

**APPENDIX G – TRAFFIC REPORT**

# Le Conte Energy Storage

TRAFFIC IMPACT STUDY  
IMPERIAL COUNTY, CALIFORNIA

Prepared By:



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# 1.0 INTRODUCTION

This traffic impact analysis (TIA) has been prepared to identify the potential traffic impacts associated with constructing a utility-scale battery energy storage system (BESS). The BESS will be capable of storing 125 megawatts (MW) of electric energy incorporating traditional lithium-ion batteries located entirely within the footprint of the existing Centinela Solar Energy Facility (CSE).

The Project will be situated on approximately three to five acres within the fence line of the existing CSE site, located at 319 Brockman Road, Calexico, CA. **Figure 1.1** shows the site location. Major project components include up to two buildings totaling 85,000 square feet in size (batteries and enclosures; power conversion systems; substation and overhead electric tie line; ancillary systems). The project site plan is shown in **Figure 1.2**.

## *Construction Activities*

Construction of the proposed Project is anticipated to begin after receipt of all required approvals and will continue for approximately 12 months. The project may be constructed in phases if two buildings are selected. The construction workers employed for the project will consist of laborers, electricians, supervisory, support, and management personnel. . Grading of the Project will occur over approximately three weeks. Disturbed surfaces that are not stabilized will be watered, as needed, for dust control. Most of the equipment will arrive at the site pre-assembled. Overall building construction activities include:

- Mobilization (including surveying/staking, installation of environmental BMPs, grading);
- Civil and foundation work (including conduit, equipment pads, concrete foundations);
- Building(s) fabrication (form and pour slab) framing, sheathing, roofing, mechanical [HVAC], lighting and electrical, fire suppression);
- Data support installation; batteries (install batteries and racks, install batteries in racks); electrical works including inverters (pull and test cable, set and test equipment, point of interconnection work); and
- Commissioning and testing.

The construction work hours are anticipated to occur from 8 am to 5 pm.

Typical equipment will be used for site preparation (including grading), digging foundations, excavating trenches, and for conduit installation. A cement truck will also be utilized during construction activities to pour concrete foundations. Disturbed surfaces that are not stabilized will be watered as needed for dust control.

Construction employee parking needs will be minimal with an average approximately 15 people on-site and a peak of approximately 50 people. Construction parking will be provided in the area immediately to the east of the project site. The workforce will decrease as the proposed Project facilities are completed. The workforce will decline during the last four months of construction.

It is expected that the Projects' facilities will not require any operational staff.

Figure 1.1 Study Area

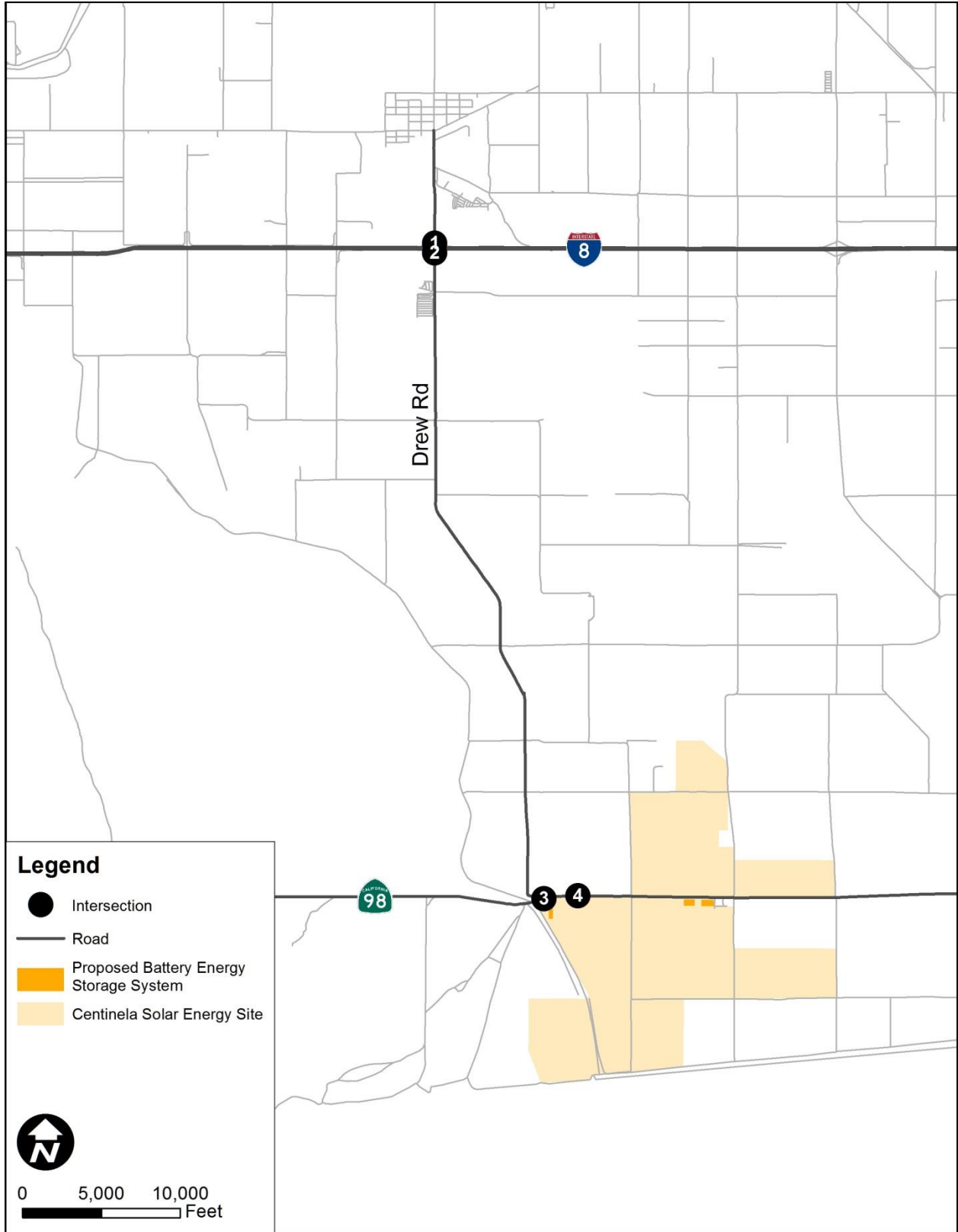
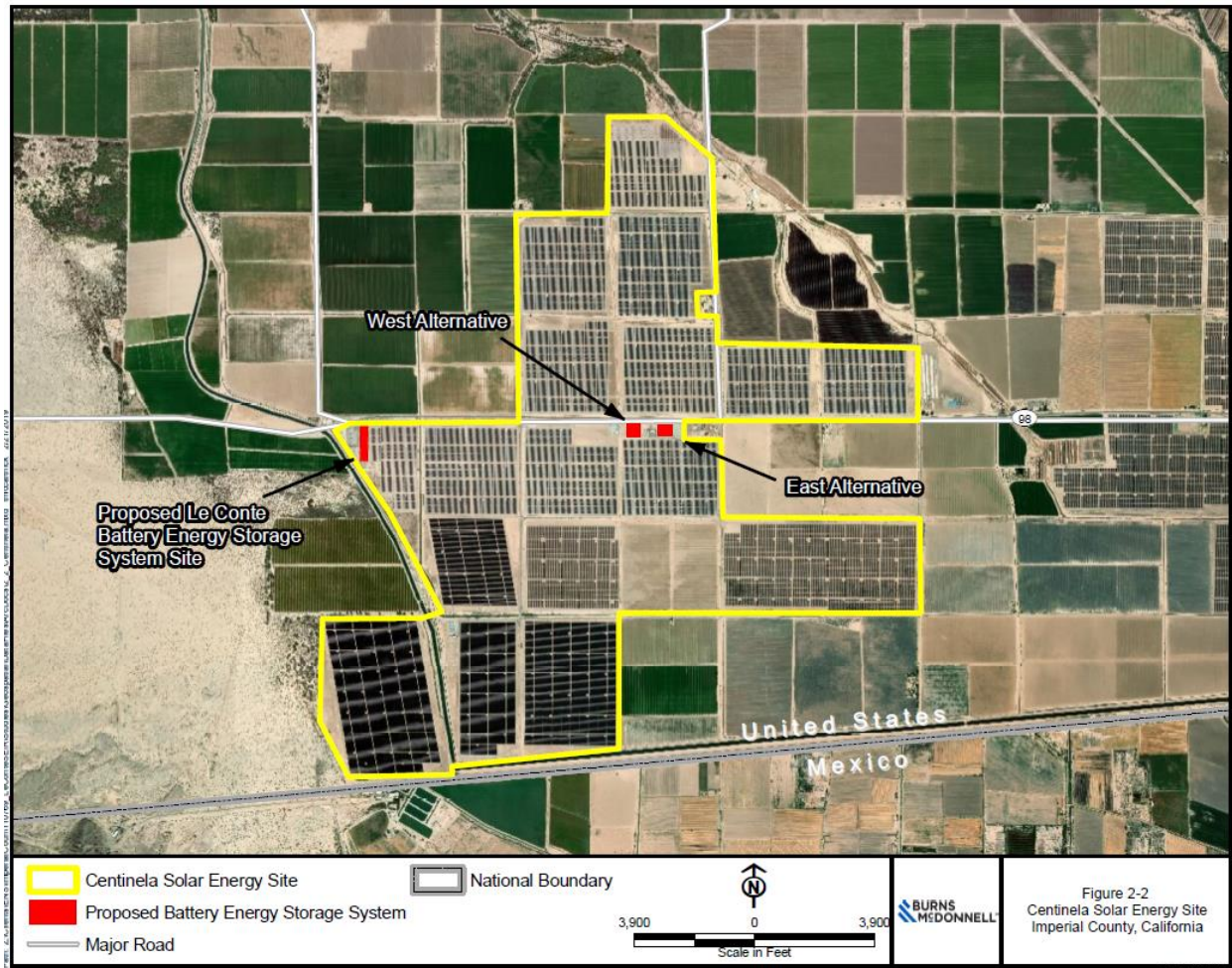


Figure 1.2 Site Plan





## 2.0 CAPACITY ANALYSIS METHODOLOGIES

This section presents a brief overview of traffic analysis methodologies and concepts used in this study. Street system operating conditions are typically described in terms of “level of service (LOS)” to compare without project and with project alternatives. LOS is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. The levels of service range from Level A (free flow, little congestion) to Level F (forced flow, higher congestion).

### **Study Area Criteria**

The study area is determined based on the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007 (“Traffic Study and Report Policy”).

The study area for this project includes those locations that likely will be affected by this project. The project study area was determined based on similar solar projects in the same general area. The specific study area consists of the following intersections:

- 1) SR-98/Drew Road
- 2) Drew Road/I-8 WB Ramps
- 3) Drew Road / I-8 EB Ramps
- 4) Project Access Driveway/SR 98

The study area also includes the following study segments:

- 1) Drew Road from Kubler Road to SR-98
- 2) SR-98 Drew Road to Ferrell Road

### **Scenario Criteria**

The proposed project's traffic impacts were analyzed in four scenarios as listed below. The traffic analysis included intersections and roadway segments within Imperial County and Caltrans District 11 in the following scenarios to determine the potential impacts:

- Existing Year (2019) Conditions
- Existing Year (2019) + Project Conditions
- Existing Year (2019) + Project + Cumulative Conditions
- Near-Term Year 2021
- Near-Term Year 2021 + Project Conditions
- Near-Term Year 2021 + Project + Cumulative Conditions
- Decommissioning Year + Project Conditions

## Peak Hour Intersection Level of Service Standards

Traffic conditions on most roadway facilities are analyzed using the principles of the specific analysis methods contained in the latest version (2010) of the *Highway Capacity Manual (HCM)*, a publication of the Transportation Research Board, a research agency affiliated with the Federal Government. Chapter 18 of the *HCM 2010* is devoted to analysis of signalized intersections. The methodology in the *HCM 2010* for signalized intersections is based upon measurements or forecasts of control delay for traffic utilizing all approaches to the intersection.

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the 2010 Highway Capacity Manual unsignalized intersection analysis methodology. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. The analysis of peak hour intersection conditions was conducted using the Synchro 9 software program developed by Trafficware. Results are displayed in terms of control delay (seconds per vehicle) and an equivalent LOS as shown in **Table 2.1**.

**TABLE 2.1: HCM LEVEL OF SERVICE DEFINITIONS FOR INTERSECTIONS**

LOS	Signalized Intersection Delay (Seconds per Vehicle)	Unsignalized Intersection Average Stop Delay (Seconds)
A	<10	<10
B	>10 and <20	>10 and <15
C	>20 and <35	>15 and <25
D	>35 and <55	>25 and <35
E	>55 and <80	>35 and <50
F	>80	>50

Source: Highway Capacity Manual, 2010.

## Roadway Segment Level of Service Standards

Roadway segment LOS standards and thresholds provide the basis for analysis of roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes.

The County of Imperial level of service analysis was performed by utilizing the *Circulation and Scenic Highways Element, January 2008*. The thresholds for each facility type are presented in **Table 2.2**.

## Freeway Segments

The trip generated by the project that would be assigned to the freeway did not meet the Caltrans thresholds requiring a traffic study and a freeway segment analysis was not completed. The project falls under the 1 to 49 trip threshold for trips assigned to a state freeway. A traffic study may still be required where the state freeway with forced flow conditions (LOS E or F). The existing ADT on I-8 at Drew Road is 16,300 (Caltrans 2017 count) which equates to a LOS A or B and as such a traffic study of Caltrans freeway segments is not required.

**Table 2.2 County of Imperial ADT Level of Service Volumes by Roadway Type**

Road		Level of Service (LOS)				
Class	X-Section	A	B	C	D	E
Expressway	154/210	30,000	42,000	60,000	70,000	80,000
Prime Arterial	106/136	22,200	37,000	44,600	50,000	57,000
Minor Arterial	82/102	14,800	24,700	29,600	33,400	37,000
Major Collector	64/84	13,700	22,800	27,400	30,800	34,200
Minor (Local) Collector	40/70	1,900	4,100	7,100	10,900	16,200
<p>* Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.            Source: <i>Imperial County Circulation and Scenic Highways Element 2008 and Imperial County Long Range Transportation Plan 2013 Update</i></p>						

### **Analysis of Significance**

The significance criteria for traffic impacts are based on the Imperial County Planning & Development Services Department LOS standard as outlined in the "Circulation Element". "The County's goal for an acceptable traffic service standard on an Average Daily Traffic (ADT) basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections."

- Strive to maintain LOS "C" or better on arterial and collector streets, at all intersections, and on principal arterials during the hour of highest volume during the AM hours and also during the PM hours. Imperial County has established LOS "C" as the general threshold for acceptable overall traffic operations for both signalized and un-signalized intersections.
- Accept LOS "D" after finding that there is no practical and feasible way to mitigate to LOS "C;" and the development causing the lower level of service provides a clear, overall public benefit.
- For segments that operate at LOS D or lower, an incremental increase in v/c of greater than 0.02 is considered to be a significant impact. For intersections that operate at LOS D or lower, an incremental increase in vehicle delay of 2.0 seconds or greater is considered to be a significant impact.

## 3.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

### Project Trip Generation

The project trip generation consists of a construction phase and operations phase. The construction phase will have the highest intensity traffic demand followed by an operations phase with significantly fewer trips. This section describes the construction and operations trip generation.

Construction activities are expected to take approximately 12 months. The on-site construction workforce will consist of laborers, craftspeople, supervisory personnel, and support personnel. Construction activities include site preparation (including grading), digging foundations, excavating trenches, and conduit installation. A concrete truck will also be utilized during construction activities to pour concrete foundations. All equipment and material will be staged on the Project site.

The construction workforce will include an average 15 people on-site, occurring during the BESS facility and gen-tie. The peak of 50 employees on site will occur during the battery connection and installation phase. Work hours will be between the hours of 8:00 a.m. and 5:00 p.m. Monday through Saturday. The trips generated during the Battery Connection Phase are shown in **Table 3.1**. Truck trips have been converted into passenger equivalent volumes (PCE) using a PCE factor of 2.0. The trips generated during the BESS construction phase are less than for the battery connection phase and are shown in **Table 3.2**.

**Table 3.1 Construction Trip Generation – Battery Connection Phase**

	Intensity	Unit	Daily Rate (1)	Daily Trips		AM Peak Hour			PM Peak Hour		
						Total	In	Out	Total	In	Out
Peak Construction Workers	50.0	Employee	2	100	Rate	1.00	100%	0%	1.00	0%	100%
					Trips	50	50	0	50	0	50
Equipment Deliveries and Construction Truck Trips (PCE)	85.0	1000 sq. ft.	0.1639	28	Rate	0.13	75%	25%	0.13	25%	75%
					Trips	11	8	3	11	3	8
<b>Total</b>				128	Trips	61	58	3	61	3	58

1. Source (Trip Rate): California Emissions Estimator Model (CalEEMod) Appendix A Calculation Details for CalEEMod, p.13. <http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixa.pdf?sfvrsn=2>

**Table 3.2 Construction Trip Generation – BESS Facility Construction Phase**

	Intensity	Unit	Daily Rate (1)	Daily Trips		AM Peak Hour			PM Peak Hour		
						Total	In	Out	Total	In	Out
Construction Workers	15.0	Employee	2	30	Rate	1.00	25%	75%	1.00	63%	37%
					Trips	15	4	11	15	9	6
Equipment Deliveries and Construction Truck Trips (PCE)	85.0	1000 sq. ft.	0.1639	28	Rate	0.13	75%	25%	0.13	25%	75%
					Trips	11	8	3	11	3	8
<b>Total</b>				58	Trips	26	12	14	26	12	14

1. Source (Trip Rate): California Emissions Estimator Model (CalEEMod) Appendix A Calculation Details for CalEEMod, p.13. <http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixa.pdf?sfvrsn=2>

### **Project Operations Trip Generation**

For the operations phase, when construction is complete and the facility is in operation, there will be two trips per week during operation. This amount is less than one trip per day and is considered negligible.

### **Trip Distribution and Assignment**

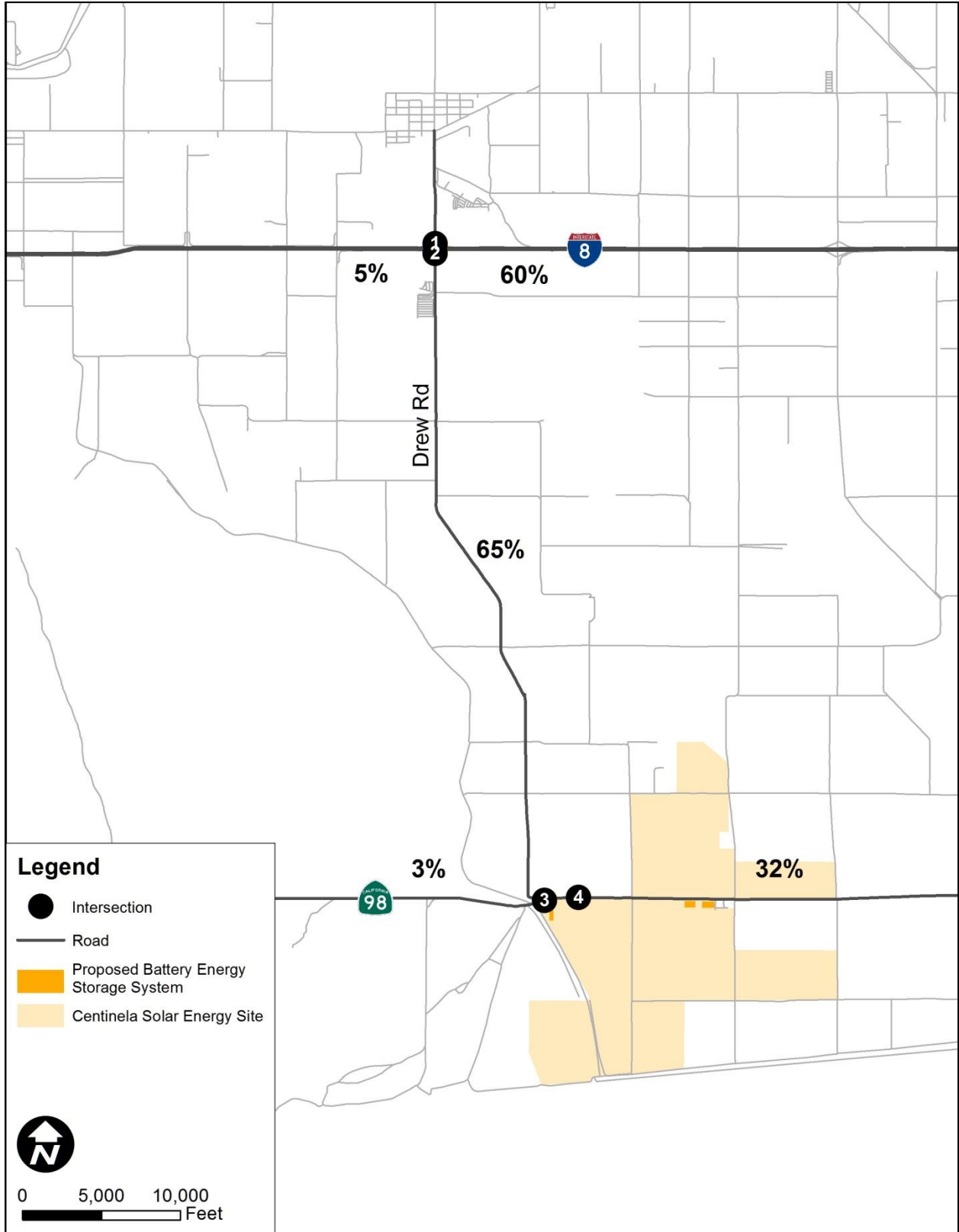
Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will likely affect. Trip distribution and assignment information can be estimated from observed traffic patterns, experience or through use of a computerized travel forecast model. Once the proposed developments trips have been estimated, they are assigned to the study area street network. The trip distribution was estimated based on using logical travel paths between the project and local origins. The trip distribution for the project-related trips is shown in **Figure 3.1**. Project generated trips are shown in **Figure 3.2**.

### **Cumulative Projects**

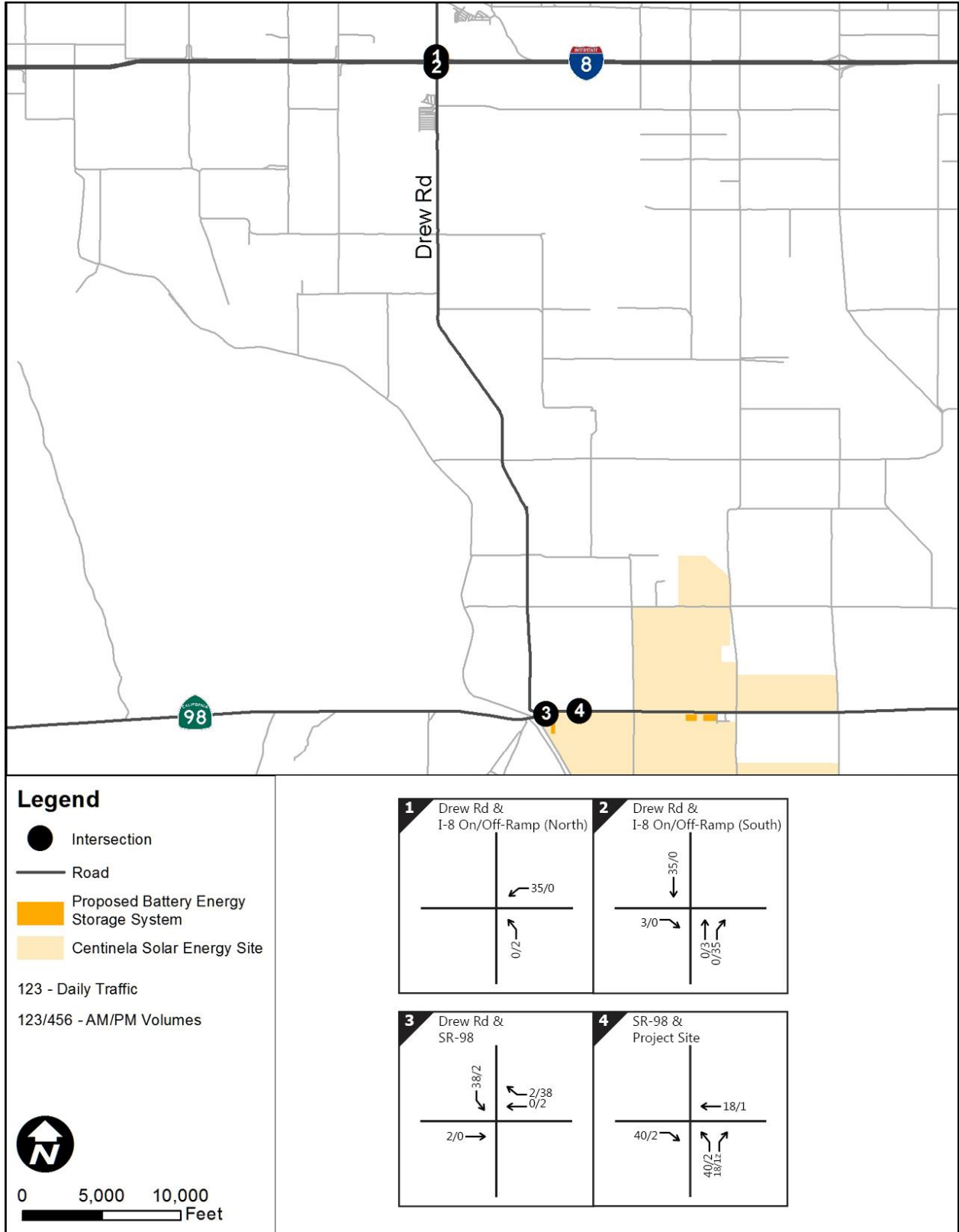
Information on cumulative projects was obtained from the County of Imperial staff in May, 2019. The cumulative list below describes other planned projects in the immediate area around the project site (i.e. projects that are generally located south of I-8 and adjacent to Drew Road). Those projects already constructed or now in construction have not been included as the construction impacts will have been completed by this projects construction year. Most of the cumulative projects have completed technical studies including traffic generation information. Information for each cumulative project is included below with text identifying if a cumulative project was observed to be under construction. Cumulative generated trips are shown in **Figure 3.3** and include the following projects:

- 1) Big Rock Solar and Laurel Solar - These four projects together are known as the Laurel Cluster Solar Farms and would generate up to 325 MW of electricity. The sites are generally located west of Drew Road and south of I-8. The construction phase is calculated to generate 668 daily trips with 207 AM peak hour trips and 207 PM peak hour trips.

Figure 3.1. Trip Distribution



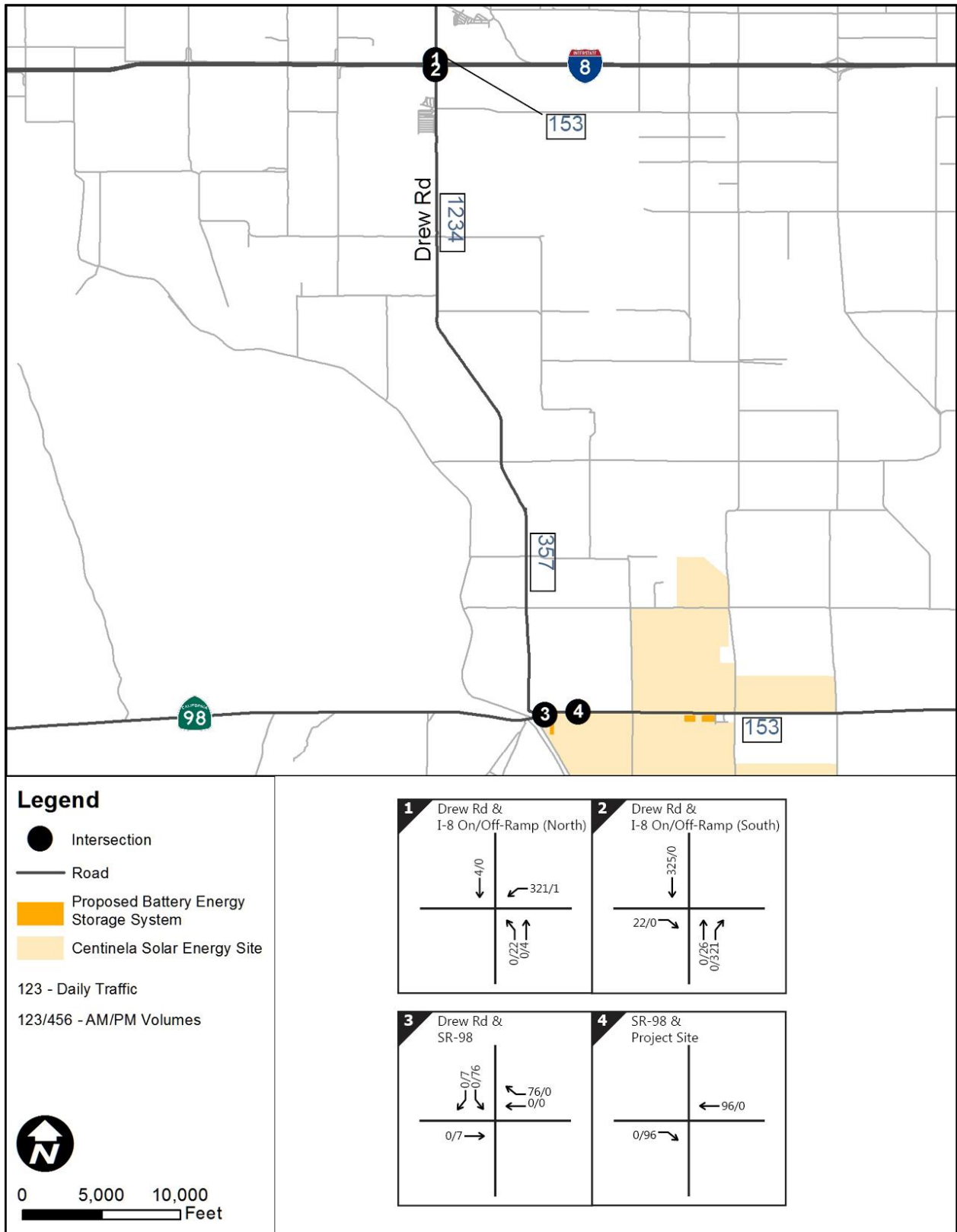
**Figure 3.2. Project Generated Trips**



- 2) Drew Solar - The Drew Solar Project consists of a PV solar facility capable of producing approximately 100 MWAC to be sited on approximately 855 gross and 762.8 net farmable acres. The Project may be constructed at one time over approximately 18 months, or it may be built out over an approximately 10-year period. The site is generally located west of Drew Road and south of I-8. The construction phase is calculated to generate 436 daily trips with 147 AM peak hour trips and 147 PM peak hour trips.
- 3) The VEGA SES Project - involves the construction of a 100 MW PV solar energy facility with an integrated 100 MW battery storage system on approximately 574 gross acres of land. Of the total 574 gross acres, approximately 555 acres would be developed with a ground mounted PV solar power generating system, supporting structures, on-site substation, battery storage system, and internal access roads. Located approximately 9 miles southwest of the City of El Centro, California. The project site is generally located east of the Westside Main Canal, south of West Wixom Road, west of Drew Road, and north of Lyons Road. The construction phase is calculated to generate 374 daily trips with 187 AM peak hour trips and 187 PM peak hour trips.
- 4) Iris Cluster - The Iris Cluster Solar Farm Project involves the construction of four utility-scale PV solar facilities on four non-contiguous independent sites encompassing approximately 1,422 acres. The project is located adjacent to SR-98 near Calexico. Most of the project is built.
- 5) Ocotillo Sol - San Diego Gas & Electric filed a ROW application with the BLM for a ROW grant to construct, operate, maintain, and decommission a 100-acre solar photovoltaic facility on BLM-managed land. This project is located east of the study area, and will not impact the study segments or intersections.



Figure 3.3 Cumulative Trips



## 4.0 EXISTING CONDITIONS

This section documents the Existing Year Conditions in the study area. The Existing Year is taken to be 2019 for analysis purposes based on existing traffic counts taken in May, 2019. The discussion presented here is limited to segments and intersections in the project's vicinity.

### *Existing Roadway Conditions*

Each of the key roadways, as well as associated study intersections within the study area, are discussed below.

#### **Roadway Facilities**

*Drew Road* is a two-lane minor local collector roadway with no median and a posted speed limit of 55 mph. No sidewalks or bicycle facilities are present on either side of the roadway. The width of the roadway is generally 24 feet.

*Interstate 8 (I-8)* is a four-lane divided freeway with two (2) lanes in each direction with a posted speed limit of 70 mph between Dunaway Road and Forrester Road.

*State Route 98 (SR-98)* is a two-lane highway with no median and a posted speed limit of 65 mph between Interstate 8 and east of Drew Road.

#### **Study Intersections**

The following four (4) key study area intersections were analyzed:

1. Drew Road / I-8 WB Ramps (ramps stop controlled)
2. Drew Road / I-8 EB Ramps (ramps stop controlled)
3. Drew Road / SR-98 (Drew Road stop controlled)
4. SR-98 and project driveway \*Only under Plus Project scenarios

**Figure 4.1** displays the existing intersection geometrics for study area intersections.

### *Traffic Volumes*

Existing turning movement counts at the study intersections and segment counts were conducted on Wednesday, May 22, 2019. The existing condition reflects those land uses that were built and occupied at the time of the traffic counts and represent a typical weekday commute period. Intersection turning movement counts are provided in Appendix B. Existing segment counts, and also weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure 4.2**.

### *Existing Year Conditions*

This section documents the existing traffic conditions of study area segments and intersections.

## Segments

Roadway segment analysis was conducted for the study area’s specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the existing level of service for the designated roadway segments. **Table 4.1** below displays these levels of service.

**TABLE 4.1: EXISTING YEAR CONDITIONS ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	321	0.02	A
SR 98	State Hwy (2 U)	20,900	1,953	0.09	A

## Intersections

An intersection LOS analysis was prepared for the existing (without-project) condition and is summarized in **Table 4.2** which indicates that there are two study area intersections. Detailed LOS worksheets are included in Appendix B.

**TABLE 4.2 EXISTING YEAR CONDITIONS PEAK HOUR INTERSECTION ANALYSIS**

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	A	9.1	A	8.9
2	Drew Road / I-8 EB Ramps	MSSC	B	10.1	B	12.7
3	Drew Road / SR-98	MSSC	A	8.9	A	9.5

Delay is in seconds/vehicle. LOS = Level of Service, MSSC – minor street stop control

## Existing With Project Conditions

This section documents the addition of construction traffic onto year 2019 conditions to document the scenario if the project was constructed immediately over 12 months. **Figure 4.3** shows the *Existing With Project* traffic volumes in the study area.

## Segments

Roadway segment analysis was conducted for the study area’s specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the level of service for the designated roadway segments. **Table 4.3** below displays these levels of service.

**TABLE 4.3: EXISTING YEAR WITH PROJECT CONDITIONS ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	404	0.02	A
SR 98	State Hwy (2 U)	20,900	1,994	0.10	A

**Table 4.4** displays the operation at each intersection with the project traffic added to the Existing Year scenario. Intersection LOS calculations are shown in **Appendix C**.

**TABLE 4.4: EXISTING YEAR WITH PROJECT CONDITIONS PEAK HOUR INTERSECTION ANALYSIS**

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	B	10.2	A	9.7
2	Drew Road / I-8 EB Ramps	MSSC	B	11.9	B	12.7
3	Drew Road / SR-98	MSSC	A	9.5	B	10.1
4	Site Driveway/ SR 98	MSSC	A	7.5	B	10.4

Note: 1 = Delay is in seconds/vehicle, 2 = Level of Service, MSSC – minor street stop control

### **Existing With Project Plus Cumulative Conditions**

This section documents the addition of construction traffic plus cumulative projects onto year 2019 conditions to document the scenario if the project and the cumulative projects were constructed immediately over 12 months. **Figure 4.4** shows the *Existing With Project plus Cumulative Project* traffic volumes in the study area.

### **Segments**

Roadway segment analysis was conducted for the study area’s specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the level of service for the designated roadway segments. **Table 4.5** below displays these levels of service.

**TABLE 4.5: EXISTING YEAR WITH PROJECT PLUS CUMULATIVE CONDITIONS ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	1,638	0.10	A
SR 98	State Hwy (2 U)	20,900	2,147	0.10	A

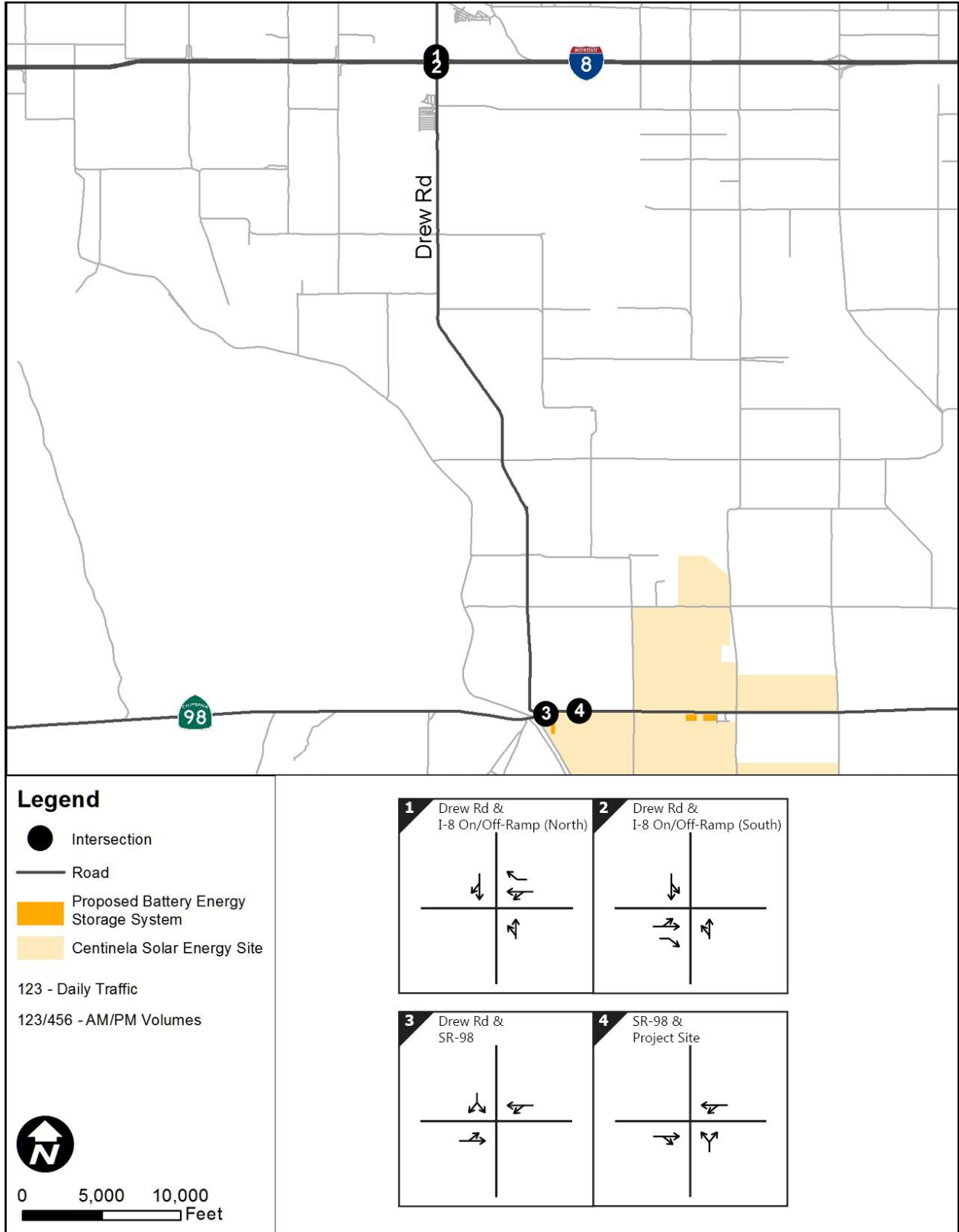
**Table 4.6** displays the operation at each intersection with the project traffic added to the Existing Year scenario. Intersection LOS calculations are shown in **Appendix D**.

**TABLE 4.6: EXISTING YEAR WITH PROJECT PLUS CUMULATIVE CONDITIONS PEAK HOUR INTERSECTION ANALYSIS**

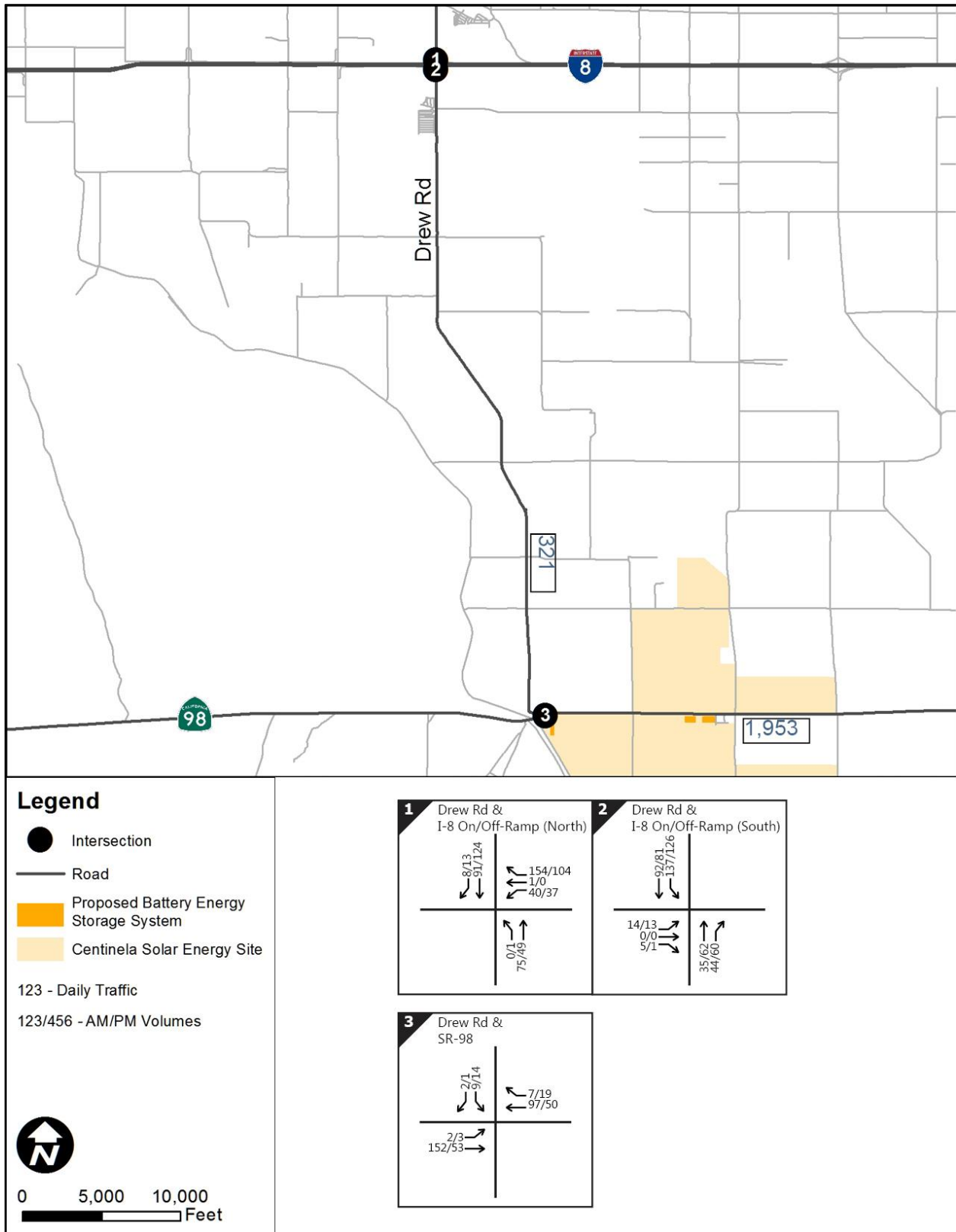
#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	C	17.6	B	10.0
2	Drew Road / I-8 EB Ramps	MSSC	B	13.6	C	16.5
3	Drew Road / SR-98	MSSC	A	10.0	B	12.6
4	Site Driveway/ SR 98	MSSC	A	7.5	B	10.9

Note: 1 = Delay is in seconds/vehicle, 2 = Level of Service

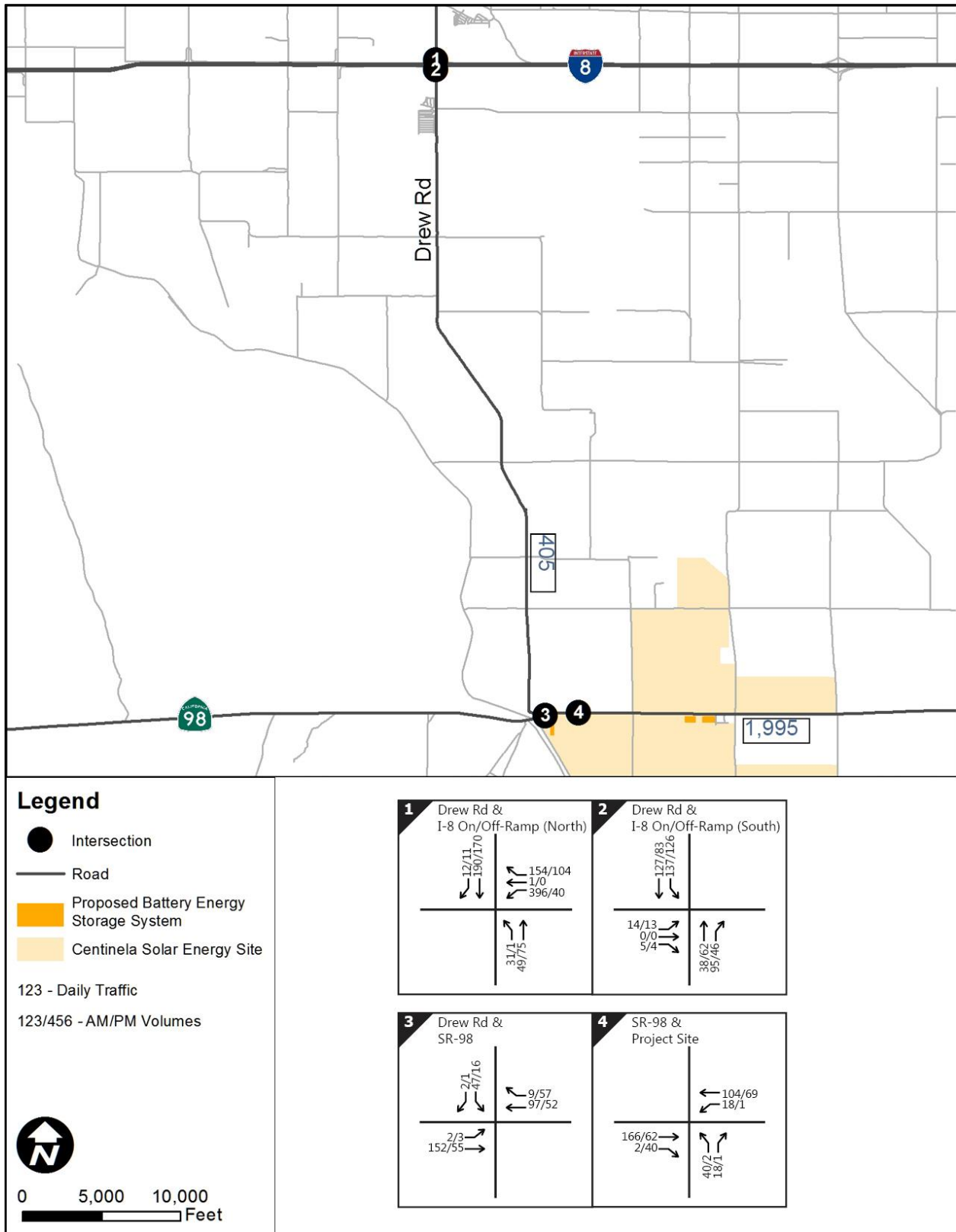
**FIGURE 4.1: EXISTING STUDY INTERSECTION LANE GEOMETRY**



**FIGURE 4.2: EXISTING YEAR VOLUMES**

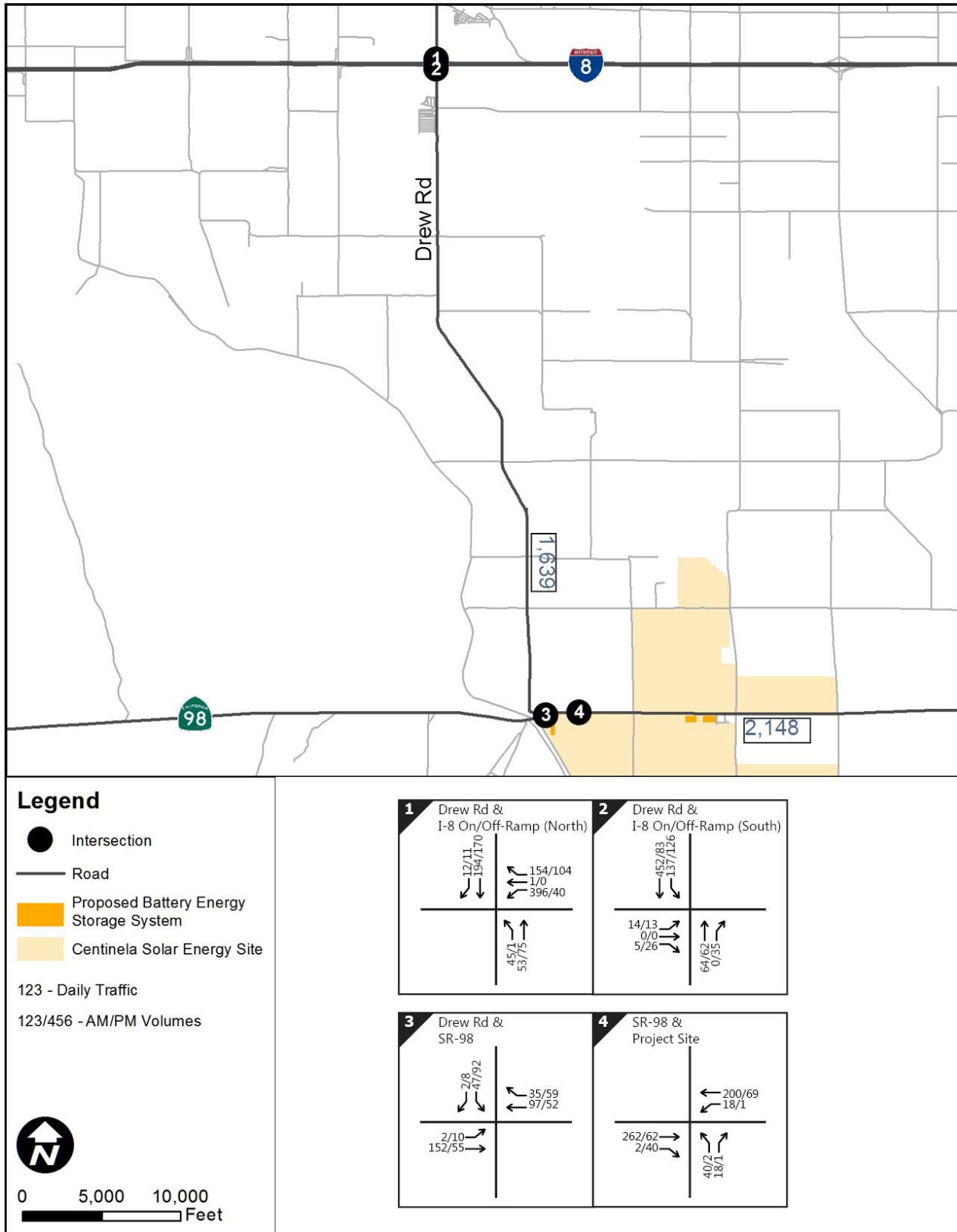


**FIGURE 4.3 EXISTING YEAR WITH PROJECT VOLUMES**





**FIGURE 4.4 EXISTING YEAR WITH PROJECT PLUS CUMULATIVE VOLUMES**



## 5.0 OPENING YEAR 2021 CONDITIONS

This section documents the analysis for the Project Completion Year conditions. This scenario considers the traffic conditions at the time that the proposed development is completed by increasing the existing traffic counts by an ambient growth rate and cumulative projects. Projected project only volumes are then added to create the 2021 Baseline with Project Scenario. It is anticipated that the project will be completed in Year 2021. An annual ambient growth of 1.8% was utilized to account for traffic growth between 2019 and 2021.

The growth rate is based on the California Economic Forecast *California County-Level Economic Forecast 2015-2040*, dated September 2015 documents an average annual growth factor of 1.8 percent from 2015 to 2020 for Imperial County. Year 2021 traffic data was obtained by factoring the 2019 traffic counts by the application of the 1.8 percent annual growth (3.6 percent total). **Figure 5.1** illustrates the Project Completion Year background volumes.

### Opening Year Conditions

This section documents the opening year traffic conditions of study area segments and intersections.

#### Segments

Roadway segment analysis was conducted for the study area's specified segments. Using average daily traffic (ADT) counts, KOA determined the opening year level of service for the designated roadway segments. **Table 5.1** below displays these levels of service.

**TABLE 5.1: OPENING YEAR ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	333	0.03	A
SR 98	State Hwy (2 U)	20,900	2,023	0.13	A

#### Intersections

An intersection LOS analysis was prepared for the opening year (without-project) condition and is summarized in **Table 5.2**. Detailed LOS worksheets are included in **Appendix E**.

**TABLE 5.2: OPENING YEAR PEAK HOUR INTERSECTION ANALYSIS**

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	A	9.81	A	9.6
2	Drew Road / I-8 EB Ramps	MSSC	B	12.3	B	13.2
3	Drew Road / SR-98	MSSC	A	9.4	B	10.0

Delay is in seconds/vehicle. LOS = Level of Service, MSSC – minor street stop control

### Opening Year With Project Conditions

This section documents the addition of construction traffic onto opening conditions to document the scenario if the project is constructed as planned in the year 2021. **Figure 5.2** shows the *Opening Year With Project* traffic volumes in the study area.

### Segments

Roadway segment analysis was conducted for the study area’s specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the level of service for the designated roadway segments. **Table 5.3** below displays these levels of service.

**TABLE 5.3: OPENING YEAR WITH PROJECT ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	416	0.03	A
SR 98	State Hwy (2 U)	20,900	2,065	0.10	A

An intersection LOS analysis was prepared for the Opening Year with Project condition and is summarized in Table 5.4. The table indicates that there are no study area intersections would operate at an unacceptable LOS (i.e., LOS D or worse) during the peak a.m. or p.m. hours. Detailed LOS worksheets are included in **Appendix F**.

**TABLE 5.4: OPENING YEAR WITH PROJECT PEAK HOUR INTERSECTION ANALYSIS**

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	B	10.5	A	9.6
2	Drew Road / I-8 EB Ramps	MSSC	B	12.3	B	13.2
3	Drew Road / SR-98	MSSC	A	9.7	B	10.2
4	Site Driveway/ SR 98	MSSC	A	7.5	B	10.4

Note: 1 = Delay is in seconds/vehicle, 2 = Level of Service, \* delay greater than 180 seconds

## Project Opening Year With Project Plus Cumulative Conditions

This section documents the addition of construction traffic plus cumulative projects onto year 2021 conditions to document the scenario if the project and the cumulative projects were constructed at the same year as this project. **Figure 5.3** shows the *Opening Year With Project plus Cumulative Project* traffic volumes in the study area.

### Segments

Roadway segment analysis was conducted for the study area's specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the level of service for the designated roadway segments. **Table 5.5** below displays these levels of service.

**TABLE 5.5 OPENING YEAR WITH PROJECT PLUS CUMULATIVE CONDITIONS ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	1,651	0.13	A
SR 98	State Hwy (2 U)	20,900	2,218	0.10	A

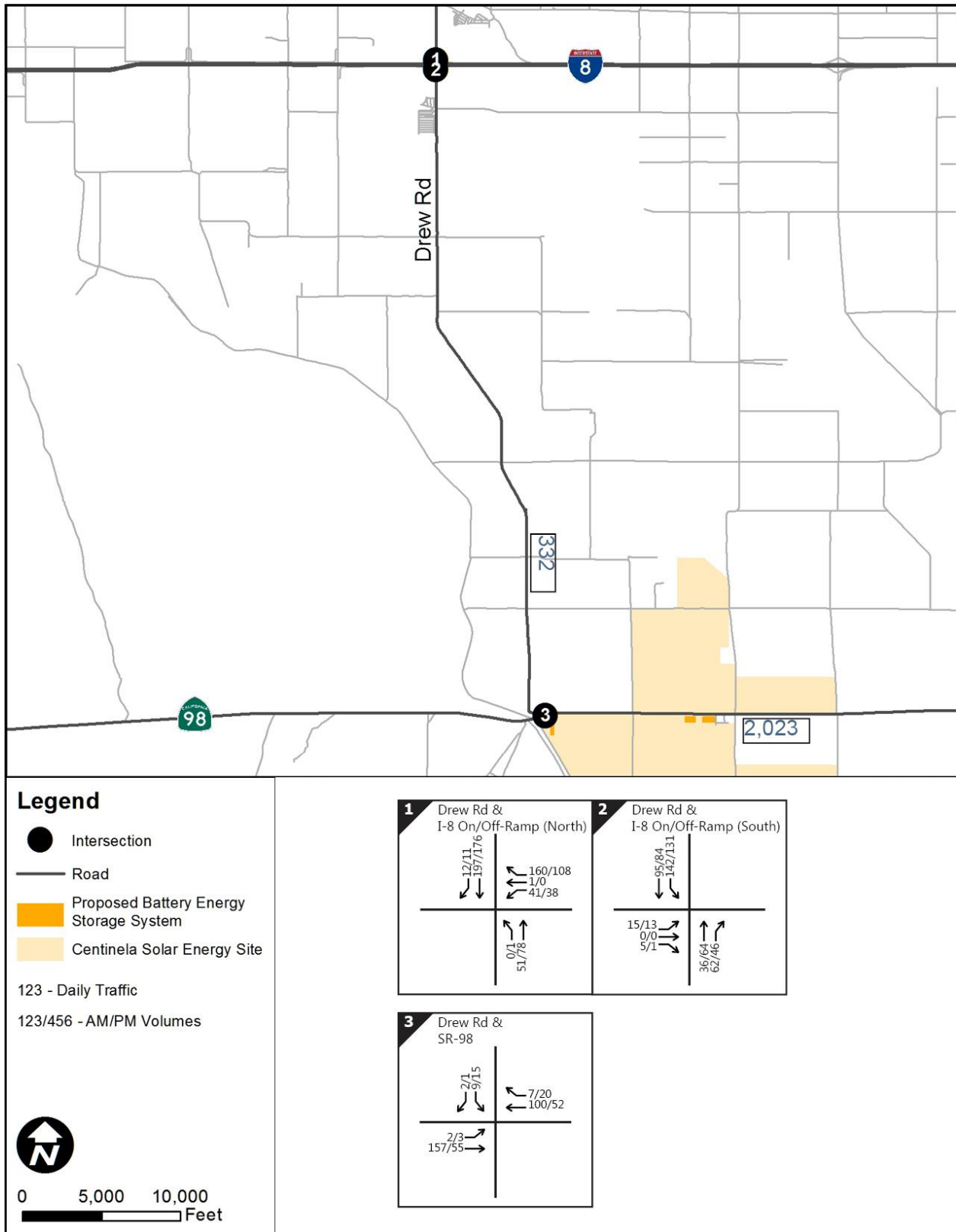
**Table 5.6** displays the operation at each intersection with the project traffic added to the Existing Year scenario. The table indicates that there are no study area intersections would operate at an unacceptable LOS (i.e., LOS D or worse) during the peak a.m. or p.m. hours. Intersection LOS calculations are shown in **Appendix G**.

**TABLE 5.6: OPENING YEAR WITH PROJECT PLUS CUMULATIVE CONDITIONS PEAK HOUR INTERSECTION ANALYSIS**

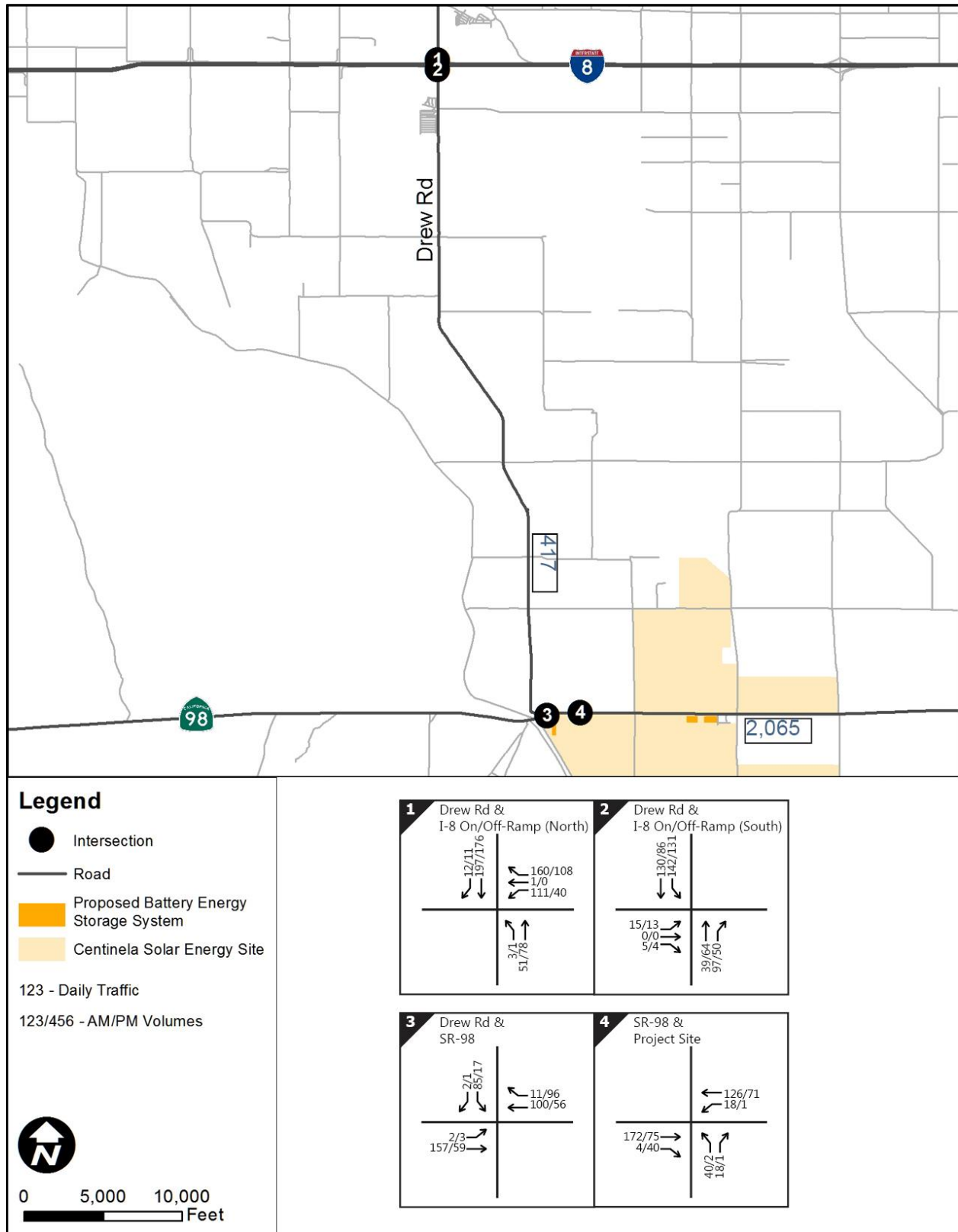
#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	C	18.1	A	9.8
2	Drew Road / I-8 EB Ramps	MSSC	B	13.6	B	13.3
3	Drew Road / SR-98	MSSC	A	9.7	B	11.0
4	Site Driveway/ SR 98	MSSC	A	9.7	B	11.0

Note: 1 = Delay is in seconds/vehicle, 2 = Level of Service

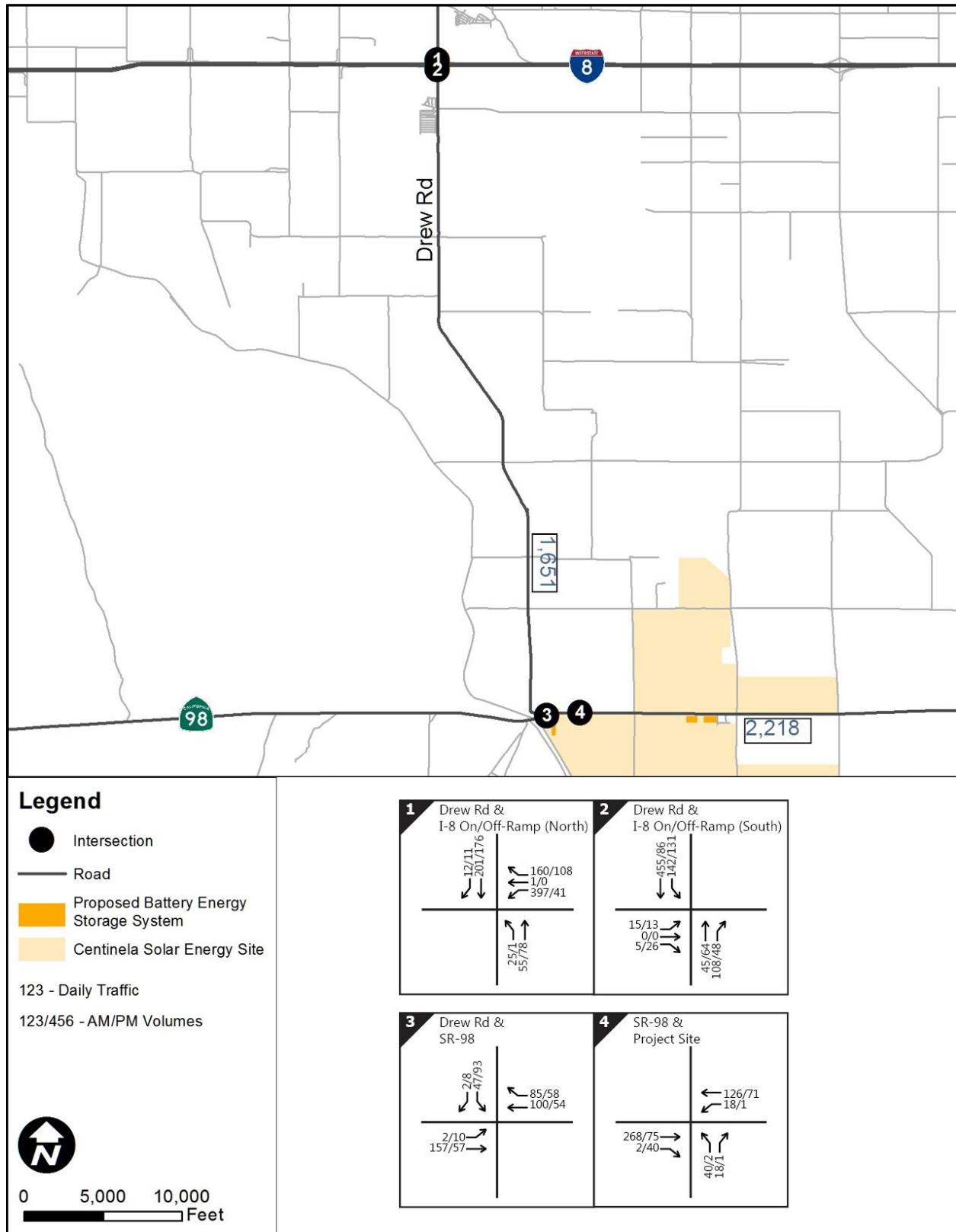
**FIGURE 5.1: PROJECT OPENING YEAR VOLUMES**



**FIGURE 5.2: PROJECT OPENING YEAR WITH PROJECT VOLUMES**



**FIGURE 5.3 PROJECT OPENING YEAR WITH PROJECT PLUS CUMULATIVE VOLUMES**



## 6.0 DECOMMISSION YEAR (2046) WITH PROJECT

The project is anticipated to be in operations for 25 years. This sets the project de-commission year at 2046. This scenario represents year 2046 traffic with project conditions. This scenario considers the traffic conditions with an approximate 25 year horizon by increasing the existing traffic counts by the ambient growth rate. Projected project only volumes are then added to create the Horizon Year (2040) with Project Scenario. An annual ambient growth of 1.0% was utilized to account for traffic growth between 2019 and 2046. **Figure 6.1** on the next page illustrates the Year 2046 plus project peak hour volumes.

### Segments

Roadway segment analysis was conducted for the study area's specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the level of service for the designated roadway segments. **Table 6.1** displays these levels of service.

**TABLE 6.1: DE-COMMISSION YEAR PLUS PROJECT ROADWAY SEGMENT ANALYSIS**

Roadway Segment	Lanes/ Class	LOS E Capacity	Existing		
			ADT	V/C	LOS
Drew Road	2-Ln Collector	16,200	2,611	0.11	A
SR 98	State Hwy (2 U)	20,900	2,765	0.13	A

### Intersections

An intersection LOS analysis was prepared for the Horizon Year (Without Project) condition and is summarized in **Table 6.2** which indicates that there are no study area intersections currently operating at an unacceptable LOS (i.e., LOS D or worse) during the peak hours. Detailed LOS worksheets are included in **Appendix H**.

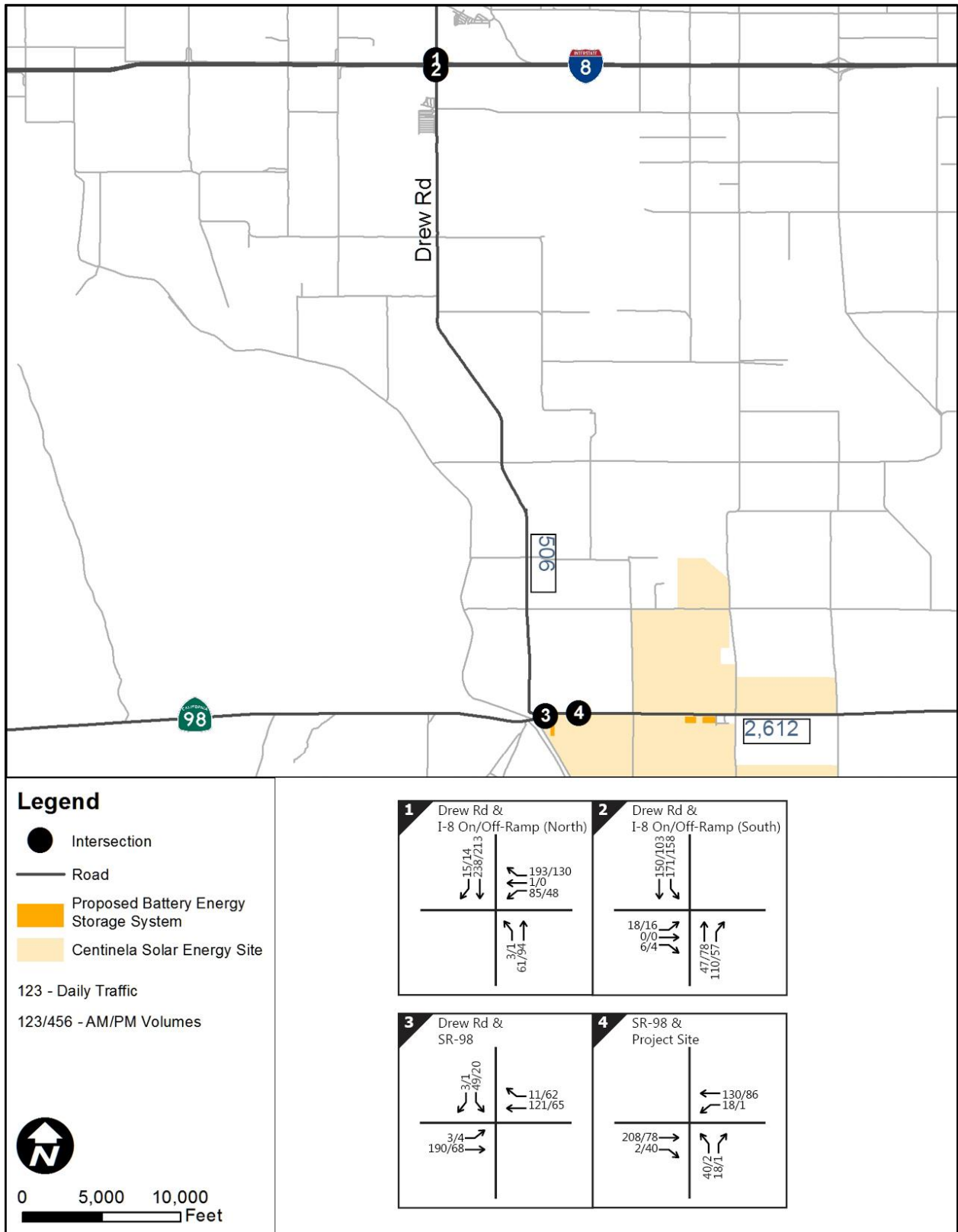
**TABLE 6.2 DE-COMMISSION YEAR PLUS PROJECT PEAK HOUR INTERSECTION ANALYSIS**

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Drew Road / I-8 WB Ramps	MSSC	B	11.0	A	9.9
2	Drew Road / I-8 EB Ramps	MSSC	C	17.1	B	14.8
3	Drew Road / SR-98	MSSC	A	9.8	B	11.0
4	Site Driveway/ SR 98	MSSC	A	10.2	B	10.7

Note: 1 = Delay is in seconds/vehicle, 2 = Level of Service,



**FIGURE 6.1: DE-COMMISSION YEAR VOLUMES**



## 7.0 CIRCULATION/SAFETY

The following section discusses the proposed project's access and circulation characteristics, and provides an assessment of driveway queuing.

### *Project Access and Circulation*

Access to and from the site will be provided from an existing driveway along SR 98 to the existing solar farm east of Drew Road. The primary driveways serving the site are on SR 98. The volumes associated with the development are such that peak hour volumes do not warrant the need for additional storage lanes or storage length for entrances along SR 98. There is no need for storage lanes for vehicles exiting the property.

### *Parking*

The existing parking demand for up to 50 vehicles and for construction equipment will be provided on site.

## 8.0 Impacts and Mitigations

The project is not expected to create significant impacts at study intersections or study segments, therefore no mitigation measures are required. All study intersections and segments were found to operate at LOS C or better for all of the traffic scenarios analyzed.

## Findings and Recommendations

General findings and recommendations include:

This traffic impact analysis (TIA) has been prepared to identify the potential traffic impacts associated with constructing a utility-scale battery energy storage system (BESS). The BESS will be capable of storing 125 megawatts (MW) of electric energy incorporating traditional lithium-ion batteries located entirely within the footprint of the existing Centinela Solar Energy Facility (CSE).

During the construction phase, at peak construction, the project is anticipated to generate a net total of 128 trip ends per day with 61 AM peak hour trips and 61 PM peak hour trips. When constructed, the project will not generate any additional trips.

The project study area was determined based on similar solar projects in the same general area. The specific study area consists of the following intersections:

- 1) SR-98/Drew Road
- 2) Drew Road/I-8 WB Ramps
- 3) Drew Road / I-8 EB Ramps

The study area also includes the following study segments:

- 1) Drew Road from Kubler Road to SR-98
- 2) SR-98 Drew Road to Ferrell Road

The proposed project's traffic impacts were analyzed in four scenarios as listed below. The traffic analysis included intersections and roadway segments within Imperial County and Caltrans District 11 in the following scenarios to determine the potential impacts:

- Existing Year (2019) Conditions
- Existing Year (2019) + Project Conditions
- Existing Year (2019) + Project + Cumulative Conditions
- Near-Term Year 2021
- Near-Term Year 2021 + Project Conditions
- Near-Term Year 2021 + Project + Cumulative Conditions
- Decommissioning Year + Project Conditions

The project is not expected to create significant impacts at study intersections or study segments, therefore no mitigation measures are required. All study intersections and segments were found to operate at LOS C or better for all of the traffic scenarios analyzed.

***APPENDIX A: TRAFFIC COUNT DATA***

DREW RD - SR-98 TO FISHER RD

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
00:00	0	0			12:00	2	1				
00:15	0	0			12:15	2	1				
00:30	0	0			12:30	1	2				
00:45	2	2	0	0	2	12:45	2	7	3	7	14
01:00	0	0			13:00	1	1				
01:15	1	1			13:15	0	5				
01:30	0	0			13:30	2	2				
01:45	0	1	0	1	2	13:45	2	5	3	11	16
02:00	0	0			14:00	5	2				
02:15	0	0			14:15	0	3				
02:30	0	0			14:30	3	3				
02:45	0	0	0	0	2	14:45	7	15	4	12	27
03:00	0	0			15:00	9	7				
03:15	0	0			15:15	8	4				
03:30	0	0			15:30	8	0				
03:45	0	0	0	0	2	15:45	9	34	5	16	50
04:00	0	1			16:00	7	3				
04:15	1	1			16:15	2	4				
04:30	1	0			16:30	2	0				
04:45	0	2	0	2	4	16:45	3	14	3	10	24
05:00	0	0			17:00	5	4				
05:15	6	1			17:15	1	1				
05:30	7	4			17:30	0	0				
05:45	6	19	1	6	25	17:45	1	7	1	6	13
06:00	2	1			18:00	2	1				
06:15	3	2			18:15	0	1				
06:30	3	0			18:30	0	0				
06:45	2	10	1	4	14	18:45	1	3	0	2	5
07:00	2	1			19:00	0	1				
07:15	2	3			19:15	0	1				
07:30	1	1			19:30	0	0				
07:45	0	5	1	6	11	19:45	0	0	4	6	6
08:00	1	0			20:00	1	4				
08:15	1	1			20:15	1	6				
08:30	1	3			20:30	0	3				
08:45	2	5	2	6	11	20:45	2	4	6	19	23
09:00	1	1			21:00	0	8				
09:15	0	2			21:15	1	5				
09:30	2	0			21:30	1	4				
09:45	0	3	0	3	6	21:45	0	2	3	20	22
10:00	4	5			22:00	0	0				
10:15	1	1			22:15	0	2				
10:30	0	0			22:30	0	1				
10:45	1	6	5	11	17	22:45	0	0	1	4	4
11:00	1	1			23:00	1	0				
11:15	2	1			23:15	0	0				
11:30	2	5			23:30	1	0				
11:45	4	9	3	10	19	23:45	3	5	1	1	6

<b>Total Vol.</b>	62	49			<b>111</b>	96	114			<b>210</b>
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Daily Totals				Combined
NB	SB	EB	WB	
158	163			<b>321</b>

Split %	AM			PM		
	NB	SB	EB	NB	SB	EB
	55.9%	44.1%		45.7%	54.3%	
<b>Peak Hour</b>	05:15	10:45		15:00	20:15	
<b>Volume</b>	21	12		34	23	
<b>P.H.F.</b>	0.75	0.60		0.92	0.72	

SR-98 - DREW RD TO PULLIAM RD

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			11	4	12:00			11	16			
00:15			8	5	12:15			14	17			
00:30			6	4	12:30			16	16			
00:45			4	29	7	20	49	13	54	12	61	115
01:00			4	2	13:00			11	9			
01:15			3	2	13:15			19	11			
01:30			2	3	13:30			12	14			
01:45			2	11	7	14	25	15	57	16	50	107
02:00			4	12	14:00			13	10			
02:15			1	2	14:15			15	12			
02:30			4	4	14:30			14	10			
02:45			3	12	3	21	33	26	68	18	50	118
03:00			4	5	15:00			18	20			
03:15			1	5	15:15			25	23			
03:30			1	12	15:30			12	12			
03:45			1	7	9	31	38	13	68	17	72	140
04:00			1	12	16:00			18	16			
04:15			1	9	16:15			23	10			
04:30			1	7	16:30			19	3			
04:45			6	9	8	36	45	17	77	13	42	119
05:00			1	6	17:00			27	9			
05:15			9	16	17:15			22	8			
05:30			5	14	17:30			23	3			
05:45			1	16	18	54	70	18	90	6	26	116
06:00			5	13	18:00			14	15			
06:15			4	15	18:15			17	8			
06:30			14	19	18:30			14	10			
06:45			8	31	13	60	91	13	58	9	42	100
07:00			5	10	19:00			13	6			
07:15			6	9	19:15			10	13			
07:30			9	15	19:30			12	5			
07:45			10	30	14	48	78	16	51	1	25	76
08:00			3	17	20:00			15	5			
08:15			10	17	20:15			10	6			
08:30			13	14	20:30			10	3			
08:45			7	33	10	58	91	16	51	5	19	70
09:00			11	6	21:00			17	5			
09:15			19	12	21:15			16	4			
09:30			14	14	21:30			10	7			
09:45			14	58	8	40	98	17	60	2	18	78
10:00			17	20	22:00			5	4			
10:15			10	10	22:15			16	1			
10:30			14	20	22:30			7	4			
10:45			18	59	10	60	119	7	35	3	12	47
11:00			8	14	23:00			3	1			
11:15			16	10	23:15			4	7			
11:30			20	10	23:30			4	3			
11:45			13	57	12	46	103	3	14	2	13	27

**Total Vol.** 352 488 **840** 683 430 **1113**

Daily Totals				
NB	SB	EB	WB	Combined
		1035	918	<b>1953</b>

Split %	AM			PM		
	41.9%	58.1%	<b>43.0%</b>	61.4%	38.6%	<b>57.0%</b>
<b>Peak Hour</b>	09:15	05:45	<b>10:00</b>	17:00	14:45	<b>14:30</b>
<b>Volume</b>	64	65	<b>119</b>	90	73	<b>154</b>
<b>P.H.F.</b>	0.84	0.86	<b>0.80</b>	0.83	0.79	<b>0.80</b>







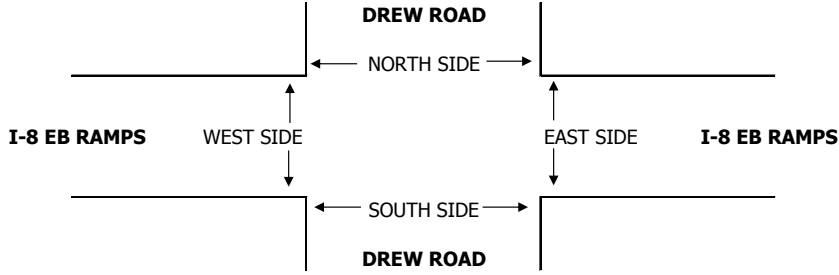
# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 5/22/19 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: IMPERIAL VALLEY DREW ROAD EAST & WEST: I-8 EB RAMPS	<b>PROJECT #:</b> PTD19-0524-01 <b>LOCATION #:</b> 3 <b>CONTROL:</b> STOP	<b>NOTES:</b> <div style="text-align: right; margin-top: 10px;"> <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr><td style="padding: 2px;">AM</td><td style="padding: 2px;">▲</td><td style="padding: 2px;">N</td><td style="padding: 2px;">▶</td></tr> <tr><td style="padding: 2px;">PM</td><td style="padding: 2px;">▲</td><td style="padding: 2px;">N</td><td style="padding: 2px;">▶</td></tr> <tr><td style="padding: 2px;">MD</td><td style="padding: 2px;">◀</td><td style="padding: 2px;">W</td><td style="padding: 2px;">▶</td></tr> <tr><td style="padding: 2px;">OTHER</td><td style="padding: 2px;">▼</td><td style="padding: 2px;">S</td><td style="padding: 2px;">▶</td></tr> </table> </div>	AM	▲	N	▶	PM	▲	N	▶	MD	◀	W	▶	OTHER	▼	S	▶
AM	▲	N	▶																
PM	▲	N	▶																
MD	◀	W	▶																
OTHER	▼	S	▶																

	NORTHBOUND DREW ROAD			SOUTHBOUND DREW ROAD			EASTBOUND I-8 EB RAMPS			WESTBOUND I-8 EB RAMPS			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	LANES:												
AM	7:00 AM	9	5	16	14		2		0				46
	7:15 AM	8	4	17	15		3		0				47
	7:30 AM	5	4	27	10		2		0				48
	7:45 AM	9	6	23	8		2		1				49
	8:00 AM	8	8	20	8		1		0				45
	8:15 AM	6	5	10	12		2		0				35
	8:30 AM	4	7	13	17		1		0				42
	8:45 AM	13	5	11	8		0		0				37
	VOLUMES	0	62	44	137	92	0	13	0	1	0	0	0
APPROACH %	0%	58%	42%	60%	40%	0%	93%	0%	7%	0%	0%	0%	
APP/DEPART	106	/	75	229	/	93	14	/	181	0	/	0	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	0	31	19	83	47	0	9	0	1	0	0	0	190
APPROACH %	0%	62%	38%	64%	36%	0%	90%	0%	10%	0%	0%	0%	
PEAK HR FACTOR	0.833			0.878			0.833			0.000			0.969
APP/DEPART	50	/	40	130	/	48	10	/	102	0	/	0	0
PM	4:00 PM		5	12	37	10	3		0				67
	4:15 PM		2	3	20	12	1		4				42
	4:30 PM		7	9	15	9		1		0			41
	4:45 PM		3	15	13	11		2		1			45
	5:00 PM		5	6	13	13		1		0			38
	5:15 PM		6	6	6	13		0		0			31
	5:30 PM		6	6	13	7		0		0			32
	5:45 PM		1	3	9	6		6		0			25
	VOLUMES	0	35	60	126	81	0	14	0	5	0	0	0
APPROACH %	0%	37%	63%	61%	39%	0%	74%	0%	26%	0%	0%	0%	
APP/DEPART	95	/	49	207	/	86	19	/	186	0	/	0	0
BEGIN PEAK HR	4:00 PM												
VOLUMES	0	17	39	85	42	0	7	0	5	0	0	0	195
APPROACH %	0%	30%	70%	67%	33%	0%	58%	0%	42%	0%	0%	0%	
PEAK HR FACTOR	0.778			0.676			0.600			0.000			0.728
APP/DEPART	56	/	24	127	/	47	12	/	124	0	/	0	0

U-TURNS				
NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0



		AM	PM
7:00 AM			
7:15 AM			
7:30 AM			
7:45 AM			
8:00 AM			
8:15 AM			
8:30 AM			
8:45 AM			
TOTAL			
4:00 PM			
4:15 PM			
4:30 PM			
4:45 PM			
5:00 PM			
5:15 PM			
5:30 PM			
5:45 PM			
TOTAL			

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

















PEDESTRIAN ACTIVATIONS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

***APPENDIX B : EXISTING YEAR (2019) CONDITIONS ANALYSIS WORKSHEETS***

AM Existing  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	1	120	0	39	0	0	111	8
Future Volume (Veh/h)	0	0	0	17	1	120	0	39	0	0	111	8
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	20	1	138	0	45	0	0	128	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	178	178	132	178	182	45	137				45	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178	178	132	178	182	45	137				45	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	97	100	87	100				100	
cM capacity (veh/h)	678	716	917	785	712	1025	1447				1563	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	21	138	45	137								
Volume Left	20	0	0	0								
Volume Right	0	138	0	9								
cSH	781	1025	1447	1700								
Volume to Capacity	0.03	0.13	0.00	0.08								
Queue Length 95th (ft)	2	12	0	0								
Control Delay (s)	9.7	9.1	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.1	0.0		0.0								
Approach LOS	A											
Intersection Summary												
Average Delay	4.3											
Intersection Capacity Utilization	17.4%			ICU Level of Service					A			
Analysis Period (min)	15											

AM Existing  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

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	0	0	0	17	1	120	0	39	0	0	111	8
Future Vol, veh/h	0	0	0	17	1	120	0	39	0	0	111	8
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	1	138	0	45	0	0	128	9

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	178	182	45	137	0	-	0
Stage 1	45	45	-	-	-	-	-
Stage 2	133	137	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	812	712	1025	1447	-	0	0
Stage 1	977	857	-	-	-	0	0
Stage 2	893	783	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	812	0	1025	1447	-	-	-
Mov Cap-2 Maneuver	812	0	-	-	-	-	-
Stage 1	977	0	-	-	-	-	-
Stage 2	893	0	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1447	-	812	1025
HCM Lane V/C Ratio	-	-	0.025	0.135
HCM Control Delay (s)	0	-	9.5	9.1
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	0	-	0.1	0.5

AM Existing  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	1	0	0	0	0	31	19	83	47	0
Future Volume (Veh/h)	9	0	1	0	0	0	0	31	19	83	47	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	9	0	1	0	0	0	0	32	20	86	48	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	262	272	48	262	262	42	48			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	272	48	262	262	42	48			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			94		
cM capacity (veh/h)	662	600	1021	661	607	1029	1559			1554		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	9	1	52	134								
Volume Left	9	0	0	86								
Volume Right	0	1	20	0								
cSH	662	1021	1700	1554								
Volume to Capacity	0.01	0.00	0.03	0.06								
Queue Length 95th (ft)	1	0	0	4								
Control Delay (s)	10.5	8.5	0.0	4.9								
Lane LOS	B	A		A								
Approach Delay (s)	10.3		0.0	4.9								
Approach LOS	B											
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			23.7%	ICU Level of Service	A							
Analysis Period (min)			15									

AM Existing  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	9	0	1	0	0	0	0	31	19	83	47	0
Future Vol, veh/h	9	0	1	0	0	0	0	31	19	83	47	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	1	0	0	0	0	32	20	86	48	0

















Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	262	272	48	-	0	0	52	0	0
Stage 1	220	220	-	-	-	-	-	-	-
Stage 2	42	52	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	727	635	1021	0	-	-	1554	-	0
Stage 1	817	721	-	0	-	-	-	-	0
Stage 2	980	852	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	686	0	1021	-	-	-	1554	-	-
Mov Cap-2 Maneuver	686	0	-	-	-	-	-	-	-
Stage 1	817	0	-	-	-	-	-	-	-
Stage 2	924	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	686	1021	1554	-
HCM Lane V/C Ratio	-	-	0.014	0.001	0.055	-
HCM Control Delay (s)	-	-	10.3	8.5	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	0.2	-

PM Existing  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	0	51	0	24	0	0	109	8
Future Volume (Veh/h)	0	0	0	18	0	51	0	24	0	0	109	8
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	23	0	65	0	31	0	0	140	10
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	176	176	145	176	181	31	150				31	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	176	145	176	181	31	150				31	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	97	100	94	100				100	
cM capacity (veh/h)	737	717	902	786	713	1043	1431				1582	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	23	65	31	150								
Volume Left	23	0	0	0								
Volume Right	0	65	0	10								
cSH	786	1043	1431	1700								
Volume to Capacity	0.03	0.06	0.00	0.09								
Queue Length 95th (ft)	2	5	0	0								
Control Delay (s)	9.7	8.7	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.0	0.0		0.0								
Approach LOS	A											
Intersection Summary												
Average Delay	2.9											
Intersection Capacity Utilization	16.2%			ICU Level of Service	A							
Analysis Period (min)	15											

PM Existing  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	18	0	51	0	24	0	0	109	8
Future Vol, veh/h	0	0	0	18	0	51	0	24	0	0	109	8
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	23	0	65	0	31	0	0	140	10

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	176	181	31	150	0	-	0
Stage 1	31	31	-	-	-	-	-
Stage 2	145	150	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	814	713	1043	1431	-	0	0
Stage 1	992	869	-	-	-	0	0
Stage 2	882	773	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	814	0	1043	1431	-	-	-
Mov Cap-2 Maneuver	814	0	-	-	-	-	-
Stage 1	992	0	-	-	-	-	-
Stage 2	882	0	-	-	-	-	-

















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

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1431	-	814 1043	-	-
HCM Lane V/C Ratio	-	-	0.028 0.063	-	-
HCM Control Delay (s)	0	-	9.6 8.7	-	-
HCM Lane LOS	A	-	A A	-	-
HCM 95th %tile Q(veh)	0	-	0.1 0.2	-	-



PM Existing  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	5	0	0	0	0	17	39	85	42	0
Future Volume (Veh/h)	7	0	5	0	0	0	0	17	39	85	42	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	10	0	7	0	0	0	0	23	53	116	58	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	340	366	58	340	340	50	58			76		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340	366	58	340	340	50	58			76		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	100	100	100	100			92		
cM capacity (veh/h)	579	520	1008	575	538	1019	1546			1523		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	10	7	76	174								
Volume Left	10	0	0	116								
Volume Right	0	7	53	0								
cSH	579	1008	1700	1523								
Volume to Capacity	0.02	0.01	0.04	0.08								
Queue Length 95th (ft)	1	1	0	6								
Control Delay (s)	11.3	8.6	0.0	5.2								
Lane LOS	B	A		A								
Approach Delay (s)	10.2		0.0	5.2								
Approach LOS	B											
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			23.6%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Existing  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

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	7	0	5	0	0	0	0	17	39	85	42	0
Future Vol, veh/h	7	0	5	0	0	0	0	17	39	85	42	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	7	0	0	0	0	23	53	116	58	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	340	366	58	-	0	0	76	0	0
Stage 1	290	290	-	-	-	-	-	-	-
Stage 2	50	76	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	656	562	1008	0	-	-	1523	-	0
Stage 1	759	672	-	0	-	-	-	-	0
Stage 2	972	832	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	604	0	1008	-	-	-	1523	-	-
Mov Cap-2 Maneuver	604	0	-	-	-	-	-	-	-
Stage 1	759	0	-	-	-	-	-	-	-
Stage 2	895	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	5.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	604	1008	1523	-
HCM Lane V/C Ratio	-	-	0.016	0.007	0.076	-
HCM Control Delay (s)	-	-	11.1	8.6	7.6	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	0.2	-

AM Existing  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	54	5	3	1
Future Volume (Veh/h)	0	32	54	5	3	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	36	61	6	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	67				100	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	67				100	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1535				899	1000
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	36	67	4			
Volume Left	0	0	3			
Volume Right	0	6	1			
cSH	1535	1700	922			
Volume to Capacity	0.00	0.04	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	8.9			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.9			
Approach LOS			A			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

AM Existing  
3: SR-98 & Drew Rd

HCM 2010 TWSC

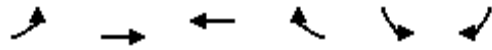
Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	32	54	5	3	1
Future Vol, veh/h	0	32	54	5	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	36	61	6	3	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	100
Stage 1	-	-	-	-	64
Stage 2	-	-	-	-	36
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1535	-	-	-	899
Stage 1	-	-	-	-	959
Stage 2	-	-	-	-	986
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1535	-	-	-	899
Mov Cap-2 Maneuver	-	-	-	-	899
Stage 1	-	-	-	-	959
Stage 2	-	-	-	-	986

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1535	-	-	-	922
HCM Lane V/C Ratio	-	-	-	-	0.005
HCM Control Delay (s)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

PM Existing  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↗	↖		↘	
Traffic Volume (veh/h)	0	84	23	10	7	1
Future Volume (Veh/h)	0	84	23	10	7	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	99	27	12	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	39				132	33
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				132	33
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1571				862	1041
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	99	39	9			
Volume Left	0	0	8			
Volume Right	0	12	1			
cSH	1571	1700	879			
Volume to Capacity	0.00	0.02	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	9.1			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.1			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		14.4%		ICU Level of Service		A
Analysis Period (min)			15			

PM Existing  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection

Int Delay, s/veh 0.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	84	23	10	7	1
Future Vol, veh/h	0	84	23	10	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	0	99	27	12	8	1

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	39	0	-	0	132	33
Stage 1	-	-	-	-	33	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1571	-	-	-	862	1041
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1571	-	-	-	862	1041
Mov Cap-2 Maneuver	-	-	-	-	862	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	925	-

Approach EB WB SB

HCM Control Delay, s	0	0	9.1
HCM LOS			A

















Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1571	-	-	-	881
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s)	0	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

***APPENDIX C : EXISTING YEAR (2019) PLUS PROJECT ANALYSIS WORKSHEETS***

AM Existing + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	75	1	154	1	75	0	0	190	12
Future Volume (Veh/h)	0	0	0	75	1	154	1	75	0	0	190	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	86	1	177	1	86	0	0	218	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	314	313	225	313	320	86	232			86		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314	313	225	313	320	86	232			86		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	87	100	82	100			100		
cM capacity (veh/h)	522	602	814	639	596	973	1336			1510		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	87	177	87	232								
Volume Left	86	0	1	0								
Volume Right	0	177	0	14								
cSH	639	973	1336	1700								
Volume to Capacity	0.14	0.18	0.00	0.14								
Queue Length 95th (ft)	12	17	0	0								
Control Delay (s)	11.5	9.5	0.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.2		0.1	0.0								
Approach LOS	B											
Intersection Summary												
Average Delay				4.6								
Intersection Capacity Utilization				21.6%	ICU Level of Service							A
Analysis Period (min)				15								



AM Existing + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

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	0	0	0	75	1	154	1	75	0	0	190	12
Future Vol, veh/h	0	0	0	75	1	154	1	75	0	0	190	12
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	86	1	177	1	86	0	0	218	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	313	320	86	232	0	-	0
Stage 1	88	88	-	-	-	-	-
Stage 2	225	232	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	680	597	973	1336	-	0	0
Stage 1	935	822	-	-	-	0	0
Stage 2	812	713	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	679	0	973	1336	-	-	-
Mov Cap-2 Maneuver	679	0	-	-	-	-	-
Stage 1	934	0	-	-	-	-	-
Stage 2	812	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1336	-	679	973
HCM Lane V/C Ratio	0.001	-	0.129	0.182
HCM Control Delay (s)	7.7	0	11.1	9.5
HCM Lane LOS	A	A	B	A
HCM 95th %tile Q(veh)	0	-	0.4	0.7

AM Existing + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	4	0	0	0	0	62	46	137	127	0
Future Volume (Veh/h)	13	0	4	0	0	0	0	62	46	137	127	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	13	0	4	0	0	0	0	64	47	141	131	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	500	524	131	500	500	88	131			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500	524	131	500	500	88	131			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	100	100	100	100			90		
cM capacity (veh/h)	446	414	919	444	427	971	1454			1479		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	13	4	111	272								
Volume Left	13	0	0	141								
Volume Right	0	4	47	0								
cSH	446	919	1700	1479								
Volume to Capacity	0.03	0.00	0.07	0.10								
Queue Length 95th (ft)	2	0	0	8								
Control Delay (s)	13.3	8.9	0.0	4.4								
Lane LOS	B	A		A								
Approach Delay (s)	12.3		0.0	4.4								
Approach LOS	B											
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			30.9%		ICU Level of Service					A		
Analysis Period (min)			15									

AM Existing + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	13	0	4	0	0	0	0	62	46	137	127	0
Future Vol, veh/h	13	0	4	0	0	0	0	62	46	137	127	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	4	0	0	0	0	64	47	141	131	0

















Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	501	524	131	-	0	0	111	0	0
Stage 1	413	413	-	-	-	-	-	-	-
Stage 2	88	111	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	530	458	919	0	-	-	1479	-	0
Stage 1	668	594	-	0	-	-	-	-	0
Stage 2	935	804	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	475	0	919	-	-	-	1479	-	-
Mov Cap-2 Maneuver	475	0	-	-	-	-	-	-	-
Stage 1	668	0	-	-	-	-	-	-	-
Stage 2	839	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	475	919	1479	-
HCM Lane V/C Ratio	-	-	0.028	0.004	0.095	-
HCM Control Delay (s)	-	-	12.8	8.9	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.3	-

PM Existing + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	39	0	104	31	49	0	0	170	11
Future Volume (Veh/h)	0	0	0	39	0	104	31	49	0	0	170	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	50	0	133	40	63	0	0	218	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	368	368	225	368	375	63	232			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368	368	225	368	375	63	232			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	91	100	87	97			100		
cM capacity (veh/h)	499	544	814	575	539	1002	1336			1540		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	50	133	103	232								
Volume Left	50	0	40	0								
Volume Right	0	133	0	14								
cSH	575	1002	1336	1700								
Volume to Capacity	0.09	0.13	0.03	0.14								
Queue Length 95th (ft)	7	11	2	0								
Control Delay (s)	11.9	9.1	3.2	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	9.9		3.2	0.0								
Approach LOS	A											
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			27.2%		ICU Level of Service					A		
Analysis Period (min)			15									

PM Existing + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	39	0	104	31	49	0	0	170	11
Future Vol, veh/h	0	0	0	39	0	104	31	49	0	0	170	11
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	50	0	133	40	63	0	0	218	14

















Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	368	375	63	232	0	-	-
Stage 1	143	143	-	-	-	-	-
Stage 2	225	232	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	632	556	1002	1336	-	0	0
Stage 1	884	779	-	-	-	0	0
Stage 2	812	713	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	612	0	1002	1336	-	-	-
Mov Cap-2 Maneuver	612	0	-	-	-	-	-
Stage 1	857	0	-	-	-	-	-
Stage 2	812	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1336	-	612	1002
HCM Lane V/C Ratio	0.03	-	0.082	0.133
HCM Control Delay (s)	7.8	0	11.4	9.1
HCM Lane LOS	A	A	B	A
HCM 95th %tile Q(veh)	0.1	-	0.3	0.5

PM Existing + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	5	0	0	0	0	38	95	126	83	0
Future Volume (Veh/h)	14	0	5	0	0	0	0	38	95	126	83	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	19	0	7	0	0	0	0	52	130	173	114	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	577	642	114	577	577	117	114			182		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	577	642	114	577	577	117	114			182		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	100	100	100	100			88		
cM capacity (veh/h)	387	344	939	384	374	935	1475			1393		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	19	7	182	287								
Volume Left	19	0	0	173								
Volume Right	0	7	130	0								
cSH	387	939	1700	1393								
Volume to Capacity	0.05	0.01	0.11	0.12								
Queue Length 95th (ft)	4	1	0	11								
Control Delay (s)	14.8	8.9	0.0	5.2								
Lane LOS	B	A		A								
Approach Delay (s)	13.2		0.0	5.2								
Approach LOS	B											
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			32.5%	ICU Level of Service	A							
Analysis Period (min)			15									

PM Existing + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	14	0	5	0	0	0	0	38	95	126	83	0
Future Vol, veh/h	14	0	5	0	0	0	0	38	95	126	83	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	7	0	0	0	0	52	130	173	114	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	577	642	114	-	0	0	182	0	0
Stage 1	460	460	-	-	-	-	-	-	-
Stage 2	117	182	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	478	392	939	0	-	-	1393	-	0
Stage 1	636	566	-	0	-	-	-	-	0
Stage 2	908	749	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	414	0	939	-	-	-	1393	-	-
Mov Cap-2 Maneuver	414	0	-	-	-	-	-	-	-
Stage 1	636	0	-	-	-	-	-	-	-
Stage 2	787	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	414	939	1393	-
HCM Lane V/C Ratio	-	-	0.046	0.007	0.124	-
HCM Control Delay (s)	-	-	14.1	8.9	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.4	-











AM Existing + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	3	55	97	9	2	47
Future Volume (vph)	3	55	97	9	2	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	60	105	10	2	51
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	63	115	53			
Volume Left (vph)	3	0	2			
Volume Right (vph)	0	10	51			
Hadj (s)	0.04	-0.02	-0.54			
Departure Headway (s)	4.2	4.0	3.7			
Degree Utilization, x	0.07	0.13	0.06			
Capacity (veh/h)	845	872	910			
Control Delay (s)	7.5	7.6	7.0			
Approach Delay (s)	7.5	7.6	7.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.4			
Level of Service			A			
Intersection Capacity Utilization			15.7%	ICU Level of Service	A	
Analysis Period (min)			15			



AM Existing + Project  
6: Project Access & SR-98

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	62	40	18	104	2	1
Future Volume (Veh/h)	62	40	18	104	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	43	20	113	2	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			110		242	88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			110		242	88
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1480		737	970
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	110	133	3			
Volume Left	0	20	2			
Volume Right	43	0	1			
cSH	1700	1480	801			
Volume to Capacity	0.06	0.01	0.00			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	0.0	1.2	9.5			
Lane LOS			A			
Approach Delay (s)	0.0	1.2	9.5			
Approach LOS			A			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.1%	ICU Level of Service	A	
Analysis Period (min)			15			

AM Existing + Project  
6: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	40	18	104	2	1
Future Vol, veh/h	62	40	18	104	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	67	43	20	113	2	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	110	0	242
Stage 1	-	-	-	-	89
Stage 2	-	-	-	-	153
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1480	-	746
Stage 1	-	-	-	-	934
Stage 2	-	-	-	-	875
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1480	-	736
Mov Cap-2 Maneuver	-	-	-	-	736
Stage 1	-	-	-	-	934
Stage 2	-	-	-	-	863

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	800	-	-	1480	-
HCM Lane V/C Ratio	0.004	-	-	0.013	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

PM Existing + Project  
2: Project Access & SR-98



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	166	2	1	69	40	18
Future Volume (Veh/h)	166	2	1	69	40	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	180	2	1	75	43	20
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			182		258	181
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			182		258	181
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	98
cM capacity (veh/h)			1393		730	862
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	182	76	63			
Volume Left	0	1	43			
Volume Right	2	0	20			
cSH	1700	1393	767			
Volume to Capacity	0.11	0.00	0.08			
Queue Length 95th (ft)	0	0	7			
Control Delay (s)	0.0	0.1	10.1			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.1	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			18.9%	ICU Level of Service		A
Analysis Period (min)			15			

PM Existing + Project  
2: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	2	1	69	40	18
Future Vol, veh/h	166	2	1	69	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	180	2	1	75	43	20

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	182	0	258
Stage 1	-	-	-	-	181
Stage 2	-	-	-	-	77
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1393	-	731
Stage 1	-	-	-	-	850
Stage 2	-	-	-	-	946
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1393	-	730
Mov Cap-2 Maneuver	-	-	-	-	730
Stage 1	-	-	-	-	850
Stage 2	-	-	-	-	945

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	766	-	-	1393	-
HCM Lane V/C Ratio	0.082	-	-	0.001	-
HCM Control Delay (s)	10.1	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

PM Existing + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	152	52	57	47	2
Future Volume (Veh/h)	2	152	52	57	47	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	179	61	67	55	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	128				278	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	128				278	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	100
cM capacity (veh/h)	1458				711	962
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	181	128	57			
Volume Left	2	0	55			
Volume Right	0	67	2			
cSH	1458	1700	718			
Volume to Capacity	0.00	0.08	0.08			
Queue Length 95th (ft)	0	0	6			
Control Delay (s)	0.1	0.0	10.4			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			19.6%	ICU Level of Service		A
Analysis Period (min)			15			

PM Existing + Project  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	152	52	57	47	2
Future Vol, veh/h	2	152	52	57	47	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	2	179	61	67	55	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	128	0	-	0	278 95
Stage 1	-	-	-	-	95 -
Stage 2	-	-	-	-	183 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1458	-	-	-	712 962
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	848 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1458	-	-	-	711 962
Mov Cap-2 Maneuver	-	-	-	-	711 -
Stage 1	-	-	-	-	927 -
Stage 2	-	-	-	-	848 -

















Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1458	-	-	-	719
HCM Lane V/C Ratio	0.002	-	-	-	0.08
HCM Control Delay (s)	7.5	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

***APPENDIX D : EXISTING YEAR (2019) PLUS PROJECT WITH CUMULATIVE  
ANALYSIS WORKSHEETS***

## AM Existing Cumulative + Project 2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	396	1	154	1	75	0	0	194	12
Future Volume (Veh/h)	0	0	0	396	1	154	1	75	0	0	194	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	455	1	177	1	86	0	0	223	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	318	318	230	318	325	86	237			86		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318	318	230	318	325	86	237			86		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	28	100	82	100			100		
cM capacity (veh/h)	518	598	809	634	593	973	1330			1510		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	456	177	87	237								
Volume Left	455	0	1	0								
Volume Right	0	177	0	14								
cSH	634	973	1330	1700								
Volume to Capacity	0.72	0.18	0.00	0.14								
Queue Length 95th (ft)	151	17	0	0								
Control Delay (s)	23.8	9.5	0.1	0.0								
Lane LOS	C	A	A									
Approach Delay (s)	19.8		0.1	0.0								
Approach LOS	C											
Intersection Summary												
Average Delay				13.1								
Intersection Capacity Utilization				39.6%	ICU Level of Service							A
Analysis Period (min)				15								



AM Existing Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	396	1	154	1	75	0	0	194	12
Future Vol, veh/h	0	0	0	396	1	154	1	75	0	0	194	12
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	455	1	177	1	86	0	0	223	14

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	318	325	86	237	0	-	0
Stage 1	88	88	-	-	-	-	-
Stage 2	230	237	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	675	593	973	1330	-	0	0
Stage 1	935	822	-	-	-	0	0
Stage 2	808	709	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	674	0	973	1330	-	-	-
Mov Cap-2 Maneuver	674	0	-	-	-	-	-
Stage 1	934	0	-	-	-	-	-
Stage 2	808	0	-	-	-	-	-

















Approach	WB	NB	SB
HCM Control Delay, s	17.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1330	- 674 973	-	-
HCM Lane V/C Ratio	0.001	- 0.677 0.182	-	-
HCM Control Delay (s)	7.7	0 20.8 9.5	-	-
HCM Lane LOS	A	A C A	-	-
HCM 95th %tile Q(veh)	0	- 5.3 0.7	-	-

# AM Existing Cumulative + Project

## 6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	26	0	0	0	0	62	46	137	452	0
Future Volume (Veh/h)	14	0	26	0	0	0	0	62	46	137	452	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	14	0	27	0	0	0	0	64	47	141	466	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	836	859	466	836	836	88	466			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	836	859	466	836	836	88	466			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	95	100	100	100	100			90		
cM capacity (veh/h)	266	266	597	254	274	971	1095			1479		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	14	27	111	607								
Volume Left	14	0	0	141								
Volume Right	0	27	47	0								
cSH	266	597	1700	1479								
Volume to Capacity	0.05	0.05	0.07	0.10								
Queue Length 95th (ft)	4	4	0	8								
Control Delay (s)	19.3	11.3	0.0	2.6								
Lane LOS	C	B		A								
Approach Delay (s)	14.0		0.0	2.6								
Approach LOS	B											
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			48.0%		ICU Level of Service					A		
Analysis Period (min)			15									

AM Existing Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	14	0	26	0	0	0	0	62	46	137	452	0
Future Vol, veh/h	14	0	26	0	0	0	0	62	46	137	452	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	27	0	0	0	0	64	47	141	466	0

















Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	836	859	466	-	0	0	111	0	0
Stage 1	748	748	-	-	-	-	-	-	-
Stage 2	88	111	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	337	294	597	0	-	-	1479	-	0
Stage 1	468	420	-	0	-	-	-	-	0
Stage 2	935	804	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	294	0	597	-	-	-	1479	-	-
Mov Cap-2 Maneuver	294	0	-	-	-	-	-	-	-
Stage 1	468	0	-	-	-	-	-	-	-
Stage 2	814	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	294	597	1479	-
HCM Lane V/C Ratio	-	-	0.049	0.045	0.095	-
HCM Control Delay (s)	-	-	17.9	11.3	7.7	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.3	-

PM Existing Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	40	0	104	45	53	0	0	170	11
Future Volume (Veh/h)	0	0	0	40	0	104	45	53	0	0	170	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	51	0	133	58	68	0	0	218	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	409	409	225	409	416	68	232				68	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	409	409	225	409	416	68	232				68	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	90	100	87	96				100	
cM capacity (veh/h)	463	509	814	535	504	995	1336				1533	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	51	133	126	232								
Volume Left	51	0	58	0								
Volume Right	0	133	0	14								
cSH	535	995	1336	1700								
Volume to Capacity	0.10	0.13	0.04	0.14								
Queue Length 95th (ft)	8	12	3	0								
Control Delay (s)	12.4	9.2	3.8	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.1		3.8	0.0								
Approach LOS	B											
Intersection Summary												
Average Delay				4.3								
Intersection Capacity Utilization				28.2%	ICU Level of Service							A
Analysis Period (min)				15								

PM Existing Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	40	0	104	45	53	0	0	170	11
Future Vol, veh/h	0	0	0	40	0	104	45	53	0	0	170	11
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	51	0	133	58	68	0	0	218	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	409	416	68	232	0	-	0
Stage 1	184	184	-	-	-	-	-
Stage 2	225	232	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	599	527	995	1336	-	0	0
Stage 1	848	747	-	-	-	0	0
Stage 2	812	713	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	572	0	995	1336	-	-	-
Mov Cap-2 Maneuver	572	0	-	-	-	-	-
Stage 1	810	0	-	-	-	-	-
Stage 2	812	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	3.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1336	-	572	995	-
HCM Lane V/C Ratio	0.043	-	0.09	0.134	-
HCM Control Delay (s)	7.8	0	11.9	9.2	-
HCM Lane LOS	A	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.3	0.5	-

PM Existing Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	5	0	0	0	0	64	416	126	83	0
Future Volume (Veh/h)	14	0	5	0	0	0	0	64	416	126	83	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	19	0	7	0	0	0	0	88	570	173	114	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	833	1118	114	833	833	373	114			658		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	833	1118	114	833	833	373	114			658		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	99	100	100	100	100			81		
cM capacity (veh/h)	247	169	939	245	248	673	1475			930		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	19	7	658	287								
Volume Left	19	0	0	173								
Volume Right	0	7	570	0								
cSH	247	939	1700	930								
Volume to Capacity	0.08	0.01	0.39	0.19								
Queue Length 95th (ft)	6	1	0	17								
Control Delay (s)	20.8	8.9	0.0	6.7								
Lane LOS	C	A		A								
Approach Delay (s)	17.6		0.0	6.7								
Approach LOS	C											
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			53.7%	ICU Level of Service	A							
Analysis Period (min)			15									

PM Existing Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	14	0	5	0	0	0	0	64	416	126	83	0
Future Vol, veh/h	14	0	5	0	0	0	0	64	416	126	83	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	7	0	0	0	0	88	570	173	114	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	833	1118	114	-	0	0	658	0	0
Stage 1	460	460	-	-	-	-	-	-	-
Stage 2	373	658	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	339	207	939	0	-	-	930	-	0
Stage 1	636	566	-	0	-	-	-	-	0
Stage 2	696	461	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	272	0	939	-	-	-	930	-	-
Mov Cap-2 Maneuver	272	0	-	-	-	-	-	-	-
Stage 1	636	0	-	-	-	-	-	-	-
Stage 2	557	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0	5.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	272	939	930	-
HCM Lane V/C Ratio	-	-	0.071	0.007	0.186	-
HCM Control Delay (s)	-	-	19.2	8.9	9.8	0
HCM Lane LOS	-	-	C	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.7	-











AM Existing Cumulative + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	10	55	97	85	2	47
Future Volume (vph)	10	55	97	85	2	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	60	105	92	2	51
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	71	197	53			
Volume Left (vph)	11	0	2			
Volume Right (vph)	0	92	51			
Hadj (s)	0.06	-0.25	-0.54			
Departure Headway (s)	4.3	3.8	3.9			
Degree Utilization, x	0.08	0.21	0.06			
Capacity (veh/h)	824	921	856			
Control Delay (s)	7.6	7.8	7.1			
Approach Delay (s)	7.6	7.8	7.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
Level of Service			A			
Intersection Capacity Utilization			21.4%	ICU Level of Service	A	
Analysis Period (min)			15			



AM Existing Cumulative + Project  
5: Project Access & SR-98

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	62	40	18	200	2	1
Future Volume (Veh/h)	62	40	18	200	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	43	20	217	2	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			110	346		88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			110	346		88
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	100		100
cM capacity (veh/h)			1480	642		970
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	110	237	3			
Volume Left	0	20	2			
Volume Right	43	0	1			
cSH	1700	1480	724			
Volume to Capacity	0.06	0.01	0.00			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	0.0	0.7	10.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.7	10.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			28.2%	ICU Level of Service	A	
Analysis Period (min)			15			

AM Existing Cumulative + Project  
5: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	40	18	200	2	1
Future Vol, veh/h	62	40	18	200	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	67	43	20	217	2	1

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	110	0	346 89
Stage 1	-	-	-	-	89 -
Stage 2	-	-	-	-	257 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1480	-	651 969
Stage 1	-	-	-	-	934 -
Stage 2	-	-	-	-	786 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1480	-	641 969
Mov Cap-2 Maneuver	-	-	-	-	641 -
Stage 1	-	-	-	-	934 -
Stage 2	-	-	-	-	774 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	723	-	-	1480	-
HCM Lane V/C Ratio	0.005	-	-	0.013	-
HCM Control Delay (s)	10	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

PM Existing Cumulative + Project  
2: Project Access & SR-98



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	262	40	18	200	40	18
Future Volume (Veh/h)	262	40	18	200	40	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	285	43	20	217	43	20
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			328		564	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			328		564	306
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		91	97
cM capacity (veh/h)			1232		479	733
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	328	237	63			
Volume Left	0	20	43			
Volume Right	43	0	20			
cSH	1700	1232	538			
Volume to Capacity	0.19	0.02	0.12			
Queue Length 95th (ft)	0	1	10			
Control Delay (s)	0.0	0.8	12.6			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.8	12.6			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			35.4%	ICU Level of Service		A
Analysis Period (min)	15					

PM Existing Cumulative + Project  
2: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	262	40	18	200	40	18
Future Vol, veh/h	262	40	18	200	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	285	43	20	217	43	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	328	0	564 307
Stage 1	-	-	-	-	307 -
Stage 2	-	-	-	-	257 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1232	-	487 733
Stage 1	-	-	-	-	746 -
Stage 2	-	-	-	-	786 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1232	-	478 733
Mov Cap-2 Maneuver	-	-	-	-	478 -
Stage 1	-	-	-	-	746 -
Stage 2	-	-	-	-	772 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	536	-	-	1232	-
HCM Lane V/C Ratio	0.118	-	-	0.016	-
HCM Control Delay (s)	12.6	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

PM Existing Cumulative + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↘	
Traffic Volume (veh/h)	2	152	52	57	92	8
Future Volume (Veh/h)	2	152	52	57	92	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	179	61	67	108	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	128				278	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	128				278	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				85	99
cM capacity (veh/h)	1458				711	962
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	181	128	117			
Volume Left	2	0	108			
Volume Right	0	67	9			
cSH	1458	1700	726			
Volume to Capacity	0.00	0.08	0.16			
Queue Length 95th (ft)	0	0	14			
Control Delay (s)	0.1	0.0	10.9			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			21.8%		ICU Level of Service	A
Analysis Period (min)			15			

PM Existing Cumulative + Project  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	152	52	57	92	8
Future Vol, veh/h	2	152	52	57	92	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	2	179	61	67	108	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	128	0	-	0	278 95
Stage 1	-	-	-	-	95 -
Stage 2	-	-	-	-	183 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1458	-	-	-	712 962
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	848 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1458	-	-	-	711 962
Mov Cap-2 Maneuver	-	-	-	-	711 -
Stage 1	-	-	-	-	927 -
Stage 2	-	-	-	-	848 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.9
HCM LOS			B

















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1458	-	-	-	726
HCM Lane V/C Ratio	0.002	-	-	-	0.162
HCM Control Delay (s)	7.5	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

***APPENDIX E: PROJECT OPENING YEAR (2021) ANALYSIS WORKSHEETS***

# AM Near-Term

## 2: Drew Rd & I-8 WB Ramp

### HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	41	1	160	1	78	0	0	197	12
Future Volume (Veh/h)	0	0	0	41	1	160	1	78	0	0	197	12
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	47	1	184	1	90	0	0	226	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	326	325	233	325	332	90	240				90	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	326	325	233	325	332	90	240				90	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	93	100	81	100				100	
cM capacity (veh/h)	507	593	806	628	587	968	1327				1505	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	48	184	91	240								
Volume Left	47	0	1	0								
Volume Right	0	184	0	14								
cSH	627	968	1327	1700								
Volume to Capacity	0.08	0.19	0.00	0.14								
Queue Length 95th (ft)	6	17	0	0								
Control Delay (s)	11.2	9.6	0.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	9.9		0.1	0.0								
Approach LOS	A											
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				21.1%	ICU Level of Service							A
Analysis Period (min)				15								



AM Near-Term  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	41	1	160	1	78	0	0	197	12
Future Vol, veh/h	0	0	0	41	1	160	1	78	0	0	197	12
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	47	1	184	1	90	0	0	226	14

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	325	332	90	240	0	-	0
Stage 1	92	92	-	-	-	-	-
Stage 2	233	240	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	669	588	968	1327	-	0	0
Stage 1	932	819	-	-	-	0	0
Stage 2	806	707	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	668	0	968	1327	-	-	-
Mov Cap-2 Maneuver	668	0	-	-	-	-	-
Stage 1	931	0	-	-	-	-	-
Stage 2	806	0	-	-	-	-	-

















Approach	WB	NB	SB
HCM Control Delay, s	9.8	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1327	- 668	968	- -
HCM Lane V/C Ratio	0.001	- 0.072	0.19	- -
HCM Control Delay (s)	7.7	0 10.8	9.6	- -
HCM Lane LOS	A	A B	A	- -
HCM 95th %tile Q(veh)	0	- 0.2	0.7	- -

# AM Near-Term

## 6: Drew Rd & I-8 EB Ramp

### HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	1	0	0	0	0	64	46	142	95	0
Future Volume (Veh/h)	13	0	1	0	0	0	0	64	46	142	95	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	13	0	1	0	0	0	0	66	47	146	98	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	480	503	98	480	480	90	98			113		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480	503	98	480	480	90	98			113		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	100	100	100	100			90		
cM capacity (veh/h)	459	424	958	458	437	968	1495			1476		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	13	1	113	244								
Volume Left	13	0	0	146								
Volume Right	0	1	47	0								
cSH	459	958	1700	1476								
Volume to Capacity	0.03	0.00	0.07	0.10								
Queue Length 95th (ft)	2	0	0	8								
Control Delay (s)	13.1	8.8	0.0	4.9								
Lane LOS	B	A		A								
Approach Delay (s)	12.8		0.0	4.9								
Approach LOS	B											
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			29.5%		ICU Level of Service					A		
Analysis Period (min)			15									

AM Near-Term  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	13	0	1	0	0	0	0	64	46	142	95	0
Future Vol, veh/h	13	0	1	0	0	0	0	64	46	142	95	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	1	0	0	0	0	66	47	146	98	0

















Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	480	503	98	-	0	0	113	0	0
Stage 1	390	390	-	-	-	-	-	-	-
Stage 2	90	113	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	545	471	958	0	-	-	1476	-	0
Stage 1	684	608	-	0	-	-	-	-	0
Stage 2	934	802	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	488	0	958	-	-	-	1476	-	-
Mov Cap-2 Maneuver	488	0	-	-	-	-	-	-	-
Stage 1	684	0	-	-	-	-	-	-	-
Stage 2	836	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	488	958	1476	-
HCM Lane V/C Ratio	-	-	0.027	0.001	0.099	-
HCM Control Delay (s)	-	-	12.6	8.8	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.3	-

PM Near-Term  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	38	0	108	0	51	0	0	176	11
Future Volume (Veh/h)	0	0	0	38	0	108	0	51	0	0	176	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	49	0	138	0	65	0	0	226	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	298	298	233	298	305	65	240			65		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	298	233	298	305	65	240			65		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	93	100	86	100			100		
cM capacity (veh/h)	564	614	806	654	608	999	1327			1537		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	49	138	65	240								
Volume Left	49	0	0	0								
Volume Right	0	138	0	14								
cSH	654	999	1327	1700								
Volume to Capacity	0.07	0.14	0.00	0.14								
Queue Length 95th (ft)	6	12	0	0								
Control Delay (s)	10.9	9.2	0.0	0.0								
Lane LOS	B	A										
Approach Delay (s)	9.6		0.0	0.0								
Approach LOS	A											
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			19.9%	ICU Level of Service						A		
Analysis Period (min)			15									

PM Near-Term  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	38	0	108	0	51	0	0	176	11
Future Vol, veh/h	0	0	0	38	0	108	0	51	0	0	176	11
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	49	0	138	0	65	0	0	226	14

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	298	305	65	240	0	-	-
Stage 1	65	65	-	-	-	-	-
Stage 2	233	240	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	693	608	999	1327	-	0	0
Stage 1	958	841	-	-	-	0	0
Stage 2	806	707	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	693	0	999	1327	-	-	-
Mov Cap-2 Maneuver	693	0	-	-	-	-	-
Stage 1	958	0	-	-	-	-	-
Stage 2	806	0	-	-	-	-	-

















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

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1327	-	693	999
HCM Lane V/C Ratio	-	-	0.07	0.139
HCM Control Delay (s)	0	-	10.6	9.2
HCM Lane LOS	A	-	B	A
HCM 95th %tile Q(veh)	0	-	0.2	0.5

PM Near-Term

6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	0	0	0	0	36	62	131	84	0
Future Volume (Veh/h)	15	0	5	0	0	0	0	36	62	131	84	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	21	0	7	0	0	0	0	49	85	179	115	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	564	607	115	564	564	92	115			134		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	564	607	115	564	564	92	115			134		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	100	100	100	100			88		
cM capacity (veh/h)	395	360	937	392	381	966	1474			1451		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	21	7	134	294								
Volume Left	21	0	0	179								
Volume Right	0	7	85	0								
cSH	395	937	1700	1451								
Volume to Capacity	0.05	0.01	0.08	0.12								
Queue Length 95th (ft)	4	1	0	11								
Control Delay (s)	14.6	8.9	0.0	5.2								
Lane LOS	B	A		A								
Approach Delay (s)	13.2		0.0	5.2								
Approach LOS	B											
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			28.3%		ICU Level of Service					A		
Analysis Period (min)			15									

PM Near-Term  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

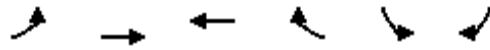
Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	15	0	5	0	0	0	0	36	62	131	84	0
Future Vol, veh/h	15	0	5	0	0	0	0	36	62	131	84	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	0	7	0	0	0	0	49	85	179	115	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	565	607	115	-	0	0	134	0	0
Stage 1	473	473	-	-	-	-	-	-	-
Stage 2	92	134	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	486	411	937	0	-	-	1451	-	0
Stage 1	627	558	-	0	-	-	-	-	0
Stage 2	932	785	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	422	0	937	-	-	-	1451	-	-
Mov Cap-2 Maneuver	422	0	-	-	-	-	-	-	-
Stage 1	627	0	-	-	-	-	-	-	-
Stage 2	809	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	422	937	1451	-
HCM Lane V/C Ratio	-	-	0.049	0.007	0.124	-
HCM Control Delay (s)	-	-	14	8.9	7.8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.4	-

AM Near-Term  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↘	
Traffic Volume (veh/h)	3	55	100	7	9	2
Future Volume (Veh/h)	3	55	100	7	9	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	60	109	8	10	2
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	117				179	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	117				179	113
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1471				809	940
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	63	117	12			
Volume Left	3	0	10			
Volume Right	0	8	2			
cSH	1471	1700	828			
Volume to Capacity	0.00	0.07	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.4	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	0.4	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			15.7%		ICU Level of Service	A
Analysis Period (min)			15			



AM Near-Term  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	
Traffic Vol, veh/h	3	55	100	7	9	2
Future Vol, veh/h	3	55	100	7	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	3	60	109	8	10	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	117	0	-	0	179	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1471	-	-	-	811	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1471	-	-	-	809	940
Mov Cap-2 Maneuver	-	-	-	-	809	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	957	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	9.4			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1471	-	-	-	-	830
HCM Lane V/C Ratio	0.002	-	-	-	-	0.014
HCM Control Delay (s)	7.5	-	-	-	-	9.4
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

PM Near-Term  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	157	52	20	15	1
Future Volume (Veh/h)	2	157	52	20	15	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	185	61	24	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	85				262	73
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	85				262	73
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1512				726	989
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	187	85	19			
Volume Left	2	0	18			
Volume Right	0	24	1			
cSH	1512	1700	736			
Volume to Capacity	0.00	0.05	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.1	0.0	10.0			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization		19.9%		ICU Level of Service		A
Analysis Period (min)			15			

PM Near-Term  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	2	157	52	20	15	1
Future Vol, veh/h	2	157	52	20	15	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	2	185	61	24	18	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	85	0	-	0	262 73
Stage 1	-	-	-	-	73 -
Stage 2	-	-	-	-	189 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1512	-	-	-	727 989
Stage 1	-	-	-	-	950 -
Stage 2	-	-	-	-	843 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1512	-	-	-	726 989
Mov Cap-2 Maneuver	-	-	-	-	726 -
Stage 1	-	-	-	-	949 -
Stage 2	-	-	-	-	843 -

















Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1512	-	-	-	738
HCM Lane V/C Ratio	0.002	-	-	-	0.026
HCM Control Delay (s)	7.4	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

***APPENDIX F: PROJECT OPENING YEAR (2021) WITH PROJECT ANALYSIS  
WORKSHEETS***

AM Near-Term + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	111	1	160	1	78	0	0	197	12
Future Volume (Veh/h)	0	0	0	111	1	160	1	78	0	0	197	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	128	1	184	1	90	0	0	226	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	326	325	233	325	332	90	240			90		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	326	325	233	325	332	90	240			90		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	80	100	81	100			100		
cM capacity (veh/h)	507	593	806	628	587	968	1327			1505		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	129	184	91	240								
Volume Left	128	0	1	0								
Volume Right	0	184	0	14								
cSH	627	968	1327	1700								
Volume to Capacity	0.21	0.19	0.00	0.14								
Queue Length 95th (ft)	19	17	0	0								
Control Delay (s)	12.2	9.6	0.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.7		0.1	0.0								
Approach LOS	B											
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			24.0%	ICU Level of Service							A	
Analysis Period (min)			15									

AM Near-Term + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔		↔			↔	
Traffic Vol, veh/h	0	0	0	111	1	160	1	78	0	0	197	12
Future Vol, veh/h	0	0	0	111	1	160	1	78	0	0	197	12
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	128	1	184	1	90	0	0	226	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	325	332	90	240	0	-	0
Stage 1	92	92	-	-	-	-	-
Stage 2	233	240	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	669	588	968	1327	-	0	0
Stage 1	932	819	-	-	-	0	0
Stage 2	806	707	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	668	0	968	1327	-	-	-
Mov Cap-2 Maneuver	668	0	-	-	-	-	-
Stage 1	931	0	-	-	-	-	-
Stage 2	806	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1327	- 668 968	-	-
HCM Lane V/C Ratio	0.001	- 0.193 0.19	-	-
HCM Control Delay (s)	7.7	0 11.7 9.6	-	-
HCM Lane LOS	A	A B A	-	-
HCM 95th %tile Q(veh)	0	- 0.7 0.7	-	-

AM Near-Term + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	4	0	0	0	0	64	50	142	130	0
Future Volume (Veh/h)	13	0	4	0	0	0	0	64	50	142	130	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	13	0	4	0	0	0	0	66	52	146	134	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	518	544	134	518	518	92	134			118		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	518	544	134	518	518	92	134			118		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	100	100	100	100			90		
cM capacity (veh/h)	433	402	915	431	416	965	1451			1470		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	13	4	118	280								
Volume Left	13	0	0	146								
Volume Right	0	4	52	0								
cSH	433	915	1700	1470								
Volume to Capacity	0.03	0.00	0.07	0.10								
Queue Length 95th (ft)	2	0	0	8								
Control Delay (s)	13.6	9.0	0.0	4.4								
Lane LOS	B	A		A								
Approach Delay (s)	12.5		0.0	4.4								
Approach LOS	B											
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			31.4%	ICU Level of Service	A							
Analysis Period (min)			15									

AM Near-Term + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	13	0	4	0	0	0	0	64	50	142	130	0
Future Vol, veh/h	13	0	4	0	0	0	0	64	50	142	130	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	4	0	0	0	0	66	52	146	134	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	518	544	134	-	0	0	118	0	0
Stage 1	426	426	-	-	-	-	-	-	-
Stage 2	92	118	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	518	446	915	0	-	-	1470	-	0
Stage 1	659	586	-	0	-	-	-	-	0
Stage 2	932	798	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	463	0	915	-	-	-	1470	-	-
Mov Cap-2 Maneuver	463	0	-	-	-	-	-	-	-
Stage 1	659	0	-	-	-	-	-	-	-
Stage 2	832	0	-	-	-	-	-	-	-

















Approach	EB	NB	SB
HCM Control Delay, s	12.1	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	463	915	1470	-
HCM Lane V/C Ratio	-	-	0.029	0.005	0.1	-
HCM Control Delay (s)	-	-	13	9	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.3	-



PM Near-Term + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	40	0	108	3	51	0	0	176	11
Future Volume (Veh/h)	0	0	0	40	0	108	3	51	0	0	176	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	51	0	138	4	65	0	0	226	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	306	306	233	306	313	65	240			65		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	306	306	233	306	313	65	240			65		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	92	100	86	100			100		
cM capacity (veh/h)	556	606	806	645	600	999	1327			1537		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	51	138	69	240								
Volume Left	51	0	4	0								
Volume Right	0	138	0	14								
cSH	645	999	1327	1700								
Volume to Capacity	0.08	0.14	0.00	0.14								
Queue Length 95th (ft)	6	12	0	0								
Control Delay (s)	11.1	9.2	0.5	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	9.7		0.5	0.0								
Approach LOS	A											
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			19.9%	ICU Level of Service	A							
Analysis Period (min)			15									

PM Near-Term + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	40	0	108	3	51	0	0	176	11
Future Vol, veh/h	0	0	0	40	0	108	3	51	0	0	176	11
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	51	0	138	4	65	0	0	226	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	306	313	65	240	0	-	0
Stage 1	73	73	-	-	-	-	-
Stage 2	233	240	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	686	602	999	1327	-	0	0
Stage 1	950	834	-	-	-	0	0
Stage 2	806	707	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	684	0	999	1327	-	-	-
Mov Cap-2 Maneuver	684	0	-	-	-	-	-
Stage 1	947	0	-	-	-	-	-
Stage 2	806	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1327	- 684 999	-	-
HCM Lane V/C Ratio	0.003	- 0.075 0.139	-	-
HCM Control Delay (s)	7.7	0 10.7 9.2	-	-
HCM Lane LOS	A	A B A	-	-
HCM 95th %tile Q(veh)	0	- 0.2 0.5	-	-

PM Near-Term + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	0	0	0	0	39	97	131	86	0
Future Volume (Veh/h)	15	0	5	0	0	0	0	39	97	131	86	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	21	0	7	0	0	0	0	53	133	179	118	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	596	662	118	596	596	120	118			186		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	596	662	118	596	596	120	118			186		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	99	100	100	100	100			87		
cM capacity (veh/h)	375	333	934	372	363	932	1470			1388		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	21	7	186	297								
Volume Left	21	0	0	179								
Volume Right	0	7	133	0								
cSH	375	934	1700	1388								
Volume to Capacity	0.06	0.01	0.11	0.13								
Queue Length 95th (ft)	4	1	0	11								
Control Delay (s)	15.2	8.9	0.0	5.2								
Lane LOS	C	A		A								
Approach Delay (s)	13.6		0.0	5.2								
Approach LOS	B											
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			33.1%		ICU Level of Service					A		
Analysis Period (min)			15									

PM Near-Term + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	15	0	5	0	0	0	0	39	97	131	86	0
Future Vol, veh/h	15	0	5	0	0	0	0	39	97	131	86	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	0	7	0	0	0	0	53	133	179	118	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	596	662	118	-	0	0	186	0	0
Stage 1	476	476	-	-	-	-	-	-	-
Stage 2	120	186	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	466	382	934	0	-	-	1388	-	0
Stage 1	625	557	-	0	-	-	-	-	0
Stage 2	905	746	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	402	0	934	-	-	-	1388	-	-
Mov Cap-2 Maneuver	402	0	-	-	-	-	-	-	-
Stage 1	625	0	-	-	-	-	-	-	-
Stage 2	780	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	402	934	1388	-
HCM Lane V/C Ratio	-	-	0.051	0.007	0.129	-
HCM Control Delay (s)	-	-	14.4	8.9	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.4	-

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3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	3	59	100	11	85	2
Future Volume (vph)	3	59	100	11	85	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	64	109	12	92	2
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	67	121	94			
Volume Left (vph)	3	0	92			
Volume Right (vph)	0	12	2			
Hadj (s)	0.04	-0.03	0.22			
Departure Headway (s)	4.3	4.2	4.5			
Degree Utilization, x	0.08	0.14	0.12			
Capacity (veh/h)	812	839	758			
Control Delay (s)	7.7	7.8	8.1			
Approach Delay (s)	7.7	7.8	8.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.9			
Level of Service			A			
Intersection Capacity Utilization			17.4%	ICU Level of Service	A	
Analysis Period (min)			15			

AM Near-Term + Project  
6: Project Access & SR-98



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	75	40	18	126	2	1
Future Volume (Veh/h)	75	40	18	126	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	43	20	137	2	1
<b>Pedestrians</b>						
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			125		280	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			125		280	104
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1462		700	951
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	125	157	3			
Volume Left	0	20	2			
Volume Right	43	0	1			
cSH	1700	1462	767			
Volume to Capacity	0.07	0.01	0.00			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	0.0	1.1	9.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.1	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			24.3%	ICU Level of Service	A	
Analysis Period (min)			15			

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6: Project Access & SR-98

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Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	40	18	126	2	1
Future Vol, veh/h	75	40	18	126	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	82	43	20	137	2	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	125	0	281
Stage 1	-	-	-	-	104
Stage 2	-	-	-	-	177
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1462	-	709
Stage 1	-	-	-	-	920
Stage 2	-	-	-	-	854
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1462	-	698
Mov Cap-2 Maneuver	-	-	-	-	698
Stage 1	-	-	-	-	920
Stage 2	-	-	-	-	841

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	766	-	-	1462	-
HCM Lane V/C Ratio	0.004	-	-	0.013	-
HCM Control Delay (s)	9.7	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	172	4	1	71	40	18
Future Volume (Veh/h)	172	4	1	71	40	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	187	4	1	77	43	20
<b>Pedestrians</b>						
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			191		268	189
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		268	189
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	98
cM capacity (veh/h)			1383		721	853
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	191	78	63			
Volume Left	0	1	43			
Volume Right	4	0	20			
cSH	1700	1383	758			
Volume to Capacity	0.11	0.00	0.08			
Queue Length 95th (ft)	0	0	7			
Control Delay (s)	0.0	0.1	10.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	10.2			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			19.3%	ICU Level of Service	A	
Analysis Period (min)			15			



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Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	172	4	1	71	40	18
Future Vol, veh/h	172	4	1	71	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	187	4	1	77	43	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	191	0	268
Stage 1	-	-	-	-	189
Stage 2	-	-	-	-	79
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1383	-	721
Stage 1	-	-	-	-	843
Stage 2	-	-	-	-	944
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1383	-	720
Mov Cap-2 Maneuver	-	-	-	-	720
Stage 1	-	-	-	-	843
Stage 2	-	-	-	-	943

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	757	-	-	1383	-
HCM Lane V/C Ratio	0.083	-	-	0.001	-
HCM Control Delay (s)	10.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

PM Near-Term + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	157	56	96	17	1
Future Volume (Veh/h)	2	157	56	96	17	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	185	66	113	20	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	179				312	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	179				312	122
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1397				680	929
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	187	179	21			
Volume Left	2	0	20			
Volume Right	0	113	1			
cSH	1397	1700	689			
Volume to Capacity	0.00	0.11	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.1	0.0	10.4			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		19.9%		ICU Level of Service		A
Analysis Period (min)			15			

PM Near-Term + Project  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	157	56	96	17	1
Future Vol, veh/h	2	157	56	96	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	2	185	66	113	20	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	179	0	-	0	312
Stage 1	-	-	-	-	123
Stage 2	-	-	-	-	189
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1397	-	-	-	681
Stage 1	-	-	-	-	902
Stage 2	-	-	-	-	843
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1397	-	-	-	680
Mov Cap-2 Maneuver	-	-	-	-	680
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	843

















Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1397	-	-	-	690
HCM Lane V/C Ratio	0.002	-	-	-	0.031
HCM Control Delay (s)	7.6	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

***APPENDIX G: PROJECT OPENING YEAR (2021) WITH PROJECT ANALYSIS WITH  
CUMULATIVE WORKSHEETS***

## AM Near- Term Cumulative + Project 2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	397	1	160	1	78	0	0	201	12
Future Volume (Veh/h)	0	0	0	397	1	160	1	78	0	0	201	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	456	1	184	1	90	0	0	231	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	330	330	238	330	337	90	245				90	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330	330	238	330	337	90	245				90	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	27	100	81	100				100	
cM capacity (veh/h)	503	589	801	623	583	968	1321				1505	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	457	184	91	245								
Volume Left	456	0	1	0								
Volume Right	0	184	0	14								
cSH	623	968	1321	1700								
Volume to Capacity	0.73	0.19	0.00	0.14								
Queue Length 95th (ft)	158	17	0	0								
Control Delay (s)	25.0	9.6	0.1	0.0								
Lane LOS	D	A	A									
Approach Delay (s)	20.6		0.1	0.0								
Approach LOS	C											
Intersection Summary												
Average Delay				13.5								
Intersection Capacity Utilization				40.0%	ICU Level of Service							A
Analysis Period (min)				15								

AM Near- Term Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	397	1	160	1	78	0	0	201	12
Future Vol, veh/h	0	0	0	397	1	160	1	78	0	0	201	12
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	456	1	184	1	90	0	0	231	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	330	337	90	245	0	-	0
Stage 1	92	92	-	-	-	-	-
Stage 2	238	245	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	665	584	968	1321	-	0	0
Stage 1	932	819	-	-	-	0	0
Stage 2	802	703	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	664	0	968	1321	-	-	-
Mov Cap-2 Maneuver	664	0	-	-	-	-	-
Stage 1	931	0	-	-	-	-	-
Stage 2	802	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1321	- 664	968	- -
HCM Lane V/C Ratio	0.001	- 0.689	0.19	- -
HCM Control Delay (s)	7.7	0 21.5	9.6	- -
HCM Lane LOS	A	A C	A	- -
HCM 95th %tile Q(veh)	0	- 5.5	0.7	- -

AM Near- Term Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	26	0	0	0	0	64	48	142	455	0
Future Volume (Veh/h)	13	0	26	0	0	0	0	64	48	142	455	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	13	0	27	0	0	0	0	66	49	146	469	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	852	876	469	852	852	90	469			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	852	876	469	852	852	90	469			115		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	95	100	100	100	100			90		
cM capacity (veh/h)	259	259	594	247	268	967	1093			1474		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	13	27	115	615								
Volume Left	13	0	0	146								
Volume Right	0	27	49	0								
cSH	259	594	1700	1474								
Volume to Capacity	0.05	0.05	0.07	0.10								
Queue Length 95th (ft)	4	4	0	8								
Control Delay (s)	19.7	11.3	0.0	2.6								
Lane LOS	C	B		A								
Approach Delay (s)	14.0		0.0	2.6								
Approach LOS	B											
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			48.5%	ICU Level of Service	A							
Analysis Period (min)			15									

AM Near- Term Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	13	0	26	0	0	0	0	64	48	142	455	0
Future Vol, veh/h	13	0	26	0	0	0	0	64	48	142	455	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	27	0	0	0	0	66	49	146	469	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	852	876	469	-	0	0	115	0	0
Stage 1	761	761	-	-	-	-	-	-	-
Stage 2	91	115	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	330	287	594	0	-	-	1474	-	0
Stage 1	461	414	-	0	-	-	-	-	0
Stage 2	933	800	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	286	0	594	-	-	-	1474	-	-
Mov Cap-2 Maneuver	286	0	-	-	-	-	-	-	-
Stage 1	461	0	-	-	-	-	-	-	-
Stage 2	808	0	-	-	-	-	-	-	-

















Approach	EB	NB	SB
HCM Control Delay, s	13.6	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	286	594	1474	-
HCM Lane V/C Ratio	-	-	0.047	0.045	0.099	-
HCM Control Delay (s)	-	-	18.2	11.3	7.7	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0.3	-



PM Near-Term Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	41	0	108	25	55	0	0	176	11
Future Volume (Veh/h)	0	0	0	41	0	108	25	55	0	0	176	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	0	53	0	138	32	71	0	0	226	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type						None			None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	368	368	233	368	375	71	240			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368	368	233	368	375	71	240			71		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	91	100	86	98			100		
cM capacity (veh/h)	497	547	806	578	543	991	1327			1529		
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total	53	138	103	240								
Volume Left	53	0	32	0								
Volume Right	0	138	0	14								
cSH	578	991	1327	1700								
Volume to Capacity	0.09	0.14	0.02	0.14								
Queue Length 95th (ft)	8	12	2	0								
Control Delay (s)	11.9	9.2	2.6	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.0		2.6	0.0								
Approach LOS	A											
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			27.5%		ICU Level of Service					A		
Analysis Period (min)			15									

PM Near-Term Cumulative + Project  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	41	0	108	25	55	0	0	176	11
Future Vol, veh/h	0	0	0	41	0	108	25	55	0	0	176	11
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	53	0	138	32	71	0	0	226	14

















Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	368	375	71	240	0	-	0
Stage 1	135	135	-	-	-	-	-
Stage 2	233	240	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	632	556	991	1327	-	0	0
Stage 1	891	785	-	-	-	0	0
Stage 2	806	707	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	616	0	991	1327	-	-	-
Mov Cap-2 Maneuver	616	0	-	-	-	-	-
Stage 1	869	0	-	-	-	-	-
Stage 2	806	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1327	- 616	991	- -
HCM Lane V/C Ratio	0.024	- 0.085	0.14	- -
HCM Control Delay (s)	7.8	0 11.4	9.2	- -
HCM Lane LOS	A	A B	A	- -
HCM 95th %tile Q(veh)	0.1	- 0.3	0.5	- -

PM Near-Term Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	0	0	0	0	45	108	131	86	0
Future Volume (Veh/h)	15	0	5	0	0	0	0	45	108	131	86	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	21	0	7	0	0	0	0	62	148	179	118	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	612	686	118	612	612	136	118			210		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	612	686	118	612	612	136	118			210		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	99	100	100	100	100			87		
cM capacity (veh/h)	364	321	934	362	354	913	1470			1361		
Direction, Lane #	EB 1	EB 2	NB 1	SB 1								
Volume Total	21	7	210	297								
Volume Left	21	0	0	179								
Volume Right	0	7	148	0								
cSH	364	934	1700	1361								
Volume to Capacity	0.06	0.01	0.12	0.13								
Queue Length 95th (ft)	5	1	0	11								
Control Delay (s)	15.5	8.9	0.0	5.3								
Lane LOS	C	A		A								
Approach Delay (s)	13.8		0.0	5.3								
Approach LOS	B											
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			34.1%	ICU Level of Service	A							
Analysis Period (min)			15									

PM Near-Term Cumulative + Project  
6: Drew Rd & I-8 EB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	15	0	5	0	0	0	0	45	108	131	86	0
Future Vol, veh/h	15	0	5	0	0	0	0	45	108	131	86	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	0	7	0	0	0	0	62	148	179	118	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	612	686	118	-	0	0	210	0	0
Stage 1	476	476	-	-	-	-	-	-	-
Stage 2	136	210	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	456	370	934	0	-	-	1361	-	0
Stage 1	625	557	-	0	-	-	-	-	0
Stage 2	890	728	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	392	0	934	-	-	-	1361	-	-
Mov Cap-2 Maneuver	392	0	-	-	-	-	-	-	-
Stage 1	625	0	-	-	-	-	-	-	-
Stage 2	765	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	0	4.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	392	934	1361	-
HCM Lane V/C Ratio	-	-	0.052	0.007	0.132	-
HCM Control Delay (s)	-	-	14.7	8.9	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.5	-

AM Near-Term Cumulative + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	10	57	100	85	47	2
Future Volume (vph)	10	57	100	85	47	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	62	109	92	51	2
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	73	201	53			
Volume Left (vph)	11	0	51			
Volume Right (vph)	0	92	2			
Hadj (s)	0.06	-0.24	0.20			
Departure Headway (s)	4.3	3.9	4.7			
Degree Utilization, x	0.09	0.22	0.07			
Capacity (veh/h)	819	914	723			
Control Delay (s)	7.7	7.9	8.0			
Approach Delay (s)	7.7	7.9	8.0			
Approach LOS	A	A	A			
<b>Intersection Summary</b>						
Delay			7.9			
Level of Service			A			
Intersection Capacity Utilization			21.5%	ICU Level of Service		A
Analysis Period (min)			15			

AM Near-Term Cumulative + Project  
5: Project Access & SR-98



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	75	40	18	126	2	1
Future Volume (Veh/h)	75	40	18	126	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	43	20	137	2	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			125		280	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			125		280	104
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1462		700	951
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	125	157	3			
Volume Left	0	20	2			
Volume Right	43	0	1			
cSH	1700	1462	767			
Volume to Capacity	0.07	0.01	0.00			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	0.0	1.1	9.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.1	9.7			
Approach LOS			A			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			24.3%	ICU Level of Service	A	
Analysis Period (min)			15			

AM Near-Term Cumulative + Project  
5: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	40	18	126	2	1
Future Vol, veh/h	75	40	18	126	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	82	43	20	137	2	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	125	0	281
Stage 1	-	-	-	-	104
Stage 2	-	-	-	-	177
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1462	-	709
Stage 1	-	-	-	-	920
Stage 2	-	-	-	-	854
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1462	-	698
Mov Cap-2 Maneuver	-	-	-	-	698
Stage 1	-	-	-	-	920
Stage 2	-	-	-	-	841

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	766	-	-	1462	-
HCM Lane V/C Ratio	0.004	-	-	0.013	-
HCM Control Delay (s)	9.7	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

PM Near-Term Cumulative + Project  
2: Project Access & SR-98



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	268	2	1	71	40	18
Future Volume (Veh/h)	268	2	1	71	40	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	291	2	1	77	43	20
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			293		371	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			293		371	292
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	97
cM capacity (veh/h)			1269		629	747
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	293	78	63			
Volume Left	0	1	43			
Volume Right	2	0	20			
cSH	1700	1269	662			
Volume to Capacity	0.17	0.00	0.10			
Queue Length 95th (ft)	0	0	8			
Control Delay (s)	0.0	0.1	11.0			
Lane LOS			A		B	
Approach Delay (s)	0.0	0.1	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			24.2%	ICU Level of Service		A
Analysis Period (min)			15			



PM Near-Term Cumulative + Project  
2: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	268	2	1	71	40	18
Future Vol, veh/h	268	2	1	71	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	291	2	1	77	43	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	293	0	371
Stage 1	-	-	-	-	292
Stage 2	-	-	-	-	79
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1269	-	630
Stage 1	-	-	-	-	758
Stage 2	-	-	-	-	944
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1269	-	629
Mov Cap-2 Maneuver	-	-	-	-	629
Stage 1	-	-	-	-	758
Stage 2	-	-	-	-	943

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	661	-	-	1269	-
HCM Lane V/C Ratio	0.095	-	-	0.001	-
HCM Control Delay (s)	11	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

PM Near-Term Cumulative + Project  
3: SR-98 & Drew Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶		↶	
Traffic Volume (veh/h)	2	157	54	58	93	8
Future Volume (Veh/h)	2	157	54	58	93	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	185	64	68	109	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	132				287	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132				287	98
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				84	99
cM capacity (veh/h)	1453				702	958
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	187	132	118			
Volume Left	2	0	109			
Volume Right	0	68	9			
cSH	1453	1700	717			
Volume to Capacity	0.00	0.08	0.16			
Queue Length 95th (ft)	0	0	15			
Control Delay (s)	0.1	0.0	11.0			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization		22.2%		ICU Level of Service		A
Analysis Period (min)			15			

PM Near-Term Cumulative + Project  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	157	54	58	93	8
Future Vol, veh/h	2	157	54	58	93	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	2	185	64	68	109	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	132	0	-	0	287 98
Stage 1	-	-	-	-	98 -
Stage 2	-	-	-	-	189 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1453	-	-	-	703 958
Stage 1	-	-	-	-	926 -
Stage 2	-	-	-	-	843 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1453	-	-	-	702 958
Mov Cap-2 Maneuver	-	-	-	-	702 -
Stage 1	-	-	-	-	924 -
Stage 2	-	-	-	-	843 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1453	-	-	-	717
HCM Lane V/C Ratio	0.002	-	-	-	0.166
HCM Control Delay (s)	7.5	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

***APPENDIX H: DE-COMMISSION YEAR (2046) WITH PROJECT ANALYSIS  
WORKSHEETS***

# AM Decommission Year + Project (2046)

## 2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	85	1	193	1	94	0	0	238	15
Future Vol, veh/h	0	0	0	85	1	193	1	94	0	0	238	15
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	109	1	247	1	121	0	0	305	19

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	438	447	121	324	0	-	0
Stage 1	123	123	-	-	-	-	-
Stage 2	315	324	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	576	506	930	1236	-	0	0
Stage 1	902	794	-	-	-	0	0
Stage 2	740	650	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	575	0	930	1236	-	-	-
Mov Cap-2 Maneuver	575	0	-	-	-	-	-
Stage 1	901	0	-	-	-	-	-
Stage 2	740	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1WBLn2	SBT	SBR
Capacity (veh/h)	1236	-	575	930
HCM Lane V/C Ratio	0.001	-	0.192	0.266
HCM Control Delay (s)	7.9	0	12.7	10.3
HCM Lane LOS	A	A	B	B
HCM 95th %tile Q(veh)	0	-	0.7	1.1

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	16	0	4	0	0	0	0	78	57	171	150	0
Future Vol, veh/h	16	0	4	0	0	0	0	78	57	171	150	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	5	0	0	0	0	107	78	234	205	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	819	858	205	-	0	0	185	0	0
Stage 1	673	673	-	-	-	-	-	-	-
Stage 2	146	185	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	345	294	836	0	-	-	1390	-	0
Stage 1	507	454	-	0	-	-	-	-	0
Stage 2	881	747	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	279	0	836	-	-	-	1390	-	-
Mov Cap-2 Maneuver	279	0	-	-	-	-	-	-	-
Stage 1	507	0	-	-	-	-	-	-	-
Stage 2	714	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0	4.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	279	836	1390	-
HCM Lane V/C Ratio	-	-	0.079	0.007	0.169	-
HCM Control Delay (s)	-	-	19	9.3	8.1	0
HCM Lane LOS	-	-	C	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	0.6	-

PM Decommission Year + Project (2046)  
2: Drew Rd & I-8 WB Ramp

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Traffic Vol, veh/h	0	0	0	48	0	130	3	61	0	0	213	14
Future Vol, veh/h	0	0	0	48	0	130	3	61	0	0	213	14
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	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	62	0	167	4	78	0	0	273	18

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	368	377	78	291	0	-	0
Stage 1	86	86	-	-	-	-	-
Stage 2	282	291	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	632	555	983	1271	-	0	0
Stage 1	937	824	-	-	-	0	0
Stage 2	766	672	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	630	0	983	1271	-	-	-
Mov Cap-2 Maneuver	630	0	-	-	-	-	-
Stage 1	934	0	-	-	-	-	-
Stage 2	766	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1271	-	630	983	-
HCM Lane V/C Ratio	0.003	-	0.098	0.17	-
HCM Control Delay (s)	7.8	0	11.3	9.4	-
HCM Lane LOS	A	A	B	A	-
HCM 95th %tile Q(veh)	0	-	0.3	0.6	-

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↘			↖	
Traffic Vol, veh/h	18	0	6	0	0	0	0	47	110	158	103	0
Future Vol, veh/h	18	0	6	0	0	0	0	47	110	158	103	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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	0	8	0	0	0	0	64	151	216	141	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	713	788	141	-	0	0	215	0	0
Stage 1	573	573	-	-	-	-	-	-	-
Stage 2	140	215	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	398	323	907	0	-	-	1355	-	0
Stage 1	564	504	-	0	-	-	-	-	0
Stage 2	887	725	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	329	0	907	-	-	-	1355	-	-
Mov Cap-2 Maneuver	329	0	-	-	-	-	-	-	-
Stage 1	564	0	-	-	-	-	-	-	-
Stage 2	734	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0	4.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	329	907	1355	-
HCM Lane V/C Ratio	-	-	0.075	0.009	0.16	-
HCM Control Delay (s)	-	-	16.8	9	8.2	0
HCM Lane LOS	-	-	C	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.6	-



## Intersection

Int Delay, s/veh 0.6

## Movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	78	40	18	130	2	1
Future Vol, veh/h	78	40	18	130	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	85	43	20	141	2	1

## Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	128	0	288
Stage 1	-	-	-	-	107
Stage 2	-	-	-	-	181
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1458	-	702
Stage 1	-	-	-	-	917
Stage 2	-	-	-	-	850
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1458	-	691
Mov Cap-2 Maneuver	-	-	-	-	691
Stage 1	-	-	-	-	917
Stage 2	-	-	-	-	837

## Approach

	EB	WB	NB
HCM Control Delay, s	0	0.9	9.8
HCM LOS			A

## Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	759	-	-	1458	-
HCM Lane V/C Ratio	0.004	-	-	0.013	-
HCM Control Delay (s)	9.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

AM Decommission Year + Project (2046)  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	4	68	121	11	49	3
Future Vol, veh/h	4	68	121	11	49	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	5	80	142	13	58	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	155	0	-	0	239
Stage 1	-	-	-	-	149
Stage 2	-	-	-	-	90
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1425	-	-	-	749
Stage 1	-	-	-	-	879
Stage 2	-	-	-	-	934
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1425	-	-	-	746
Mov Cap-2 Maneuver	-	-	-	-	746
Stage 1	-	-	-	-	875
Stage 2	-	-	-	-	934

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1425	-	-	-	753
HCM Lane V/C Ratio	0.003	-	-	-	0.081
HCM Control Delay (s)	7.5	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

PM Decommission Year + Project (2046)  
 2: Project Access & SR-98

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	208	2	1	86	40	18
Future Vol, veh/h	208	2	1	86	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	226	2	1	93	43	20

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	228	0	322	227
Stage 1	-	-	-	-	227	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1340	-	672	812
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1340	-	671	812
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	709	-	-	1340	-
HCM Lane V/C Ratio	0.089	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

PM Decommission Year + Project (2046)  
3: SR-98 & Drew Rd

HCM 2010 TWSC

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	3	190	65	62	20	1
Future Vol, veh/h	3	190	65	62	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	4	224	76	73	24	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	149	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1432	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1432	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1432	-	-	-	660
HCM Lane V/C Ratio	0.002	-	-	-	0.037
HCM Control Delay (s)	7.5	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1