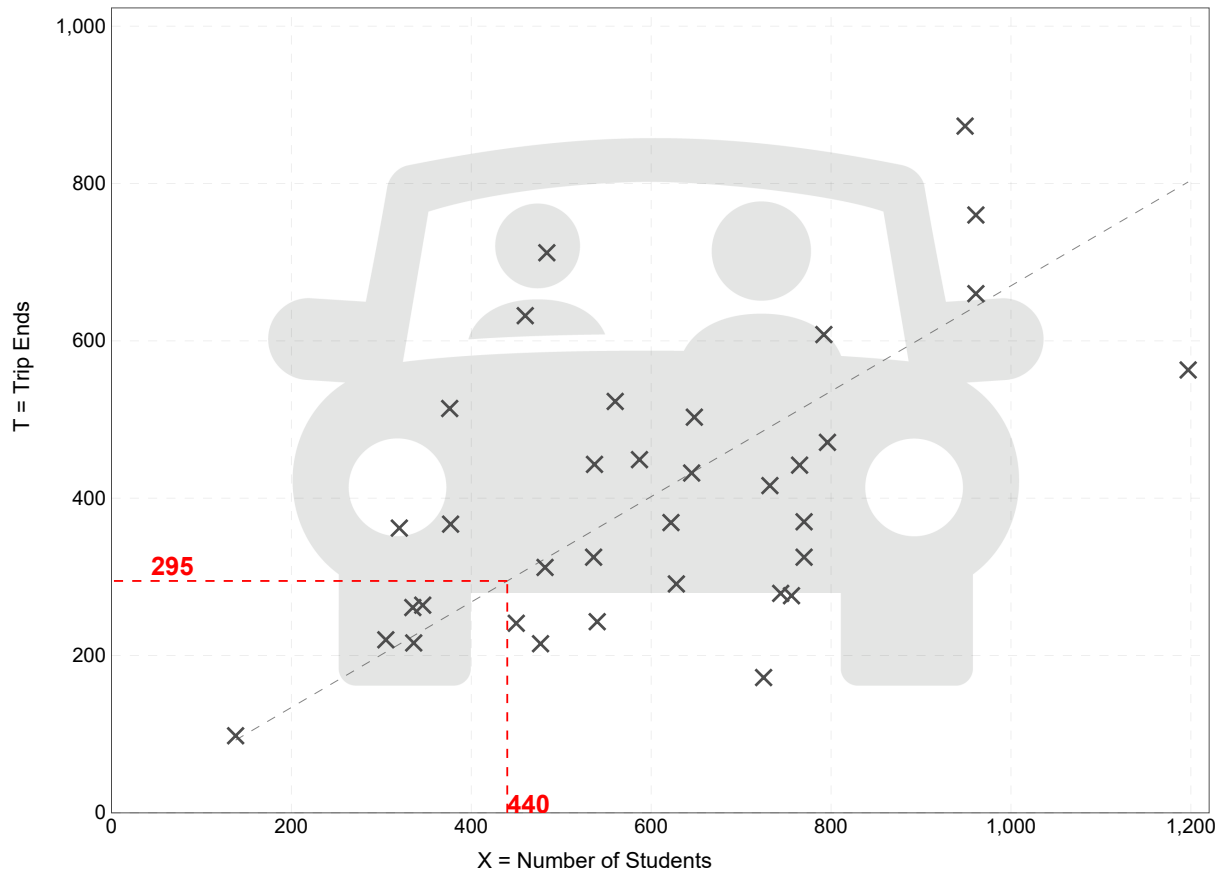
Elementary School
(520)

Vehicle Trip Ends vs:	**Students**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	35
Avg. Num. of Students:	603
Directional Distribution:	54% entering, 46% exiting

Vehicle Trip Generation per Student

Average Rate	Range of Rates	Standard Deviation
0.67	0.24 - 1.47	0.27

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

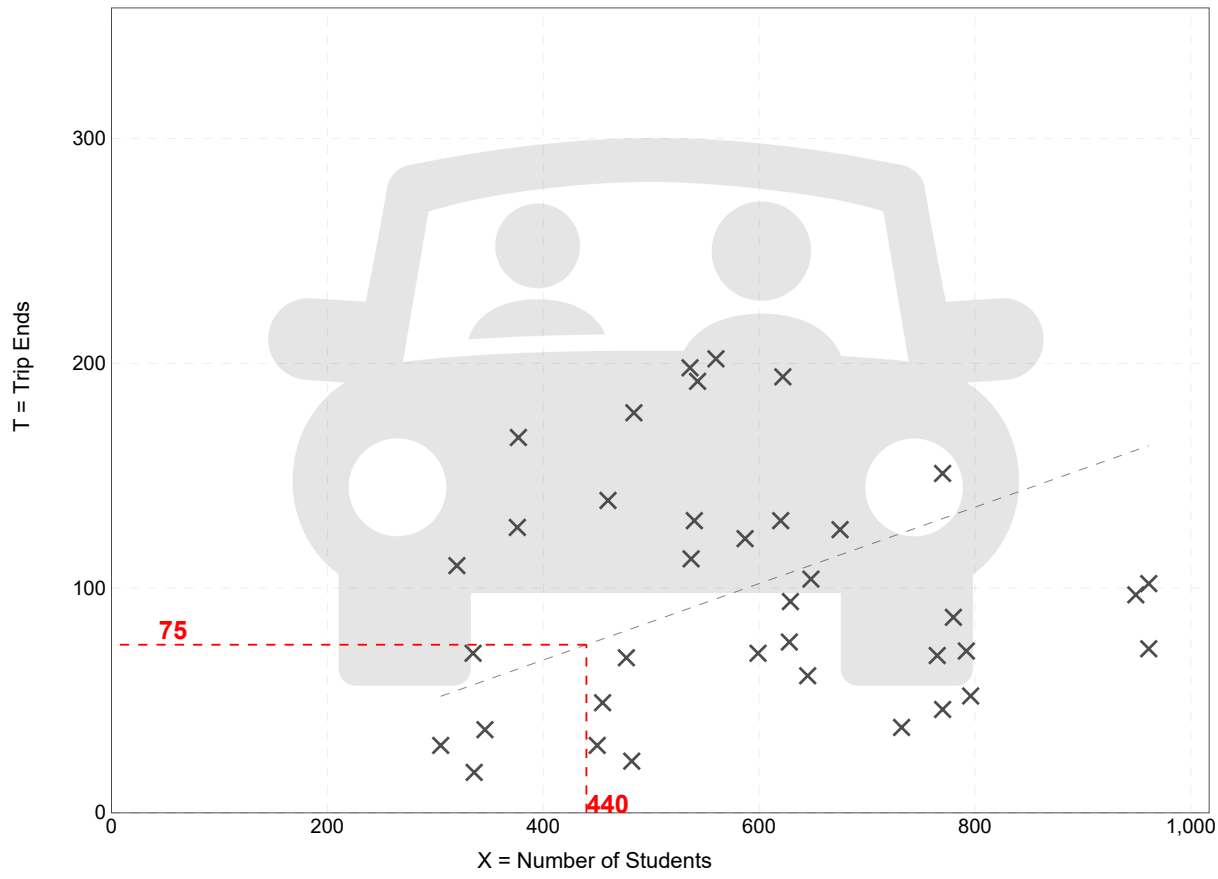
Elementary School
(520)

Vehicle Trip Ends vs:	**Students**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 4 and 6 p.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	37
Avg. Num. of Students:	590
Directional Distribution:	48% entering, 52% exiting

Vehicle Trip Generation per Student

Average Rate	Range of Rates	Standard Deviation
0.17	0.05 - 0.44	0.11

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

Elementary School
(520)

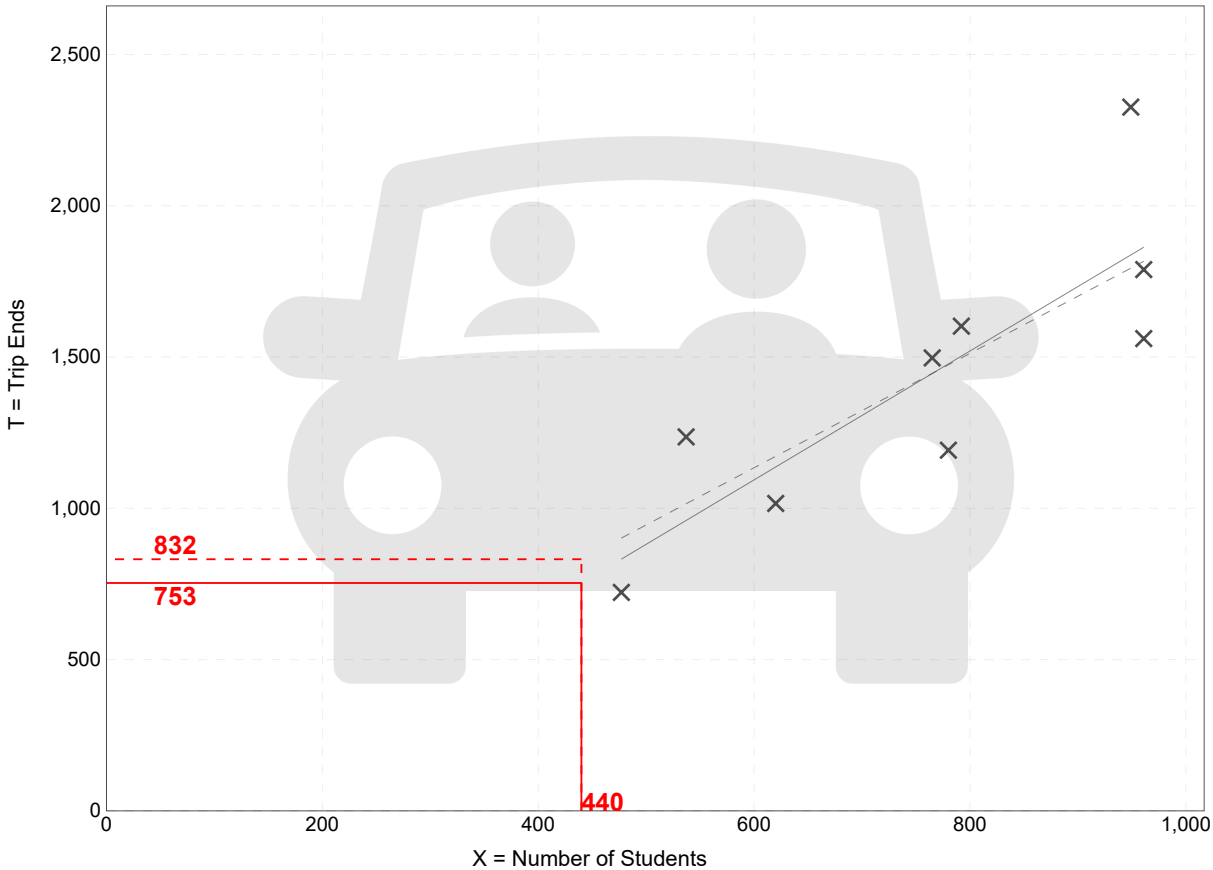
Vehicle Trip Ends vs: **Students**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 9
Avg. Num. of Students: 760
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Student

Average Rate	Range of Rates	Standard Deviation
1.89	1.51 - 2.45	0.34

Data Plot and Equation



Fitted Curve Equation: T = 2.13(X) - 184.07

R^2= 0.70

Attachment B – Project Trip Generation

Attachment B: Sienna Solar Farm Project Construction Phase Trip Generation

Phase		Construction Vehicles				Vehicle Trip Generation							PCE Trip Generation						
							AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour		
Activity/Description	Duration	Description	#	Vehicle Type	PCE	ADT	In	Out	Tot	In	Out	Tot	ADT	In	Out	Tot	In	Out	Tot
		Workers	100	Passenger	1.0	200	100		100		100	100	200	100		100		100	100
		Pickup Truck (On-site)	5	Passenger	1.0	10	5		5		5	5	10	5		5		5	5
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	25	Large Truck	2.0	50	2	2	4	2	2	4	100	4	4	8	4	4	8
1) Site Preparation	***79 Days***	*Subtotal*	*130*			*260*	*107*	*2*	*109*	*2*	*107*	*109*	*310*	*109*	*4*	*113*	*4*	*109*	*113*
		Workers	400	Passenger	1.0	800	400		400		400	400	800	400		400		400	400
		Pickup Truck (On-site)	5	Passenger	1.0	10	5		5		5	5	10	5		5		5	5
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	25	Large Truck	2.0	50	4	4	8	4	4	8	100	8	8	16	8	8	16
2) Grading & Earthwork	***79 Days***	*Subtotal*	*430*			*860*	*409*	*4*	*413*	*4*	*409*	*413*	*910*	*413*	*8*	*421*	*8*	*413*	*421*
		Workers	800	Passenger	1.0	1,600	800		800		800	800	1,600	800		800		800	800
		Pickup Truck (On-site)	5	Passenger	1.0	10	5		5		5	5	10	5		5		5	5
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	55	Large Truck	2.0	110	4	4	8	4	4	8	220	8	8	16	8	8	16
3,4,5) Foundations, Steel, Elec.	***237 Days***	*Subtotal*	*860*			*1,720*	*809*	*4*	*813*	*4*	*809*	*813*	*1,830*	*813*	*8*	*821*	*8*	*813*	*821*
		Workers	75	Passenger	1.0	150	75		75		75	75	150	75		75		75	75
		Pickup Truck (On-site)	5	Passenger	1.0	10	5		5		5	5	10	5		5		5	5
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	15	Large Truck	2.0	30	4	4	8	4	4	8	60	8	8	16	8	8	16
6) Collector Line Installation	***38 Days***	*Subtotal*	*95*			*190*	*84*	*4*	*88*	*4*	*84*	*88*	*220*	*88*	*8*	*96*	*8*	*88*	*96*
		TOTAL TRIPS				**3,030**	**1,409**	**14**	**1,423**	**14**	**1,409**	**1,423**	**3,270**	**1,423**	**28**	**1,451**	**28**	**1,423**	**1,451**

PCE = Passenger Car Equivalent

Note: Rounding Errors May Occur

Appendix A – AM and PM Peak Hour Traffic Counts (Metro Traffic Data)

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

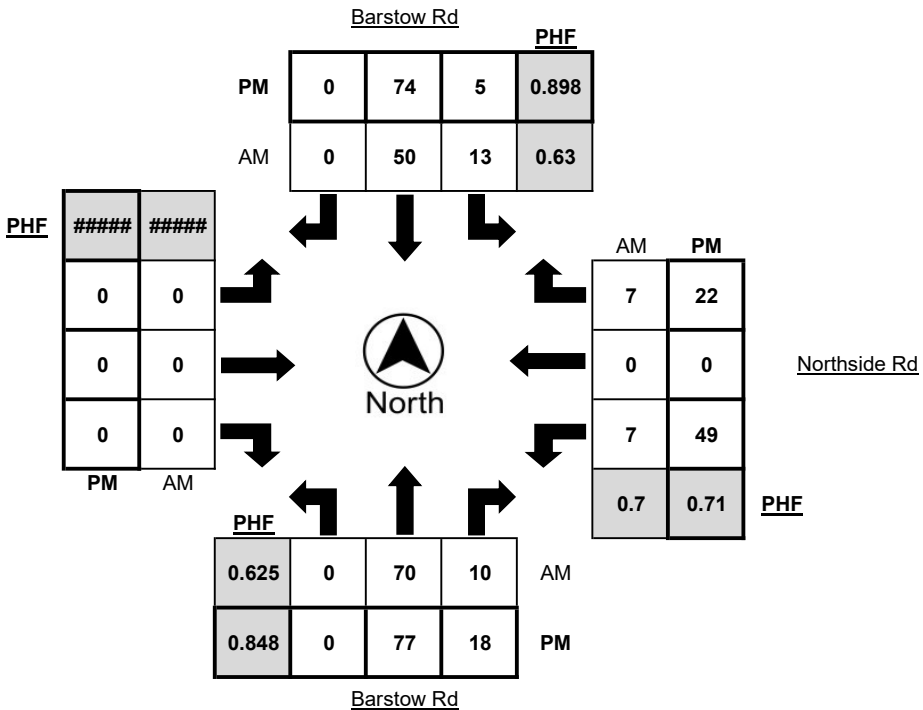
LOCATION Northside Rd @ Barstow Rd
LATITUDE 34.5311
COUNTY San Bernardino
LONGITUDE -116.9452
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	10	2	3	2	14	0	8	0	0	0	0	3	0	0	0
7:15 AM - 7:30 AM	0	9	2	2	2	15	0	9	0	0	0	0	1	0	5	2
7:30 AM - 7:45 AM	0	18	2	4	2	13	0	5	0	0	0	0	3	0	3	0
7:45 AM - 8:00 AM	0	6	0	1	4	8	0	2	0	0	0	0	4	0	2	1
8:00 AM - 8:15 AM	0	18	4	7	6	9	0	5	0	0	0	0	3	0	2	1
8:15 AM - 8:30 AM	0	9	1	3	5	20	0	4	0	0	0	0	1	0	2	1
8:30 AM - 8:45 AM	0	27	5	6	1	10	0	1	0	0	0	0	2	0	1	0
8:45 AM - 9:00 AM	0	16	0	6	1	11	0	1	0	0	0	0	1	0	2	0
TOTAL	**0**	**113**	**16**	**32**	**23**	**100**	**0**	**35**	**0**	**0**	**0**	**0**	**18**	**0**	**17**	**5**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	7	1	0	2	22	0	3	0	0	0	0	4	0	1	0
4:15 PM - 4:30 PM	0	15	3	2	5	16	0	6	0	0	0	0	4	0	3	1
4:30 PM - 4:45 PM	0	10	2	7	2	27	0	2	0	0	0	0	4	0	3	1
4:45 PM - 5:00 PM	0	27	4	7	0	19	0	2	0	0	0	0	0	0	3	2
5:00 PM - 5:15 PM	0	14	2	1	1	20	0	5	0	0	0	0	11	0	3	4
5:15 PM - 5:30 PM	0	22	6	4	3	14	0	8	0	0	0	0	12	0	9	0
5:30 PM - 5:45 PM	0	21	5	5	1	18	0	3	0	0	0	0	19	0	6	1
5:45 PM - 6:00 PM	0	20	5	3	0	22	0	3	0	0	0	0	7	0	4	3
TOTAL	**0**	**136**	**28**	**29**	**14**	**158**	**0**	**32**	**0**	**0**	**0**	**0**	**61**	**0**	**32**	**12**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
8:00 AM - 9:00 AM	0	70	10	22	13	50	0	11	0	0	0	0	7	0	7	2
5:00 PM - 6:00 PM	0	77	18	13	5	74	0	19	0	0	0	0	49	0	22	8

	PHF	Trucks
AM	0.853	22.3%
PM	0.875	16.3%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

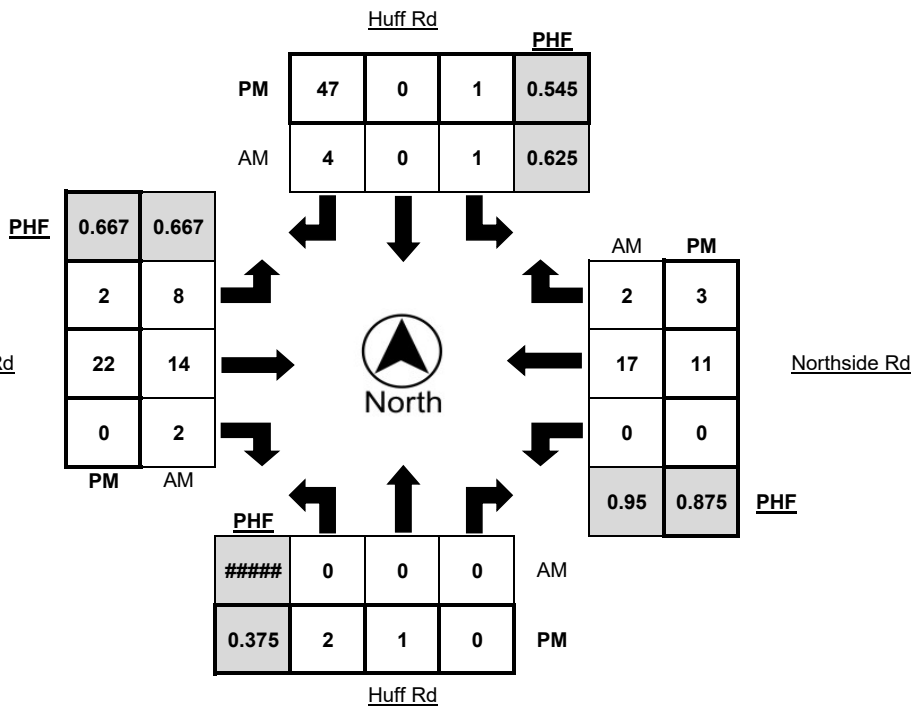
LOCATION Northside Rd @ Huff Rd
LATITUDE 34.5313
COUNTY San Bernardino
LONGITUDE -116.9192
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	1	1	1	0	0	0	0	0	0	0	0	3	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	2	2	2	4	1	4	0	5	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	4	0	2	0	5	0	1
7:45 AM - 8:00 AM	0	0	0	0	1	0	1	1	1	3	0	1	0	3	2	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	1	0	5	3	1	1	0	4	0	1
8:15 AM - 8:30 AM	0	0	0	0	7	0	0	0	1	1	1	0	0	2	0	1
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	6	1	0	0	0	3	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0
TOTAL	**0**	**0**	**1**	**1**	**9**	**0**	**4**	**3**	**15**	**18**	**3**	**8**	**0**	**29**	**2**	**3**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	1	0	0	2	1	1	0	3	2	2
4:15 PM - 4:30 PM	0	0	0	0	3	0	7	1	0	9	1	3	0	1	2	1
4:30 PM - 4:45 PM	1	0	0	0	0	0	2	1	0	3	0	0	0	4	0	0
4:45 PM - 5:00 PM	0	0	0	0	1	0	3	4	1	4	1	0	0	2	1	1
5:00 PM - 5:15 PM	1	1	0	0	0	0	6	0	0	4	0	1	0	2	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	13	1	2	7	0	2	0	4	0	1
5:30 PM - 5:45 PM	1	0	0	0	1	0	21	0	0	5	0	0	0	2	2	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	7	2	0	6	0	0	0	3	1	2
TOTAL	**3**	**1**	**0**	**0**	**5**	**0**	**60**	**9**	**3**	**40**	**3**	**7**	**0**	**21**	**8**	**7**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	0	0	0	1	0	4	3	8	14	2	8	0	17	2	2
5:00 PM - 6:00 PM	2	1	0	0	1	0	47	3	2	22	0	3	0	11	3	3

	PHF	Trucks
AM	0.857	27.1%
PM	0.695	10.1%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

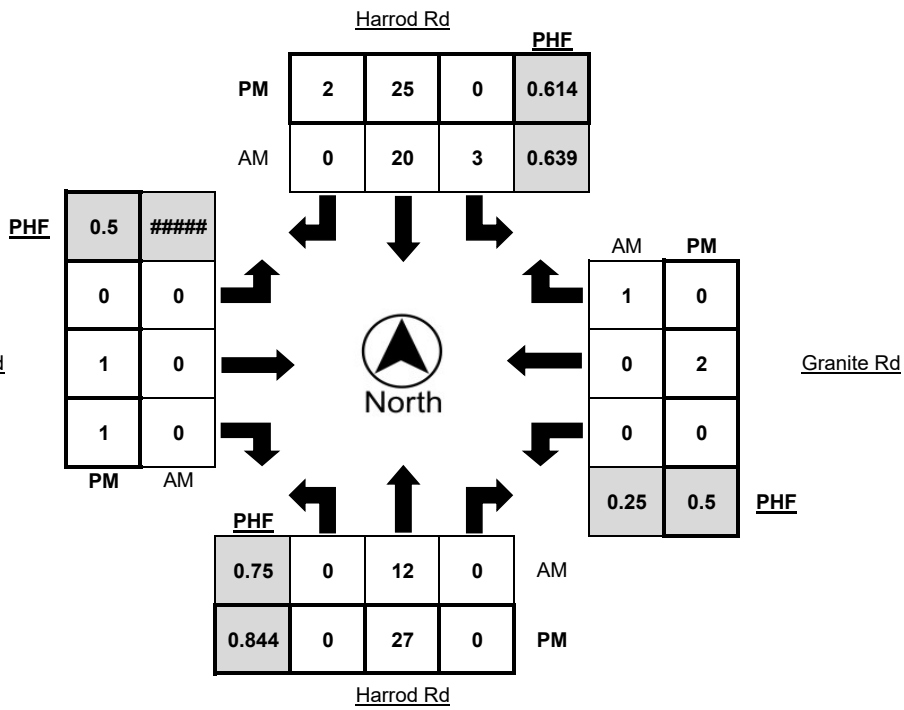
LOCATION Granite Rd @ Harrod Rd
LATITUDE 34.5017
COUNTY San Bernardino
LONGITUDE -116.8579
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	0
7:15 AM - 7:30 AM	0	0	0	0	0	2	0	1	0	0	1	0	0	0	1	0
7:30 AM - 7:45 AM	0	4	0	2	0	7	0	2	0	0	0	0	0	0	1	0
7:45 AM - 8:00 AM	0	3	0	1	3	6	0	2	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	2	0	1	0	5	0	2	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	3	0	2	0	2	0	1	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	1	2	0	0	0	5	0	0	1	0	0	0	0	1	0	0
8:45 AM - 9:00 AM	0	4	0	0	1	2	0	1	0	0	0	0	1	0	0	1
TOTAL	**1**	**21**	**0**	**6**	**4**	**30**	**0**	**9**	**1**	**0**	**1**	**0**	**1**	**1**	**3**	**1**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	8	0	3	0	4	0	0	0	0	0	0	0	1	0	0
4:15 PM - 4:30 PM	0	7	0	0	0	10	1	2	0	0	0	0	0	1	0	0
4:30 PM - 4:45 PM	0	8	0	1	0	6	0	1	0	1	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	4	0	1	0	5	1	1	0	0	1	0	0	0	0	0
5:00 PM - 5:15 PM	0	3	0	2	0	2	0	0	0	0	0	0	0	0	1	0
5:15 PM - 5:30 PM	0	6	0	1	0	3	0	1	0	0	0	0	0	1	1	0
5:30 PM - 5:45 PM	0	7	0	3	1	4	0	3	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	1	0	0	0	3	0	1	0	1	0	0	0	1	0	0
TOTAL	**0**	**44**	**0**	**11**	**1**	**37**	**2**	**9**	**0**	**2**	**1**	**0**	**0**	**4**	**2**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	12	0	6	3	20	0	7	0	0	0	0	0	0	1	0
4:00 PM - 5:00 PM	0	27	0	5	0	25	2	4	0	1	1	0	0	2	0	0

	PHF	Trucks
AM	0.750	36.1%
PM	0.763	15.5%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

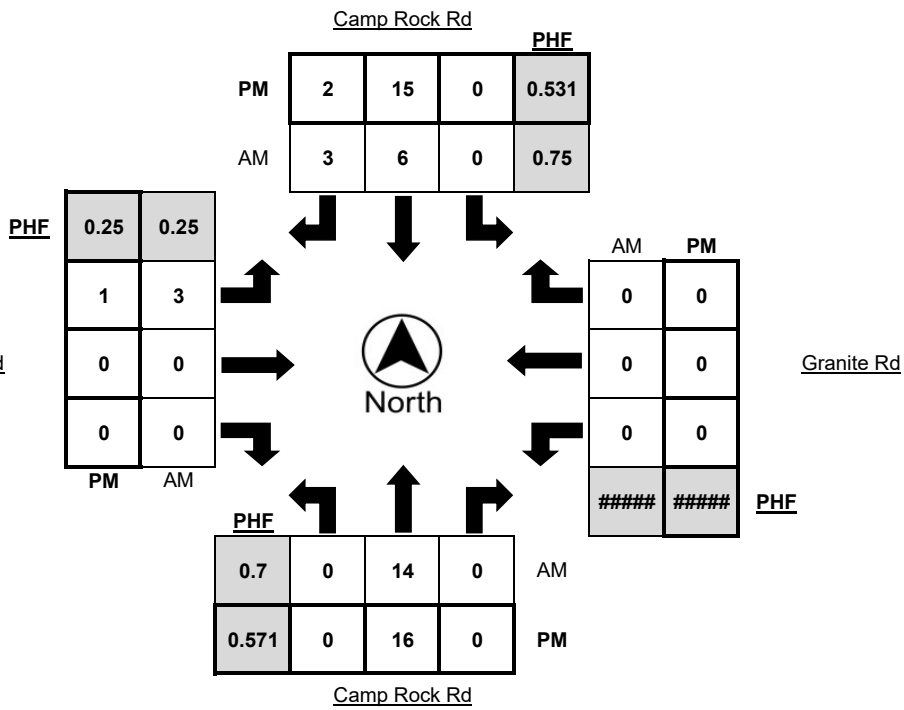
LOCATION Granite Rd @ Camp Rock Rd
LATITUDE 34.5017
COUNTY San Bernardino
LONGITUDE -116.8575
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	5	0	0	0	2	1	1	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	4	0	2	0	1	1	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	4	0	1	0	2	0	0	3	0	0	1	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	1	0	0	0	2	1	2	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	2	0	0	0	1	1	1	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	2	0	0	0	2	0	0	1	0	0	0	0	0	0	0
TOTAL	**0**	**19**	**0**	**4**	**0**	**13**	**5**	**4**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	2	0	0	0	5	1	1	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	5	0	2	0	7	1	3	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	2	0	0	0	1	0	0	1	0	0	1	0	0	0	0
4:45 PM - 5:00 PM	0	7	0	1	0	2	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	4	0	1	0	2	1	1	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	3	0	0	0	1	2	1	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	2	0	1	0	1	0	1	1	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	1	0	0	0	3	1	2	1	0	0	0	0	0	0	0
TOTAL	**0**	**26**	**0**	**5**	**0**	**22**	**6**	**10**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	14	0	4	0	6	3	1	3	0	0	1	0	0	0	0
4:00 PM - 5:00 PM	0	16	0	3	0	15	2	5	1	0	0	1	0	0	0	0

	PHF	Trucks
AM	0.722	23.1%
PM	0.654	26.5%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

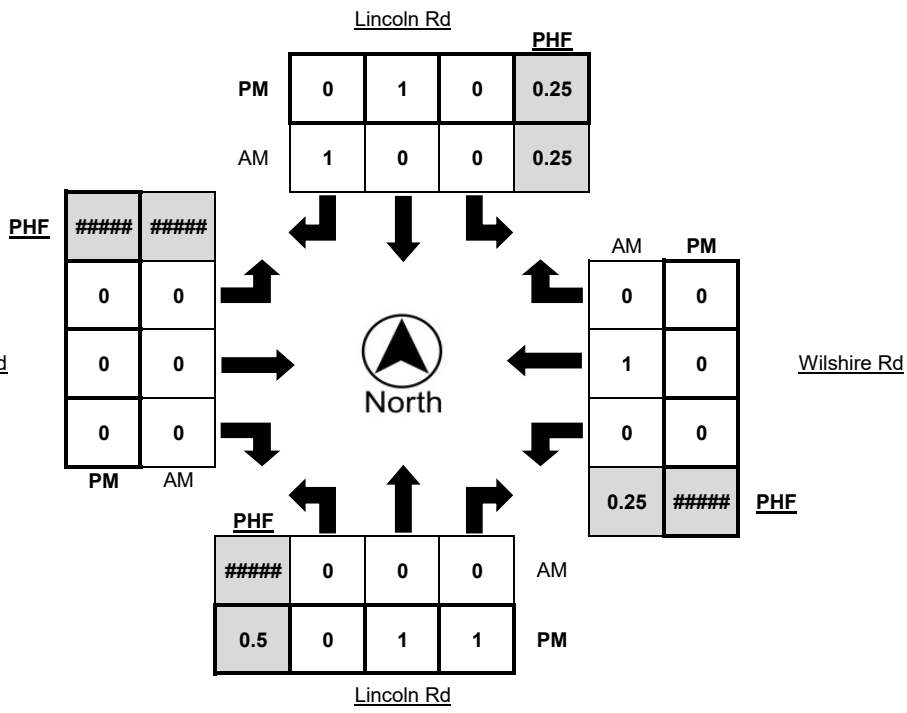
LOCATION Wilshire Rd @ Lincoln Rd
LATITUDE 34.4728
COUNTY San Bernardino
LONGITUDE -116.8931
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**1**	**1**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
4:30 PM - 5:30 PM	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0

	PHF	Trucks
AM	0.250	0.0%
PM	0.750	66.7%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

GHD
943 Reserve Drive
Roseville, CA 95678

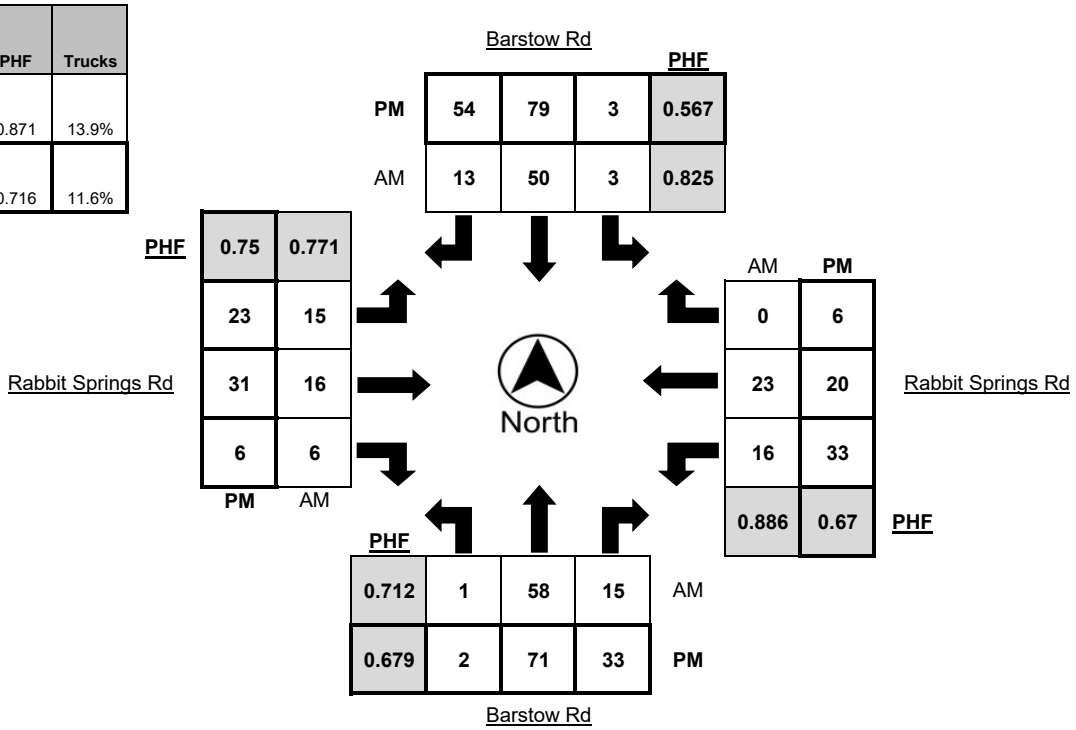
LOCATION Rabbit Springs Rd @ Barstow Rd
LATITUDE 34.4584
COUNTY San Bernardino
LONGITUDE -116.9458
COLLECTION DATE Tuesday, July 20, 2021
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	8	3	2	1	5	2	1	1	9	1	0	6	9	1	1
7:15 AM - 7:30 AM	0	16	2	4	0	13	8	8	6	5	1	2	0	2	1	1
7:30 AM - 7:45 AM	2	10	1	5	1	5	6	4	2	7	0	1	6	7	1	0
7:45 AM - 8:00 AM	1	16	4	7	0	12	6	3	4	4	0	0	6	5	0	0
8:00 AM - 8:15 AM	0	8	1	2	1	6	2	0	4	5	1	2	2	9	0	0
8:15 AM - 8:30 AM	0	21	5	4	0	14	6	7	6	2	0	3	6	1	0	0
8:30 AM - 8:45 AM	0	14	4	4	1	15	2	1	2	2	3	1	3	8	0	2
8:45 AM - 9:00 AM	1	15	5	2	1	15	3	2	3	7	2	0	5	5	0	0
TOTAL	**4**	**108**	**25**	**30**	**5**	**85**	**35**	**26**	**28**	**41**	**8**	**9**	**34**	**46**	**3**	**4**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	1	10	8	1	2	31	1	7	5	3	2	0	3	6	2	0
4:15 PM - 4:30 PM	2	14	9	8	0	12	4	0	3	7	0	0	7	6	1	0
4:30 PM - 4:45 PM	1	20	6	6	3	17	10	6	2	9	0	0	9	17	2	0
4:45 PM - 5:00 PM	0	12	7	3	0	17	7	1	8	4	0	0	15	3	4	0
5:00 PM - 5:15 PM	0	21	10	4	2	23	7	7	4	12	4	1	9	5	1	1
5:15 PM - 5:30 PM	1	10	6	2	0	11	9	4	2	7	0	0	6	7	1	0
5:30 PM - 5:45 PM	1	28	10	6	1	28	31	12	9	8	2	0	3	5	0	1
5:45 PM - 6:00 PM	1	13	4	3	1	23	10	4	8	5	0	0	1	3	1	0
TOTAL	**7**	**128**	**60**	**33**	**9**	**162**	**79**	**41**	**41**	**55**	**8**	**1**	**53**	**52**	**12**	**2**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
8:00 AM - 9:00 AM	1	58	15	12	3	50	13	10	15	16	6	6	16	23	0	2
4:45 PM - 5:45 PM	2	71	33	15	3	79	54	24	23	31	6	1	33	20	6	2

	PHF	Trucks
AM	0.871	13.9%
PM	0.716	11.6%



Appendix B – Synchro 10 Worksheet Output Files

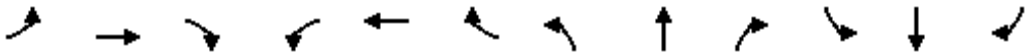
Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	7	77	17	13	58
Future Vol, veh/h	15	7	77	17	13	58
Conflicting Peds, #/hr	0	0	0	0	0	0
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	85	85	85	85	85	85
Heavy Vehicles, %	22	22	22	22	22	22
Mvmt Flow	18	8	91	20	15	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	199	101	0	0	111	0
Stage 1	101	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.62	6.42	-	-	4.32	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.698	3.498	-	-	2.398	-
Pot Cap-1 Maneuver	747	902	-	-	1363	-
Stage 1	875	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	902	-	-	1363	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	784	1363	-
HCM Lane V/C Ratio	-	-	0.033	0.011	-
HCM Control Delay (s)	-	-	9.7	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	18	2	0	22	2	0	0	0	1	0	7
Future Volume (Veh/h)	11	18	2	0	22	2	0	0	0	1	0	7
Sign Control		Free			Free			Yield			Yield	
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)	13	21	2	0	26	2	0	0	0	1	0	8
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	28			23			83	76	22	75	76	27
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			23			83	76	22	75	76	27
tC, single (s)	4.4			4.4			7.4	6.8	6.5	7.4	6.8	6.5
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.7	4.2	3.5	3.7	4.2	3.5
p0 queue free %	99			100			100	100	100	100	100	99
cM capacity (veh/h)	1438			1444			834	762	987	852	762	981

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	28	0	9
Volume Left	13	0	0	1
Volume Right	2	2	0	8
cSH	1438	1444	1700	965
Volume to Capacity	0.01	0.00	0.00	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	2.8	0.0	0.0	8.8
Lane LOS	A		A	A
Approach Delay (s)	2.8	0.0	0.0	8.8
Approach LOS			A	A

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	0	0	1	0	12	0	3	20	0
Future Vol, veh/h	0	0	0	0	0	1	0	12	0	3	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	36	36	36	36	36	36	36	36	36	36	36	36
Mvmt Flow	0	0	0	0	0	1	0	16	0	4	27	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	52	51	27	51	51	16	27	0	0	16	0	0
Stage 1	35	35	-	16	16	-	-	-	-	-	-	-
Stage 2	17	16	-	35	35	-	-	-	-	-	-	-
Critical Hdwy	7.46	6.86	6.56	7.46	6.86	6.56	4.46	-	-	4.46	-	-
Critical Hdwy Stg 1	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Follow-up Hdwy	3.824	4.324	3.624	3.824	4.324	3.624	2.524	-	-	2.524	-	-
Pot Cap-1 Maneuver	869	779	959	870	779	973	1392	-	-	1406	-	-
Stage 1	901	803	-	923	819	-	-	-	-	-	-	-
Stage 2	921	819	-	901	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	866	777	959	868	777	973	1392	-	-	1406	-	-
Mov Cap-2 Maneuver	866	777	-	868	777	-	-	-	-	-	-	-
Stage 1	901	801	-	923	819	-	-	-	-	-	-	-
Stage 2	920	819	-	898	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	-	973	1406	-	-
HCM Lane V/C Ratio	-	-	-	-	0.001	0.003	-	-
HCM Control Delay (s)	0	-	-	0	8.7	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

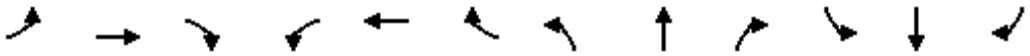
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	0	0	0	0	0	14	0	0	6	3
Future Vol, veh/h	3	0	0	0	0	0	0	14	0	0	6	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	23	23	23	23	23	23	23	23	23	23	23	23
Mvmt Flow	4	0	0	0	0	0	0	19	0	0	8	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	29	29	10	29	31	19	12	0	0	19	0	0
Stage 1	10	10	-	19	19	-	-	-	-	-	-	-
Stage 2	19	19	-	10	12	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.73	6.43	7.33	6.73	6.43	4.33	-	-	4.33	-	-
Critical Hdwy Stg 1	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Follow-up Hdwy	3.707	4.207	3.507	3.707	4.207	3.507	2.407	-	-	2.407	-	-
Pot Cap-1 Maneuver	929	824	1013	929	822	1001	1480	-	-	1471	-	-
Stage 1	959	847	-	948	839	-	-	-	-	-	-	-
Stage 2	948	839	-	959	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	929	824	1013	929	822	1001	1480	-	-	1471	-	-
Mov Cap-2 Maneuver	929	824	-	929	822	-	-	-	-	-	-	-
Stage 1	959	847	-	948	839	-	-	-	-	-	-	-
Stage 2	948	839	-	959	845	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	8.9	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1480	-	-	929	-	1471	-	-
HCM Lane V/C Ratio	-	-	-	0.004	-	-	-	-
HCM Control Delay (s)	0	-	-	8.9	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	10	10	0	0	13	0	0	0	0	0	0	13
Future Volume (vph)	10	10	0	0	13	0	0	0	0	0	0	13
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	40	40	0	0	52	0	0	0	0	0	0	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	80	52	0	52
Volume Left (vph)	40	0	0	0
Volume Right (vph)	0	0	0	52
Hadj (s)	0.13	0.03	0.00	-0.57
Departure Headway (s)	4.2	4.1	4.2	3.6
Degree Utilization, x	0.09	0.06	0.00	0.05
Capacity (veh/h)	843	857	826	957
Control Delay (s)	7.6	7.4	7.2	6.8
Approach Delay (s)	7.6	7.4	0.0	6.8
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.3			
Level of Service	A			
Intersection Capacity Utilization	17.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	16	30	40	23	0	21	72	35	3	66	13
Future Vol, veh/h	15	16	30	40	23	0	21	72	35	3	66	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	14	14	14	14	14	14	14	14	14	14	14	14
Mvmt Flow	17	18	34	46	26	0	24	83	40	3	76	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	254	261	84	267	248	103	91	0	0	123	0	0
Stage 1	90	90	-	151	151	-	-	-	-	-	-	-
Stage 2	164	171	-	116	97	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.64	6.34	7.24	6.64	6.34	4.24	-	-	4.24	-	-
Critical Hdwy Stg 1	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.126	3.426	3.626	4.126	3.426	2.326	-	-	2.326	-	-
Pot Cap-1 Maneuver	675	624	943	662	634	920	1432	-	-	1393	-	-
Stage 1	889	798	-	824	750	-	-	-	-	-	-	-
Stage 2	811	735	-	860	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	643	612	943	614	621	920	1432	-	-	1393	-	-
Mov Cap-2 Maneuver	643	612	-	614	621	-	-	-	-	-	-	-
Stage 1	873	796	-	809	737	-	-	-	-	-	-	-
Stage 2	768	722	-	808	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.6	1.2	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1432	-	-	750	617	1393	-	-
HCM Lane V/C Ratio	0.017	-	-	0.093	0.117	0.002	-	-
HCM Control Delay (s)	7.6	0	-	10.3	11.6	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.4	0	-	-

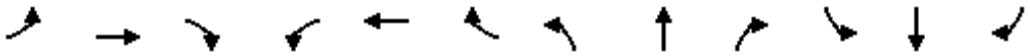
Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	22	79	20	5	76
Future Vol, veh/h	51	22	79	20	5	76
Conflicting Peds, #/hr	0	0	0	0	0	0
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	88	88	88	88	88	88
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	58	25	90	23	6	86

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	200	102	0	0	113	0
Stage 1	102	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	758	916	-	-	1394	-
Stage 1	888	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	754	916	-	-	1394	-
Mov Cap-2 Maneuver	754	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1394	-
HCM Lane V/C Ratio	-	-	0.104	0.004	-
HCM Control Delay (s)	-	-	10	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	23	0	0	12	3	2	1	0	1	0	48
Future Volume (Veh/h)	3	23	0	0	12	3	2	1	0	1	0	48
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	4	33	0	0	17	4	3	1	0	1	0	69
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	21			33			129	62	33	60	60	19
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			33			129	62	33	60	60	19
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	93
cM capacity (veh/h)	1544			1529			769	812	1018	913	814	1036

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	37	21	4	70
Volume Left	4	0	3	1
Volume Right	0	4	0	69
cSH	1544	1529	779	1034
Volume to Capacity	0.00	0.00	0.01	0.07
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.8	0.0	9.6	8.7
Lane LOS	A		A	A
Approach Delay (s)	0.8	0.0	9.6	8.7
Approach LOS			A	A

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	13.7%	ICU Level of Service	A	
Analysis Period (min)	15			

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	1	1	0	2	0	0	27	0	0	25	2
Future Vol, veh/h	0	1	1	0	2	0	0	27	0	0	25	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	16	16	16	16	16	16	16	16	16	16	16	16
Mvmt Flow	0	1	1	0	3	0	0	36	0	0	33	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	73	71	35	72	72	36	36	0	0	36	0	0
Stage 1	35	35	-	36	36	-	-	-	-	-	-	-
Stage 2	38	36	-	36	36	-	-	-	-	-	-	-
Critical Hdwy	7.26	6.66	6.36	7.26	6.66	6.36	4.26	-	-	4.26	-	-
Critical Hdwy Stg 1	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	3.644	4.144	3.444	2.344	-	-	2.344	-	-
Pot Cap-1 Maneuver	885	793	999	886	792	998	1489	-	-	1489	-	-
Stage 1	946	839	-	945	838	-	-	-	-	-	-	-
Stage 2	943	838	-	945	838	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	882	793	999	883	792	998	1489	-	-	1489	-	-
Mov Cap-2 Maneuver	882	793	-	883	792	-	-	-	-	-	-	-
Stage 1	946	839	-	945	838	-	-	-	-	-	-	-
Stage 2	940	838	-	942	838	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	884	792	1489	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.003	-	-	-
HCM Control Delay (s)	0	-	-	9.1	9.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

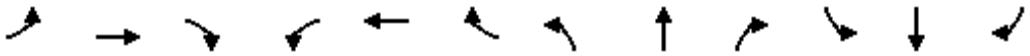
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	16	0	0	15	2
Future Vol, veh/h	1	0	0	0	0	0	0	16	0	0	15	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	27	27	27	27	27	27	27	27	27	27	27	27
Mvmt Flow	2	0	0	0	0	0	0	25	0	0	23	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	50	50	25	50	51	25	26	0	0	25	0	0
Stage 1	25	25	-	25	25	-	-	-	-	-	-	-
Stage 2	25	25	-	25	26	-	-	-	-	-	-	-
Critical Hdwy	7.37	6.77	6.47	7.37	6.77	6.47	4.37	-	-	4.37	-	-
Critical Hdwy Stg 1	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Follow-up Hdwy	3.743	4.243	3.543	3.743	4.243	3.543	2.443	-	-	2.443	-	-
Pot Cap-1 Maneuver	891	795	983	891	794	983	1440	-	-	1442	-	-
Stage 1	932	827	-	932	827	-	-	-	-	-	-	-
Stage 2	932	827	-	932	826	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	891	795	983	891	794	983	1440	-	-	1442	-	-
Mov Cap-2 Maneuver	891	795	-	891	794	-	-	-	-	-	-	-
Stage 1	932	827	-	932	827	-	-	-	-	-	-	-
Stage 2	932	827	-	932	826	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	9	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1440	-	-	891	-	1442	-	-
HCM Lane V/C Ratio	-	-	-	0.002	-	-	-	-
HCM Control Delay (s)	0	-	-	9	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	3	3	0	0	3	0	0	1	1	0	1	3
Future Volume (vph)	3	3	0	0	3	0	0	1	1	0	1	3
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	4	4	0	0	4	0	0	1	1	0	1	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	4	2	5
Volume Left (vph)	4	0	0	0
Volume Right (vph)	0	0	1	4
Hadj (s)	1.24	1.14	0.84	0.66
Departure Headway (s)	5.2	5.1	4.8	4.6
Degree Utilization, x	0.01	0.01	0.00	0.01
Capacity (veh/h)	692	706	740	777
Control Delay (s)	8.2	8.1	7.8	7.6
Approach Delay (s)	8.2	8.1	7.8	7.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	31	12	39	20	6	8	75	39	3	83	54
Future Vol, veh/h	23	31	12	39	20	6	8	75	39	3	83	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	32	43	17	54	28	8	11	104	54	4	115	75

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	332	341	153	344	351	131	190	0	0	158	0	0
Stage 1	161	161	-	153	153	-	-	-	-	-	-	-
Stage 2	171	180	-	191	198	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.22	6.62	6.32	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.608	4.108	3.408	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	603	565	867	592	558	892	1326	-	-	1363	-	-
Stage 1	818	746	-	826	752	-	-	-	-	-	-	-
Stage 2	808	732	-	788	719	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	569	558	867	542	551	892	1326	-	-	1363	-	-
Mov Cap-2 Maneuver	569	558	-	542	551	-	-	-	-	-	-	-
Stage 1	811	744	-	819	745	-	-	-	-	-	-	-
Stage 2	764	725	-	726	717	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	12.6	0.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	601	565	1363	-	-
HCM Lane V/C Ratio	0.008	-	-	0.153	0.16	0.003	-	-
HCM Control Delay (s)	7.7	0	-	12.1	12.6	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.6	0	-	-

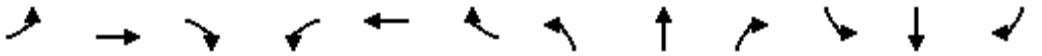
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	8	78	17	93	99
Future Vol, veh/h	15	8	78	17	93	99
Conflicting Peds, #/hr	0	0	0	0	0	0
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	85	85	85	85	85	85
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	18	9	92	20	109	116

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	436	102	0	0	112	0
Stage 1	102	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	559	926	-	-	1418	-
Stage 1	898	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	513	926	-	-	1418	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	3.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	607	1418	-
HCM Lane V/C Ratio	-	-	0.045	0.077	-
HCM Control Delay (s)	-	-	11.2	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	18	82	0	22	2	1	0	0	1	0	7
Future Volume (Veh/h)	11	18	82	0	22	2	1	0	0	1	0	7
Sign Control		Free			Free			Yield			Yield	
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)	13	21	95	0	26	2	1	0	0	1	0	8
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	28			116			130	122	68	122	169	27
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			116			130	122	68	122	169	27
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			100	100	100	100	100	99
cM capacity (veh/h)	1535			1424			813	747	973	830	704	1026

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	129	28	1	9
Volume Left	13	0	1	1
Volume Right	95	2	0	8
cSH	1535	1424	813	1000
Volume to Capacity	0.01	0.00	0.00	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	0.8	0.0	9.4	8.6
Lane LOS	A		A	A
Approach Delay (s)	0.8	0.0	9.4	8.6
Approach LOS			A	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	1	0	0	1	122	12	0	3	20	0
Future Vol, veh/h	0	0	1	0	0	1	122	12	0	3	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	17	17	17	17	17	17	17	17	17	17	17	17
Mvmt Flow	0	0	1	0	0	1	163	16	0	4	27	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	378	377	27	378	377	16	27	0	0	16	0	0
Stage 1	35	35	-	342	342	-	-	-	-	-	-	-
Stage 2	343	342	-	36	35	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.67	6.37	7.27	6.67	6.37	4.27	-	-	4.27	-	-
Critical Hdwy Stg 1	6.27	5.67	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.67	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.153	3.453	3.653	4.153	3.453	2.353	-	-	2.353	-	-
Pot Cap-1 Maneuver	553	532	1007	553	532	1021	1495	-	-	1509	-	-
Stage 1	944	837	-	643	612	-	-	-	-	-	-	-
Stage 2	642	612	-	943	837	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	504	472	1007	504	472	1021	1495	-	-	1509	-	-
Mov Cap-2 Maneuver	504	472	-	504	472	-	-	-	-	-	-	-
Stage 1	840	834	-	572	545	-	-	-	-	-	-	-
Stage 2	571	545	-	939	834	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	8.5	7	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1495	-	-	1007	1021	1509	-	-
HCM Lane V/C Ratio	0.109	-	-	0.001	0.001	0.003	-	-
HCM Control Delay (s)	7.7	0	-	8.6	8.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	0	0	-	-

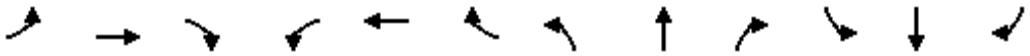
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	0	0	0	0	0	28	0	0	12	6
Future Vol, veh/h	3	0	0	0	0	0	0	28	0	0	12	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	4	0	0	0	0	0	0	39	0	0	17	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	60	60	21	60	64	39	25	0	0	39	0	0
Stage 1	21	21	-	39	39	-	-	-	-	-	-	-
Stage 2	39	39	-	21	25	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.22	6.62	6.32	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.608	4.108	3.408	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	912	812	1028	912	808	1005	1527	-	-	1509	-	-
Stage 1	972	858	-	951	843	-	-	-	-	-	-	-
Stage 2	951	843	-	972	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	912	812	1028	912	808	1005	1527	-	-	1509	-	-
Mov Cap-2 Maneuver	912	812	-	912	808	-	-	-	-	-	-	-
Stage 1	972	858	-	951	843	-	-	-	-	-	-	-
Stage 2	951	843	-	972	855	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	9	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1527	-	-	912	-	1509	-	-
HCM Lane V/C Ratio	-	-	-	0.005	-	-	-	-
HCM Control Delay (s)	0	-	-	9	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	10	10	0	0	13	0	0	81	0	0	1	13
Future Volume (vph)	10	10	0	0	13	0	0	81	0	0	1	13
Peak Hour Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Hourly flow rate (vph)	20	20	0	0	26	0	0	162	0	0	2	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	40	26	162	28
Volume Left (vph)	20	0	0	0
Volume Right (vph)	0	0	0	26
Hadj (s)	0.13	0.03	0.03	-0.52
Departure Headway (s)	4.5	4.4	4.1	3.7
Degree Utilization, x	0.05	0.03	0.19	0.03
Capacity (veh/h)	768	781	853	946
Control Delay (s)	7.7	7.5	8.0	6.8
Approach Delay (s)	7.7	7.5	8.0	6.8
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	18.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	16	30	41	23	0	21	557	76	3	68	13
Future Vol, veh/h	15	16	30	41	23	0	21	557	76	3	68	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	17	33	45	25	0	23	605	83	3	74	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	792	821	81	805	787	647	88	0	0	688	0	0
Stage 1	87	87	-	693	693	-	-	-	-	-	-	-
Stage 2	705	734	-	112	94	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	305	307	973	298	321	467	1495	-	-	897	-	-
Stage 1	916	819	-	430	442	-	-	-	-	-	-	-
Stage 2	424	423	-	888	813	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	280	298	973	269	312	467	1495	-	-	897	-	-
Mov Cap-2 Maneuver	280	298	-	269	312	-	-	-	-	-	-	-
Stage 1	893	816	-	419	431	-	-	-	-	-	-	-
Stage 2	389	412	-	837	810	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	21.8	0.2	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1495	-	-	442	283	897	-	-
HCM Lane V/C Ratio	0.015	-	-	0.15	0.246	0.004	-	-
HCM Control Delay (s)	7.4	0	-	14.6	21.8	9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.9	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	87	485	40	74
Future Vol, veh/h	2	1	87	485	40	74
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	2	1	95	527	43	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	525	359	0	0	622	0
Stage 1	359	-	-	-	-	-
Stage 2	166	-	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335	-
Pot Cap-1 Maneuver	491	657	-	-	899	-
Stage 1	679	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	466	657	-	-	899	-
Mov Cap-2 Maneuver	466	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	516	899	-
HCM Lane V/C Ratio	-	-	0.006	0.048	-
HCM Control Delay (s)	-	-	12	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2	-

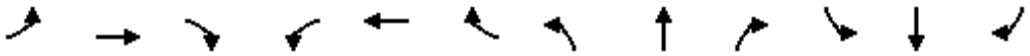
Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	102	120	20	6	77
Future Vol, veh/h	51	102	120	20	6	77
Conflicting Peds, #/hr	0	0	0	0	0	0
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	88	88	88	88	88	88
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	58	116	136	23	7	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	250	148	0	0	159	0
Stage 1	148	-	-	-	-	-
Stage 2	102	-	-	-	-	-
Critical Hdwy	6.51	6.31	-	-	4.21	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.399	-	-	2.299	-
Pot Cap-1 Maneuver	719	876	-	-	1367	-
Stage 1	858	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	715	876	-	-	1367	-
Mov Cap-2 Maneuver	715	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	815	1367	-
HCM Lane V/C Ratio	-	-	0.213	0.005	-
HCM Control Delay (s)	-	-	10.6	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	23	1	0	12	3	82	1	0	1	0	48
Future Volume (Veh/h)	3	23	1	0	12	3	82	1	0	1	0	48
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	4	33	1	0	17	4	117	1	0	1	0	69
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	21			34			130	62	34	61	61	19
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			34			130	62	34	61	61	19
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			85	100	100	100	100	93
cM capacity (veh/h)	1569			1552			778	819	1028	922	820	1048

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	38	21	118	70
Volume Left	4	0	117	1
Volume Right	1	4	0	69
cSH	1569	1552	778	1046
Volume to Capacity	0.00	0.00	0.15	0.07
Queue Length 95th (ft)	0	0	13	5
Control Delay (s)	0.8	0.0	10.5	8.7
Lane LOS	A		B	A
Approach Delay (s)	0.8	0.0	10.5	8.7
Approach LOS			B	A

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	1	123	0	2	0	1	27	0	0	25	2
Future Vol, veh/h	0	1	123	0	2	0	1	27	0	0	25	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	1	162	0	3	0	1	36	0	0	33	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	75	73	35	154	74	36	36	0	0	36	0	0
Stage 1	35	35	-	38	38	-	-	-	-	-	-	-
Stage 2	40	38	-	116	36	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.19	6.59	6.29	4.19	-	-	4.19	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.19	5.59	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.19	5.59	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.581	4.081	3.381	2.281	-	-	2.281	-	-
Pot Cap-1 Maneuver	898	804	1018	797	803	1017	1531	-	-	1531	-	-
Stage 1	963	852	-	960	850	-	-	-	-	-	-	-
Stage 2	957	850	-	872	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	895	803	1018	669	802	1017	1531	-	-	1531	-	-
Mov Cap-2 Maneuver	895	803	-	669	802	-	-	-	-	-	-	-
Stage 1	962	852	-	959	849	-	-	-	-	-	-	-
Stage 2	953	849	-	732	851	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.5	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	1016	802	1531	-	-
HCM Lane V/C Ratio	0.001	-	-	0.161	0.003	-	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0	-	-

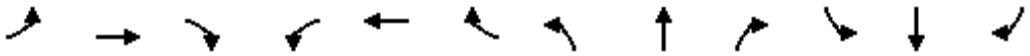
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	30	0	0	21	5
Future Vol, veh/h	1	0	0	0	0	0	0	30	0	0	21	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	16	16	16	16	16	16	16	16	16	16	16	16
Mvmt Flow	2	0	0	0	0	0	0	46	0	0	32	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	82	82	36	82	86	46	40	0	0	46	0	0
Stage 1	36	36	-	46	46	-	-	-	-	-	-	-
Stage 2	46	46	-	36	40	-	-	-	-	-	-	-
Critical Hdwy	7.26	6.66	6.36	7.26	6.66	6.36	4.26	-	-	4.26	-	-
Critical Hdwy Stg 1	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	3.644	4.144	3.444	2.344	-	-	2.344	-	-
Pot Cap-1 Maneuver	873	782	998	873	778	985	1484	-	-	1476	-	-
Stage 1	945	838	-	933	830	-	-	-	-	-	-	-
Stage 2	933	830	-	945	835	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	873	782	998	873	778	985	1484	-	-	1476	-	-
Mov Cap-2 Maneuver	873	782	-	873	778	-	-	-	-	-	-	-
Stage 1	945	838	-	933	830	-	-	-	-	-	-	-
Stage 2	933	830	-	945	835	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	9.1	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1484	-	-	873	-	1476	-	-
HCM Lane V/C Ratio	-	-	-	0.002	-	-	-	-
HCM Control Delay (s)	0	-	-	9.1	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	3	3	0	0	3	0	0	2	1	0	82	3
Future Volume (vph)	3	3	0	0	3	0	0	2	1	0	82	3
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	4	4	0	0	4	0	0	3	1	0	109	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	4	4	113
Volume Left (vph)	4	0	0	0
Volume Right (vph)	0	0	1	4
Hadj (s)	0.17	0.07	-0.08	0.05
Departure Headway (s)	4.3	4.2	3.9	4.0
Degree Utilization, x	0.01	0.00	0.00	0.12
Capacity (veh/h)	807	825	891	898
Control Delay (s)	7.4	7.2	7.0	7.5
Approach Delay (s)	7.4	7.2	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
Level of Service	A		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	23	31	12	80	20	6	8	77	40	3	568	54
Future Vol, veh/h	23	31	12	80	20	6	8	77	40	3	568	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	25	34	13	87	22	7	9	84	43	3	617	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	791	798	647	800	806	106	676	0	0	127	0	0
Stage 1	653	653	-	124	124	-	-	-	-	-	-	-
Stage 2	138	145	-	676	682	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	304	316	466	300	312	940	902	-	-	1441	-	-
Stage 1	451	459	-	873	788	-	-	-	-	-	-	-
Stage 2	858	771	-	438	445	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	283	312	466	265	308	940	902	-	-	1441	-	-
Mov Cap-2 Maneuver	283	312	-	265	308	-	-	-	-	-	-	-
Stage 1	446	458	-	863	779	-	-	-	-	-	-	-
Stage 2	819	763	-	393	444	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.5	26.1	0.6	0
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	902	-	-	320	284	1441	-	-
HCM Lane V/C Ratio	0.01	-	-	0.224	0.406	0.002	-	-
HCM Control Delay (s)	9	0	-	19.5	26.1	7.5	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	1.9	0	-	-

Intersection	
Int Delay, s/veh	17.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	486	41	100	2	1	127
Future Vol, veh/h	486	41	100	2	1	127
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	528	45	109	2	1	138

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	250	110	0	0	111	0
Stage 1	110	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	726	927	-	-	1442	-
Stage 1	900	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	725	927	-	-	1442	-
Mov Cap-2 Maneuver	725	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	738	1442	-
HCM Lane V/C Ratio	-	-	0.776	0.001	-
HCM Control Delay (s)	-	-	24.6	7.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	7.6	0	-

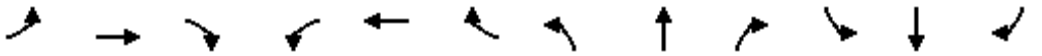
Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	15	235	55	115	500
Future Vol, veh/h	30	15	235	55	115	500
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	22	22	22	22	22	22
Mvmt Flow	33	16	255	60	125	543

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1078	285	0	0	315	0
Stage 1	285	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Critical Hdwy	6.62	6.42	-	-	4.32	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.698	3.498	-	-	2.398	-
Pot Cap-1 Maneuver	222	709	-	-	1140	-
Stage 1	720	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	187	709	-	-	1140	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	348	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	248	1140	-
HCM Lane V/C Ratio	-	-	0.197	0.11	-
HCM Control Delay (s)	-	-	23	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	5	0	40	5	0	0	0	5	0	25
Future Volume (Veh/h)	20	30	5	0	40	5	0	0	0	5	0	25
Sign Control		Free			Free			Yield			Yield	
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)	22	33	5	0	43	5	0	0	0	5	0	27
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	48			38			152	128	36	125	128	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			38			152	128	36	125	128	46
tC, single (s)	4.4			4.4			7.4	6.8	6.5	7.4	6.8	6.5
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.7	4.2	3.5	3.7	4.2	3.5
p0 queue free %	98			100			100	100	100	99	100	97
cM capacity (veh/h)	1413			1425			731	708	970	785	708	957

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	60	48	0	32
Volume Left	22	0	0	5
Volume Right	5	5	0	27
cSH	1413	1425	1700	926
Volume to Capacity	0.02	0.00	0.00	0.03
Queue Length 95th (ft)	1	0	0	3
Control Delay (s)	2.9	0.0	0.0	9.0
Lane LOS	A		A	A
Approach Delay (s)	2.9	0.0	0.0	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	5	0	0	75	0	45	0	5	25	0
Future Vol, veh/h	5	5	5	0	0	75	0	45	0	5	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	36	36	36	36	36	36	36	36	36	36	36	36
Mvmt Flow	6	6	6	0	0	88	0	53	0	6	29	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	138	94	29	100	94	53	29	0	0	53	0	0
Stage 1	41	41	-	53	53	-	-	-	-	-	-	-
Stage 2	97	53	-	47	41	-	-	-	-	-	-	-
Critical Hdwy	7.46	6.86	6.56	7.46	6.86	6.56	4.46	-	-	4.46	-	-
Critical Hdwy Stg 1	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Follow-up Hdwy	3.824	4.324	3.624	3.824	4.324	3.624	2.524	-	-	2.524	-	-
Pot Cap-1 Maneuver	760	736	956	807	736	926	1390	-	-	1361	-	-
Stage 1	894	798	-	880	788	-	-	-	-	-	-	-
Stage 2	832	788	-	887	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	686	733	956	795	733	926	1390	-	-	1361	-	-
Mov Cap-2 Maneuver	686	733	-	795	733	-	-	-	-	-	-	-
Stage 1	894	795	-	880	788	-	-	-	-	-	-	-
Stage 2	753	788	-	872	795	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9.3	0	1.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1390	-	-	776	926	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.095	0.004	-	-
HCM Control Delay (s)	0	-	-	9.7	9.3	7.7	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

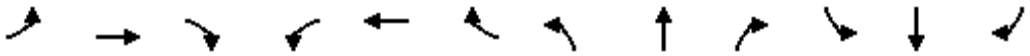
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	0	0	10	10	10	0	75	0	0	35	20
Future Vol, veh/h	35	0	0	10	10	10	0	75	0	0	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	23	23	23	23	23	23	23	23	23	23	23	23
Mvmt Flow	41	0	0	12	12	12	0	88	0	0	41	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	153	141	53	141	153	88	65	0	0	88	0	0
Stage 1	53	53	-	88	88	-	-	-	-	-	-	-
Stage 2	100	88	-	53	65	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.73	6.43	7.33	6.73	6.43	4.33	-	-	4.33	-	-
Critical Hdwy Stg 1	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Follow-up Hdwy	3.707	4.207	3.507	3.707	4.207	3.507	2.407	-	-	2.407	-	-
Pot Cap-1 Maneuver	769	713	958	783	702	915	1413	-	-	1385	-	-
Stage 1	909	811	-	870	783	-	-	-	-	-	-	-
Stage 2	857	783	-	909	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	750	713	958	783	702	915	1413	-	-	1385	-	-
Mov Cap-2 Maneuver	750	713	-	783	702	-	-	-	-	-	-	-
Stage 1	909	811	-	870	783	-	-	-	-	-	-	-
Stage 2	833	783	-	909	801	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	10.1	9.8	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1413	-	-	750	791	1385	-	-
HCM Lane V/C Ratio	-	-	-	0.055	0.045	-	-	-
HCM Control Delay (s)	0	-	-	10.1	9.8	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	40	40	0	0	35	0	0	5	0	0	0	20
Future Volume (vph)	40	40	0	0	35	0	0	5	0	0	0	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	47	47	0	0	41	0	0	6	0	0	0	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	94	41	6	24
Volume Left (vph)	47	0	0	0
Volume Right (vph)	0	0	0	24
Hadj (s)	0.13	0.03	0.03	-0.57
Departure Headway (s)	4.1	4.1	4.2	3.6
Degree Utilization, x	0.11	0.05	0.01	0.02
Capacity (veh/h)	858	867	810	950
Control Delay (s)	7.6	7.3	7.3	6.7
Approach Delay (s)	7.6	7.3	7.3	6.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.4			
Level of Service	A			
Intersection Capacity Utilization	21.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	319

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	90	95	175	125	70	0	65	200	100	25	530	105
Future Vol, veh/h	90	95	175	125	70	0	65	200	100	25	530	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	14	14	14	14	14	14	14	14	14	14	14	14
Mvmt Flow	98	103	190	136	76	0	71	217	109	27	576	114

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1139	1155	633	1248	1158	272	690	0	0	326	0	0
Stage 1	687	687	-	414	414	-	-	-	-	-	-	-
Stage 2	452	468	-	834	744	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.64	6.34	7.24	6.64	6.34	4.24	-	-	4.24	-	-
Critical Hdwy Stg 1	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.126	3.426	3.626	4.126	3.426	2.326	-	-	2.326	-	-
Pot Cap-1 Maneuver	169	187	459	142	186	739	851	-	-	1169	-	-
Stage 1	418	430	-	592	573	-	-	-	-	-	-	-
Stage 2	565	542	-	346	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 96	161	459	~ 37	161	739	851	-	-	1169	-	-
Mov Cap-2 Maneuver	~ 96	161	-	~ 37	161	-	-	-	-	-	-	-
Stage 1	375	414	-	531	514	-	-	-	-	-	-	-
Stage 2	432	486	-	146	389	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 540.1	$ 1583.3	1.7	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	851	-	-	189	51	1169	-	-
HCM Lane V/C Ratio	0.083	-	-	2.07	4.156	0.023	-	-
HCM Control Delay (s)	9.6	0	-	$ 540.5	$ 1583.3	8.2	0	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	30.2	23.5	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

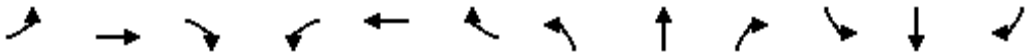
Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	35	370	95	25	380
Future Vol, veh/h	80	35	370	95	25	380
Conflicting Peds, #/hr	0	0	0	0	0	0
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	88	88	88	88	88	88
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	91	40	420	108	28	432

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	962	474	0	0	528	0
Stage 1	474	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	268	563	-	-	972	-
Stage 1	598	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	258	563	-	-	972	-
Mov Cap-2 Maneuver	258	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	309	972	-
HCM Lane V/C Ratio	-	-	0.423	0.029	-
HCM Control Delay (s)	-	-	24.9	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	50	0	0	35	10	5	5	0	5	0	150
Future Volume (Veh/h)	10	50	0	0	35	10	5	5	0	5	0	150
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	13	63	0	0	44	13	6	6	0	6	0	188
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	57			63			328	146	63	142	140	50
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			63			328	146	63	142	140	50
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			99	99	100	99	100	81
cM capacity (veh/h)	1498			1490			492	725	980	799	731	995

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	57	12	194
Volume Left	13	0	6	6
Volume Right	0	13	0	188
cSH	1498	1490	586	988
Volume to Capacity	0.01	0.00	0.02	0.20
Queue Length 95th (ft)	1	0	2	18
Control Delay (s)	1.3	0.0	11.3	9.5
Lane LOS	A		B	A
Approach Delay (s)	1.3	0.0	11.3	9.5
Approach LOS			B	A

Intersection Summary				
Average Delay	6.2			
Intersection Capacity Utilization	26.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	15	15	0	45	0	0	75	0	0	35	5
Future Vol, veh/h	0	15	15	0	45	0	0	75	0	0	35	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	16	16	16	16	16	16	16	16	16	16	16	16
Mvmt Flow	0	18	18	0	53	0	0	88	0	0	41	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	159	132	44	150	135	88	47	0	0	88	0	0
Stage 1	44	44	-	88	88	-	-	-	-	-	-	-
Stage 2	115	88	-	62	47	-	-	-	-	-	-	-
Critical Hdwy	7.26	6.66	6.36	7.26	6.66	6.36	4.26	-	-	4.26	-	-
Critical Hdwy Stg 1	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	3.644	4.144	3.444	2.344	-	-	2.344	-	-
Pot Cap-1 Maneuver	776	734	988	787	731	933	1475	-	-	1424	-	-
Stage 1	936	831	-	886	795	-	-	-	-	-	-	-
Stage 2	857	795	-	915	829	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	733	734	988	759	731	933	1475	-	-	1424	-	-
Mov Cap-2 Maneuver	733	734	-	759	731	-	-	-	-	-	-	-
Stage 1	936	831	-	886	795	-	-	-	-	-	-	-
Stage 2	800	795	-	880	829	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	842	731	1424	-	-
HCM Lane V/C Ratio	-	-	-	0.042	0.072	-	-	-
HCM Control Delay (s)	0	-	-	9.5	10.3	0	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

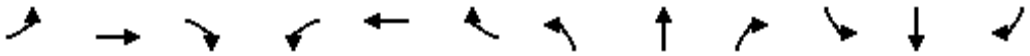
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	0	0	10	10	10	0	40	0	0	40	5
Future Vol, veh/h	65	0	0	10	10	10	0	40	0	0	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	27	27	27	27	27	27	27	27	27	27	27	27
Mvmt Flow	81	0	0	13	13	13	0	50	0	0	50	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	103	53	103	106	50	56	0	0	50	0	0
Stage 1	53	53	-	50	50	-	-	-	-	-	-	-
Stage 2	63	50	-	53	56	-	-	-	-	-	-	-
Critical Hdwy	7.37	6.77	6.47	7.37	6.77	6.47	4.37	-	-	4.37	-	-
Critical Hdwy Stg 1	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Follow-up Hdwy	3.743	4.243	3.543	3.743	4.243	3.543	2.443	-	-	2.443	-	-
Pot Cap-1 Maneuver	805	742	948	821	739	952	1403	-	-	1410	-	-
Stage 1	900	804	-	903	806	-	-	-	-	-	-	-
Stage 2	889	806	-	900	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	784	742	948	821	739	952	1403	-	-	1410	-	-
Mov Cap-2 Maneuver	784	742	-	821	739	-	-	-	-	-	-	-
Stage 1	900	804	-	903	806	-	-	-	-	-	-	-
Stage 2	864	806	-	900	801	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	10.1	9.6	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1403	-	-	784	828	1410	-	-
HCM Lane V/C Ratio	-	-	-	0.104	0.045	-	-	-
HCM Control Delay (s)	0	-	-	10.1	9.6	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	25	25	0	0	80	0	0	5	5	0	5	10
Future Volume (vph)	25	25	0	0	80	0	0	5	5	0	5	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	29	29	0	0	94	0	0	6	6	0	6	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	58	94	12	18
Volume Left (vph)	29	0	0	0
Volume Right (vph)	0	0	6	12
Hadj (s)	1.24	1.14	0.84	0.74
Departure Headway (s)	5.3	5.2	5.2	5.1
Degree Utilization, x	0.09	0.14	0.02	0.03
Capacity (veh/h)	665	675	665	675
Control Delay (s)	8.8	9.0	8.3	8.2
Approach Delay (s)	8.8	9.0	8.3	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	19.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	100	135	55	285	145	45	35	310	165	15	405	265
Future Vol, veh/h	100	135	55	285	145	45	35	310	165	15	405	265
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	125	169	69	356	181	56	44	388	206	19	506	331

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1408	1392	672	1408	1454	491	837	0	0	594	0	0
Stage 1	710	710	-	579	579	-	-	-	-	-	-	-
Stage 2	698	682	-	829	875	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.22	6.62	6.32	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.608	4.108	3.408	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	~ 111	~ 135	439	~ 111	~ 124	558	756	-	-	935	-	-
Stage 1	409	422	-	484	485	-	-	-	-	-	-	-
Stage 2	415	435	-	~ 351	353	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 118	439	-	~ 108	558	756	-	-	935	-	-
Mov Cap-2 Maneuver	-	~ 118	-	-	~ 108	-	-	-	-	-	-	-
Stage 1	372	405	-	440	441	-	-	-	-	-	-	-
Stage 2	200	396	-	~ 166	339	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			0.7	0.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	756	-	-	-	-	935	-	-
HCM Lane V/C Ratio	0.058	-	-	-	-	0.02	-	-
HCM Control Delay (s)	10.1	0	-	-	-	8.9	0	-
HCM Lane LOS	B	A	-	-	-	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	15	235	55	115	500
Future Vol, veh/h	30	15	235	55	115	500
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	22	22	22	22	22	22
Mvmt Flow	33	16	255	60	125	543

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1078	285	0	0	315	0
Stage 1	285	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Critical Hdwy	6.62	6.42	-	-	4.32	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.698	3.498	-	-	2.398	-
Pot Cap-1 Maneuver	222	709	-	-	1140	-
Stage 1	720	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	187	709	-	-	1140	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	348	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	248	1140	-
HCM Lane V/C Ratio	-	-	0.197	0.11	-
HCM Control Delay (s)	-	-	23	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	5	0	40	5	0	0	0	5	0	25
Future Volume (Veh/h)	20	30	5	0	40	5	0	0	0	5	0	25
Sign Control		Free			Free			Yield			Yield	
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)	22	33	5	0	43	5	0	0	0	5	0	27
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	48			38			152	128	36	125	128	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			38			152	128	36	125	128	46
tC, single (s)	4.4			4.4			7.4	6.8	6.5	7.4	6.8	6.5
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.7	4.2	3.5	3.7	4.2	3.5
p0 queue free %	98			100			100	100	100	99	100	97
cM capacity (veh/h)	1413			1425			731	708	970	785	708	957

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	60	48	0	32
Volume Left	22	0	0	5
Volume Right	5	5	0	27
cSH	1413	1425	1700	926
Volume to Capacity	0.02	0.00	0.00	0.03
Queue Length 95th (ft)	1	0	0	3
Control Delay (s)	2.9	0.0	0.0	9.0
Lane LOS	A		A	A
Approach Delay (s)	2.9	0.0	0.0	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	5	0	0	75	0	45	0	5	25	0
Future Vol, veh/h	5	5	5	0	0	75	0	45	0	5	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	36	36	36	36	36	36	36	36	36	36	36	36
Mvmt Flow	6	6	6	0	0	88	0	53	0	6	29	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	138	94	29	100	94	53	29	0	0	53	0	0
Stage 1	41	41	-	53	53	-	-	-	-	-	-	-
Stage 2	97	53	-	47	41	-	-	-	-	-	-	-
Critical Hdwy	7.46	6.86	6.56	7.46	6.86	6.56	4.46	-	-	4.46	-	-
Critical Hdwy Stg 1	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.46	5.86	-	6.46	5.86	-	-	-	-	-	-	-
Follow-up Hdwy	3.824	4.324	3.624	3.824	4.324	3.624	2.524	-	-	2.524	-	-
Pot Cap-1 Maneuver	760	736	956	807	736	926	1390	-	-	1361	-	-
Stage 1	894	798	-	880	788	-	-	-	-	-	-	-
Stage 2	832	788	-	887	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	686	733	956	795	733	926	1390	-	-	1361	-	-
Mov Cap-2 Maneuver	686	733	-	795	733	-	-	-	-	-	-	-
Stage 1	894	795	-	880	788	-	-	-	-	-	-	-
Stage 2	753	788	-	872	795	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9.3	0	1.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1390	-	-	776	926	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.095	0.004	-	-
HCM Control Delay (s)	0	-	-	9.7	9.3	7.7	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

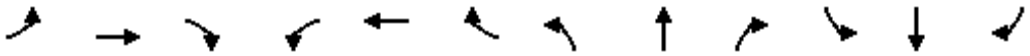
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	0	0	10	10	10	0	75	0	0	35	20
Future Vol, veh/h	35	0	0	10	10	10	0	75	0	0	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	23	23	23	23	23	23	23	23	23	23	23	23
Mvmt Flow	41	0	0	12	12	12	0	88	0	0	41	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	153	141	53	141	153	88	65	0	0	88	0	0
Stage 1	53	53	-	88	88	-	-	-	-	-	-	-
Stage 2	100	88	-	53	65	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.73	6.43	7.33	6.73	6.43	4.33	-	-	4.33	-	-
Critical Hdwy Stg 1	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.33	5.73	-	6.33	5.73	-	-	-	-	-	-	-
Follow-up Hdwy	3.707	4.207	3.507	3.707	4.207	3.507	2.407	-	-	2.407	-	-
Pot Cap-1 Maneuver	769	713	958	783	702	915	1413	-	-	1385	-	-
Stage 1	909	811	-	870	783	-	-	-	-	-	-	-
Stage 2	857	783	-	909	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	750	713	958	783	702	915	1413	-	-	1385	-	-
Mov Cap-2 Maneuver	750	713	-	783	702	-	-	-	-	-	-	-
Stage 1	909	811	-	870	783	-	-	-	-	-	-	-
Stage 2	833	783	-	909	801	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	10.1	9.8	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1413	-	-	750	791	1385	-	-
HCM Lane V/C Ratio	-	-	-	0.055	0.045	-	-	-
HCM Control Delay (s)	0	-	-	10.1	9.8	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	40	40	0	0	35	0	0	5	0	0	0	20
Future Volume (vph)	40	40	0	0	35	0	0	5	0	0	0	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	47	47	0	0	41	0	0	6	0	0	0	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	94	41	6	24
Volume Left (vph)	47	0	0	0
Volume Right (vph)	0	0	0	24
Hadj (s)	0.13	0.03	0.03	-0.57
Departure Headway (s)	4.1	4.1	4.2	3.6
Degree Utilization, x	0.11	0.05	0.01	0.02
Capacity (veh/h)	858	867	810	950
Control Delay (s)	7.6	7.3	7.3	6.7
Approach Delay (s)	7.6	7.3	7.3	6.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.4			
Level of Service	A			
Intersection Capacity Utilization	21.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	344.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	90	95	175	125	70	0	65	216	100	25	531	105
Future Vol, veh/h	90	95	175	125	70	0	65	216	100	25	531	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	14	14	14	14	14	14	14	14	14	14	14	14
Mvmt Flow	98	103	190	136	76	0	71	235	109	27	577	114

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1158	1174	634	1267	1177	290	691	0	0	344	0	0
Stage 1	688	688	-	432	432	-	-	-	-	-	-	-
Stage 2	470	486	-	835	745	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.64	6.34	7.24	6.64	6.34	4.24	-	-	4.24	-	-
Critical Hdwy Stg 1	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.64	-	6.24	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.126	3.426	3.626	4.126	3.426	2.326	-	-	2.326	-	-
Pot Cap-1 Maneuver	164	182	458	137	181	722	850	-	-	1151	-	-
Stage 1	418	429	-	579	562	-	-	-	-	-	-	-
Stage 2	552	531	-	345	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 91	157	458	~ 34	156	722	850	-	-	1151	-	-
Mov Cap-2 Maneuver	~ 91	157	-	~ 34	156	-	-	-	-	-	-	-
Stage 1	374	412	-	518	503	-	-	-	-	-	-	-
Stage 2	419	475	-	145	388	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 577	$ 1753.9	1.6	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	850	-	-	182	47	1151	-	-
HCM Lane V/C Ratio	0.083	-	-	2.15	4.51	0.024	-	-
HCM Control Delay (s)	9.6	0	-	$ 577	$ 1753.9	8.2	0	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	30.9	23.9	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	292	16	0	530
Future Vol, veh/h	1	0	292	16	0	530
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	317	17	0	576

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	902	326	0	0	334	0
Stage 1	326	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	308	715	-	-	1225	-
Stage 1	731	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	308	715	-	-	1225	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	308	1225	-
HCM Lane V/C Ratio	-	-	0.004	-	-
HCM Control Delay (s)	-	-	16.7	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

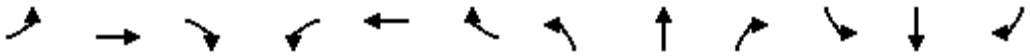
Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	35	370	95	25	380
Future Vol, veh/h	80	35	370	95	25	380
Conflicting Peds, #/hr	0	0	0	0	0	0
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	88	88	88	88	88	88
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	91	40	420	108	28	432

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	962	474	0	0	528	0
Stage 1	474	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	268	563	-	-	972	-
Stage 1	598	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	258	563	-	-	972	-
Mov Cap-2 Maneuver	258	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	309	972	-
HCM Lane V/C Ratio	-	-	0.423	0.029	-
HCM Control Delay (s)	-	-	24.9	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	50	0	0	35	10	5	5	0	5	0	150
Future Volume (Veh/h)	10	50	0	0	35	10	5	5	0	5	0	150
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	13	63	0	0	44	13	6	6	0	6	0	188
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	57			63			328	146	63	142	140	50
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			63			328	146	63	142	140	50
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			99	99	100	99	100	81
cM capacity (veh/h)	1498			1490			492	725	980	799	731	995

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	57	12	194
Volume Left	13	0	6	6
Volume Right	0	13	0	188
cSH	1498	1490	586	988
Volume to Capacity	0.01	0.00	0.02	0.20
Queue Length 95th (ft)	1	0	2	18
Control Delay (s)	1.3	0.0	11.3	9.5
Lane LOS	A		B	A
Approach Delay (s)	1.3	0.0	11.3	9.5
Approach LOS			B	A

Intersection Summary				
Average Delay	6.2			
Intersection Capacity Utilization	26.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	15	15	0	45	0	0	75	0	0	35	5
Future Vol, veh/h	0	15	15	0	45	0	0	75	0	0	35	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	16	16	16	16	16	16	16	16	16	16	16	16
Mvmt Flow	0	18	18	0	53	0	0	88	0	0	41	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	159	132	44	150	135	88	47	0	0	88	0	0
Stage 1	44	44	-	88	88	-	-	-	-	-	-	-
Stage 2	115	88	-	62	47	-	-	-	-	-	-	-
Critical Hdwy	7.26	6.66	6.36	7.26	6.66	6.36	4.26	-	-	4.26	-	-
Critical Hdwy Stg 1	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.26	5.66	-	6.26	5.66	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	3.644	4.144	3.444	2.344	-	-	2.344	-	-
Pot Cap-1 Maneuver	776	734	988	787	731	933	1475	-	-	1424	-	-
Stage 1	936	831	-	886	795	-	-	-	-	-	-	-
Stage 2	857	795	-	915	829	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	733	734	988	759	731	933	1475	-	-	1424	-	-
Mov Cap-2 Maneuver	733	734	-	759	731	-	-	-	-	-	-	-
Stage 1	936	831	-	886	795	-	-	-	-	-	-	-
Stage 2	800	795	-	880	829	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	842	731	1424	-	-
HCM Lane V/C Ratio	-	-	-	0.042	0.072	-	-	-
HCM Control Delay (s)	0	-	-	9.5	10.3	0	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

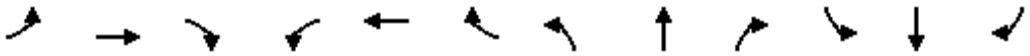
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	0	0	10	10	10	0	40	0	0	40	5
Future Vol, veh/h	65	0	0	10	10	10	0	40	0	0	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	27	27	27	27	27	27	27	27	27	27	27	27
Mvmt Flow	81	0	0	13	13	13	0	50	0	0	50	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	103	53	103	106	50	56	0	0	50	0	0
Stage 1	53	53	-	50	50	-	-	-	-	-	-	-
Stage 2	63	50	-	53	56	-	-	-	-	-	-	-
Critical Hdwy	7.37	6.77	6.47	7.37	6.77	6.47	4.37	-	-	4.37	-	-
Critical Hdwy Stg 1	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.37	5.77	-	6.37	5.77	-	-	-	-	-	-	-
Follow-up Hdwy	3.743	4.243	3.543	3.743	4.243	3.543	2.443	-	-	2.443	-	-
Pot Cap-1 Maneuver	805	742	948	821	739	952	1403	-	-	1410	-	-
Stage 1	900	804	-	903	806	-	-	-	-	-	-	-
Stage 2	889	806	-	900	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	784	742	948	821	739	952	1403	-	-	1410	-	-
Mov Cap-2 Maneuver	784	742	-	821	739	-	-	-	-	-	-	-
Stage 1	900	804	-	903	806	-	-	-	-	-	-	-
Stage 2	864	806	-	900	801	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	10.1	9.6	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1403	-	-	784	828	1410	-	-
HCM Lane V/C Ratio	-	-	-	0.104	0.045	-	-	-
HCM Control Delay (s)	0	-	-	10.1	9.6	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Yield			Yield			Yield	
Traffic Volume (vph)	25	25	0	0	80	0	0	5	5	0	5	10
Future Volume (vph)	25	25	0	0	80	0	0	5	5	0	5	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	29	29	0	0	94	0	0	6	6	0	6	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	58	94	12	18
Volume Left (vph)	29	0	0	0
Volume Right (vph)	0	0	6	12
Hadj (s)	1.24	1.14	0.84	0.74
Departure Headway (s)	5.3	5.2	5.2	5.1
Degree Utilization, x	0.09	0.14	0.02	0.03
Capacity (veh/h)	665	675	665	675
Control Delay (s)	8.8	9.0	8.3	8.2
Approach Delay (s)	8.8	9.0	8.3	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	19.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	100	135	55	285	145	45	35	311	165	15	421	265
Future Vol, veh/h	100	135	55	285	145	45	35	311	165	15	421	265
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	125	169	69	356	181	56	44	389	206	19	526	331

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1429	1413	692	1429	1475	492	857	0	0	595	0	0
Stage 1	730	730	-	580	580	-	-	-	-	-	-	-
Stage 2	699	683	-	849	895	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.22	6.62	6.32	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.22	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.608	4.108	3.408	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	~ 107	~ 131	427	~ 107	~ 120	557	742	-	-	934	-	-
Stage 1	399	413	-	483	484	-	-	-	-	-	-	-
Stage 2	415	434	-	~ 342	346	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 114	427	-	~ 104	557	742	-	-	934	-	-
Mov Cap-2 Maneuver	-	~ 114	-	-	~ 104	-	-	-	-	-	-	-
Stage 1	362	396	-	439	439	-	-	-	-	-	-	-
Stage 2	199	394	-	~ 158	331	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			0.7	0.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	742	-	-	-	-	934	-	-
HCM Lane V/C Ratio	0.059	-	-	-	-	0.02	-	-
HCM Control Delay (s)	10.2	0	-	-	-	8.9	0	-
HCM Lane LOS	B	A	-	-	-	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	0	456	1	0	460
Future Vol, veh/h	16	0	456	1	0	460
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	0	496	1	0	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	997	497	0	0	497	0
Stage 1	497	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	271	573	-	-	1067	-
Stage 1	611	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	573	-	-	1067	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	609	-	-	-	-	-

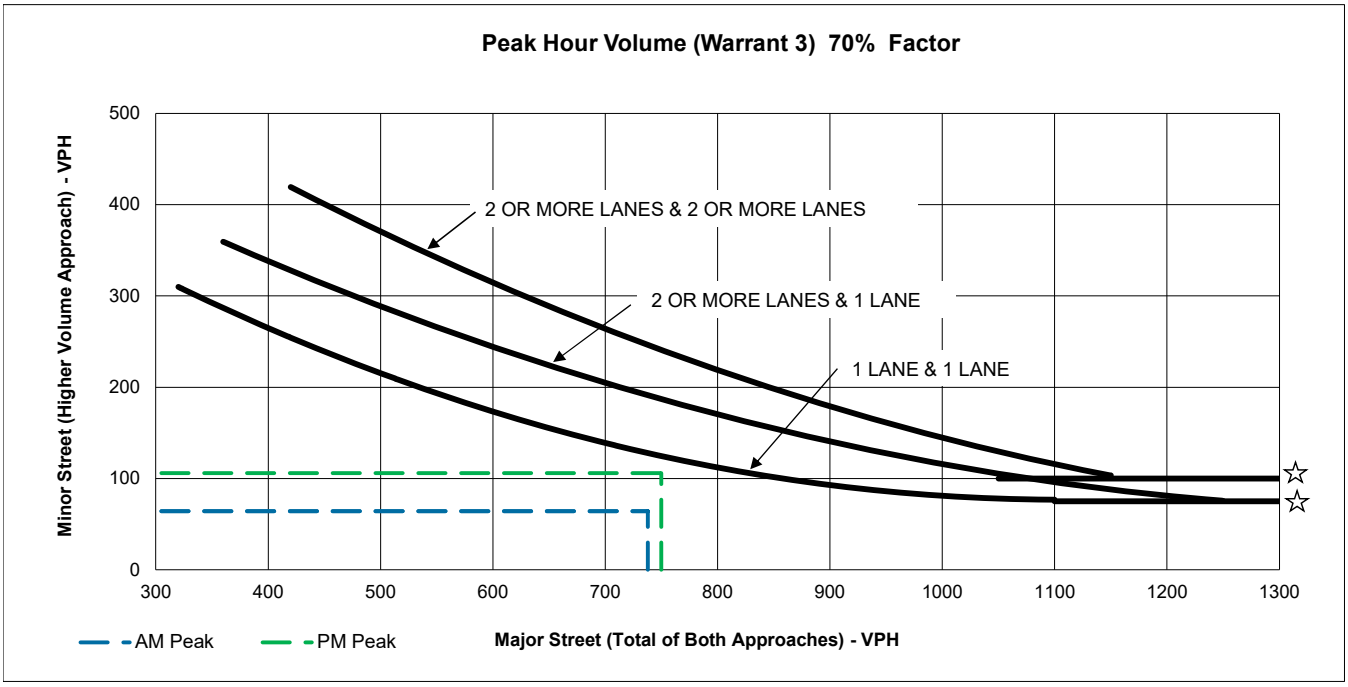
Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	271	1067	-
HCM Lane V/C Ratio	-	-	0.064	-	-
HCM Control Delay (s)	-	-	19.2	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Appendix C – California MUTCD Peak Hour Warrant 3 (70%) Worksheets

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

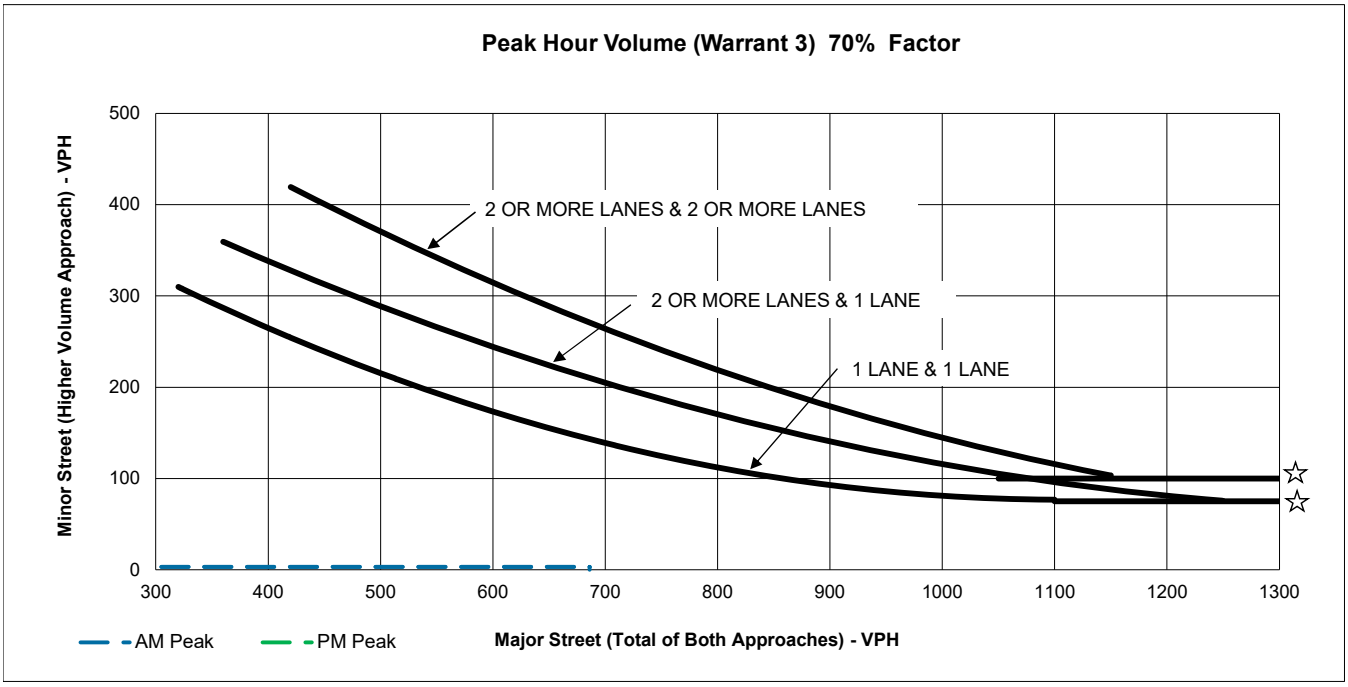


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Existing Plus Project (AM/PM)		
		Number of Lanes
Major Approach	Barstow Rd	1
Minor Approach	Rabbit Springs Rd	1
	AM Peak	PM Peak
Major St. Volume:	738	750
Minor St. Volume:	64	106
Warrant Met?:	No	No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

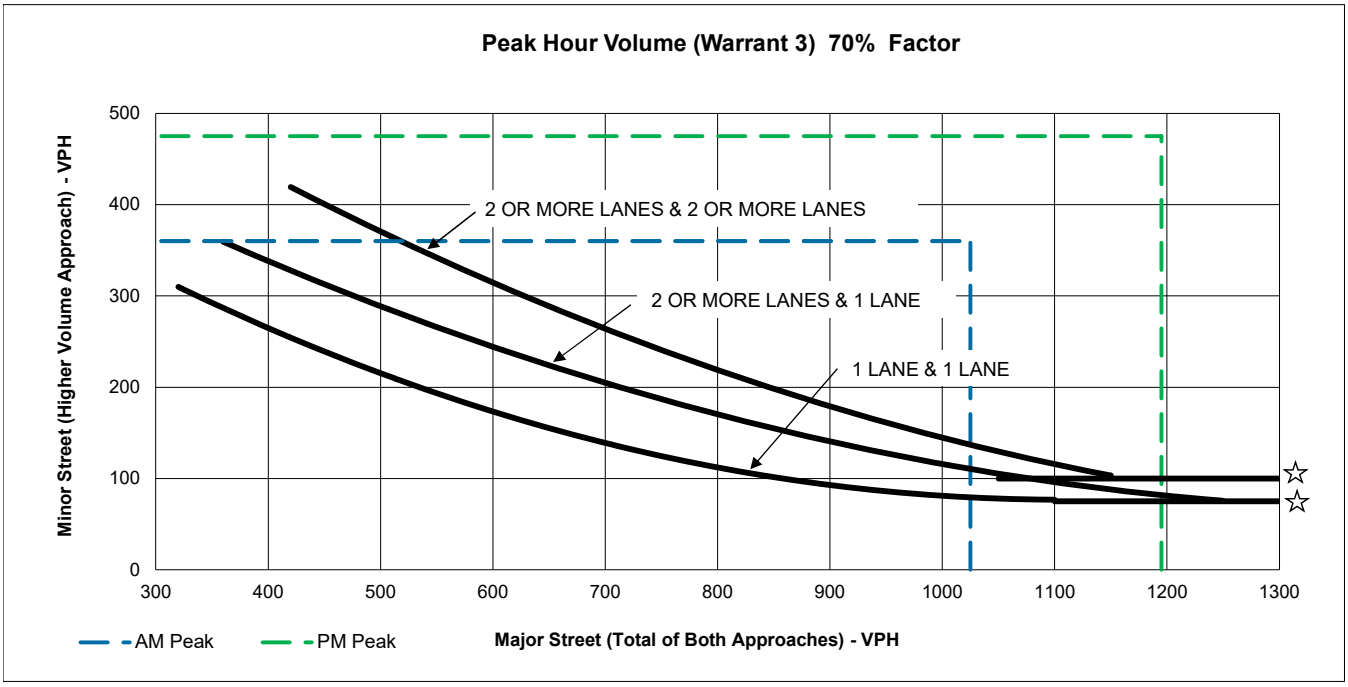


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Existing Plus Project (AM/PM)		
		Number of Lanes
Major Approach	Barstow Rd	1
Minor Approach	Access Road	1
	AM Peak	PM Peak
Major St. Volume:	686	230
Minor St. Volume:	3	527
Warrant Met?:	No	No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

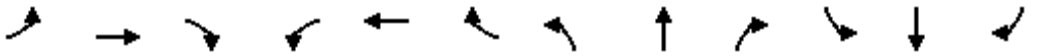
** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

2040 (AM/PM)		
		Number of Lanes
Major Approach	Barstow Rd	1
Minor Approach	Rabbit Springs Rd	1
	AM Peak	PM Peak
Major St. Volume:	1,025	1,195
Minor St. Volume:	360	475
Warrant Met?:	Yes	Yes

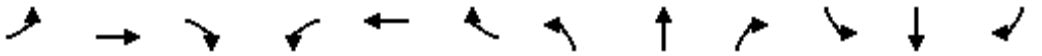
Appendix D – Mitigated Synchro 10 LOS Output Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	95	175	125	70	0	65	200	100	25	530	105
Future Volume (veh/h)	90	95	175	125	70	0	65	200	100	25	530	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1693	1693	1693	1693	1693	1693	1693	1693	1693	1693	1693	1693
Adj Flow Rate, veh/h	98	103	190	136	76	0	71	217	109	27	576	114
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
Percent Heavy Veh, %	14	14	14	14	14	14	14	14	14	14	14	14
Cap, veh/h	142	118	218	179	414	0	87	630	534	113	657	557
Arrive On Green	0.09	0.22	0.22	0.11	0.24	0.00	0.05	0.37	0.37	0.07	0.39	0.39
Sat Flow, veh/h	1612	533	983	1612	1693	0	1612	1693	1434	1612	1693	1434
Grp Volume(v), veh/h	98	0	293	136	76	0	71	217	109	27	576	114
Grp Sat Flow(s),veh/h/ln	1612	0	1516	1612	1693	0	1612	1693	1434	1612	1693	1434
Q Serve(g_s), s	4.2	0.0	13.3	5.8	2.5	0.0	3.1	6.6	3.7	1.1	22.5	3.8
Cycle Q Clear(g_c), s	4.2	0.0	13.3	5.8	2.5	0.0	3.1	6.6	3.7	1.1	22.5	3.8
Prop In Lane	1.00		0.65	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	0	336	179	414	0	87	630	534	113	657	557
V/C Ratio(X)	0.69	0.00	0.87	0.76	0.18	0.00	0.81	0.34	0.20	0.24	0.88	0.20
Avail Cap(c_a), veh/h	204	0	394	249	488	0	159	899	762	152	892	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	26.7	30.7	21.3	0.0	33.3	16.1	15.2	31.3	20.2	14.5
Incr Delay (d2), s/veh	5.9	0.0	17.0	8.5	0.2	0.0	16.1	0.3	0.2	1.1	7.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.9	2.5	0.9	0.0	1.5	2.3	1.1	0.4	8.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	0.0	43.7	39.2	21.5	0.0	49.4	16.4	15.4	32.3	27.8	14.6
LnGrp LOS	D	A	D	D	C	A	D	B	B	C	C	B
Approach Vol, veh/h		391			212			397			717	
Approach Delay, s/veh		42.1			32.8			22.0			25.8	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	30.5	11.9	19.8	7.9	31.6	10.2	21.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.7	37.8	11.0	18.5	7.0	37.5	9.0	20.5
Max Q Clear Time (g_c+I1), s	3.1	8.6	7.8	15.3	5.1	24.5	6.2	4.5
Green Ext Time (p_c), s	0.0	1.5	0.1	0.5	0.0	3.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	135	55	285	145	45	35	310	165	15	405	265
Future Volume (veh/h)	100	135	55	285	145	45	35	310	165	15	405	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	125	169	69	356	181	56	44	388	206	19	506	331
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	156	202	82	395	403	125	65	601	510	36	571	484
Arrive On Green	0.10	0.17	0.17	0.24	0.32	0.32	0.04	0.35	0.35	0.02	0.33	0.33
Sat Flow, veh/h	1640	1162	475	1640	1262	390	1640	1722	1459	1640	1722	1459
Grp Volume(v), veh/h	125	0	238	356	0	237	44	388	206	19	506	331
Grp Sat Flow(s),veh/h/ln	1640	0	1637	1640	0	1652	1640	1722	1459	1640	1722	1459
Q Serve(g_s), s	5.7	0.0	10.8	16.2	0.0	8.8	2.0	14.6	8.2	0.9	21.4	15.1
Cycle Q Clear(g_c), s	5.7	0.0	10.8	16.2	0.0	8.8	2.0	14.6	8.2	0.9	21.4	15.1
Prop In Lane	1.00		0.29	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	0	285	395	0	527	65	601	510	36	571	484
V/C Ratio(X)	0.80	0.00	0.84	0.90	0.00	0.45	0.68	0.65	0.40	0.53	0.89	0.68
Avail Cap(c_a), veh/h	301	0	394	448	0	546	107	650	550	107	650	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	30.7	28.3	0.0	20.8	36.4	21.0	19.0	37.2	24.3	22.2
Incr Delay (d2), s/veh	9.0	0.0	10.7	19.7	0.0	0.6	11.6	2.0	0.5	11.9	12.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	4.8	7.9	0.0	3.1	1.0	5.5	2.6	0.5	9.7	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	41.4	48.0	0.0	21.4	48.1	23.0	19.5	49.1	37.2	25.2
LnGrp LOS	D	A	D	D	A	C	D	C	B	D	D	C
Approach Vol, veh/h		363			593			638			856	
Approach Delay, s/veh		42.0			37.4			23.6			32.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	30.9	22.5	17.4	7.5	29.5	11.3	28.5
Change Period (Y+Rc), s	4.5	4.0	4.0	4.0	4.5	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	29.0	21.0	18.5	5.0	29.0	14.1	25.4
Max Q Clear Time (g_c+I1), s	2.9	16.6	18.2	12.8	4.0	23.4	7.7	10.8
Green Ext Time (p_c), s	0.0	2.3	0.3	0.6	0.0	2.1	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C