

SECTION 4.3

TRANSPORTATION AND CIRCULATION

4.3 TRANSPORTATION AND CIRCULATION

This section discusses the transportation and access impacts that would occur with implementation of the proposed project. Impacts may occur from introduction of construction-related traffic on local roads, physical changes to roads, and access points created to allow entry and exit from the project site. Information contained in this section is summarized from the *Draft Traffic Impact Analysis* prepared by LOS Engineering, Inc. (LOS, 2012). This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

4.3.1 REGULATORY FRAMEWORK

A. STATE

California Department of Transportation

The State of California Department of Transportation (Caltrans) is responsible for the design, construction, maintenance, and operation of the California State Highway System. Caltrans is also responsible for portions of the Interstate Highway System within the state's boundaries. Caltrans has jurisdiction over state highway right-of-way and has the authority to issue permits for work and encroachments (temporary or permanent) in these areas. Likewise, Caltrans is involved in review of traffic control plans, stoppage of traffic for placement of aerial lines, and installation or removal of overhead conductors crossing a highway. The project does not include any components that would span or encroach into Caltrans facilities.

B. LOCAL

Imperial County General Plan Circulation and Scenic Highways Element

The Circulation and Scenic Highways Element is included as part of the Imperial County General Plan pursuant to requirements of law and policies of federal, state, and regional agencies. The purpose of the Element is to provide a comprehensive document which contains the latest information about the transportation needs of the County and the various modes available to meet these needs and to facilitate regional transportation coordination. This Element is also intended to provide a plan to accommodate a pattern of concentrated and coordinated growth providing both regional and local linkage systems between unique communities and the County's neighboring metropolitan regions. Additionally, the purpose of this Element is to provide a means of protecting and enhancing scenic resources within both rural and urban scenic highway corridors.

Table 4.3-1 analyzes the consistency of the proposed project with the applicable policies relating to land use in the County of Imperial General Plan. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 151250, the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

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**TABLE 4.3-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

General Plan Policies	Consistent with General Plan?	Analysis
Circulation and Scenic Highways Element		
Safe, Convenient, and Efficient Transportation System		
<p>Objective 1.2 Require a traffic analysis for any new development which may have a significant impact on County roads. A traffic analysis may not be necessary in every situation, such as when the size or location of the project will not have a significant impact upon and generate only a small amount of traffic. Also, certain types of projects, due to the trip generation characteristics, may add virtually no traffic during peak periods. These types of projects may be exempt from the traffic analysis requirements. Whether a particular project qualifies for any exemption will be determined by the Department of Public Works Road Commissioner.</p>	Yes	<p>A <i>Draft Traffic Impact Analysis</i> was prepared for the proposed project by LOS Engineering, Inc. The analysis examined a worst-case scenario during month seven construction to provide a conservative estimate of impacts. Therefore, the proposed action is consistent with this objective.</p>
<p>Objective 1.12 Review new development proposals to ensure that the proposed development provides adequate parking and would not increase traffic on existing roadways and intersection to a level of service (LOS) worse than "C" without providing appropriate mitigations to existing infrastructure. This can include fair share contributions on the part of developers to mitigate traffic impacts caused by such proposed developments.</p>	Yes	<p>The <i>Draft Traffic Impact Analysis</i> was prepared for the proposed project by LOS Engineering, Inc., examined impacts to LOS and construction parking. Fair share contributions are identified to mitigate cumulative impacts that would occur at one intersection in association with the proposed project (refer to subsection 4.3.4). The proposed project is consistent with this objective.</p>
Financing Alternatives		
<p>Policy 4.1 Distribute the costs of transportation improvements equitably among those who will benefit, including current roadway users.</p>	Yes	<p>The proposed project would generate similar amounts of traffic during construction and operation. Costs associated with mitigating impacts resulting from the project are identified in the discussion of cumulative impacts in subsection 4.3.3.</p>

4.3.2 ENVIRONMENTAL SETTING

Information contained in this section is summarized from the *Draft Traffic Impact Analysis* prepared by LOS Engineering, Inc. (LOS, 2012). This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

A. SOLAR GENERATION FACILITY

Existing Circulation Network

The existing roadway system and classifications are described below based on the Imperial County General Plan Circulation and Scenic Highways Element (January 29, 2008). (Excerpts from the Element are included in Appendix G of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR). **Figure 4.3-1** depicts the Existing (Year 2011) Roadway Conditions.

Interstate 8 (I-8) is constructed as a four-lane divided roadway with two lanes in each direction between Dunaway Road and Imperial Avenue.

Diehl Road is currently constructed as a 2 lane un-divided roadway within approximately 20 feet of pavement between Westside Road and Drew Road. This segment has a year 2003 classification of Minor Collector in the Imperial County Circulation and Scenic Highways Element. A posted speed limit was not observed on this segment.

Drew Road (S 29) is currently a paved roadway constructed as a two lane un-divided roadway between I-8 and SR 98. This segment of Drew Road has a year 2003 classification of Prime Arterial in the Imperial County *Circulation and Scenic Highways Element*.

Evan Hewes Highway is currently constructed as a 2 lane un-divided roadway within approximately 24 feet of pavement between Westside Road and Forrester Road. This segment has a 2003 classification of Prime Arterial on the Imperial County Circulation and Scenic Highways Element. The posted speed limit is 40 MPH within the built-up areas of Seeley. A posted speed limit was not observed on Evan Hewes Highway outside of urbanized areas.

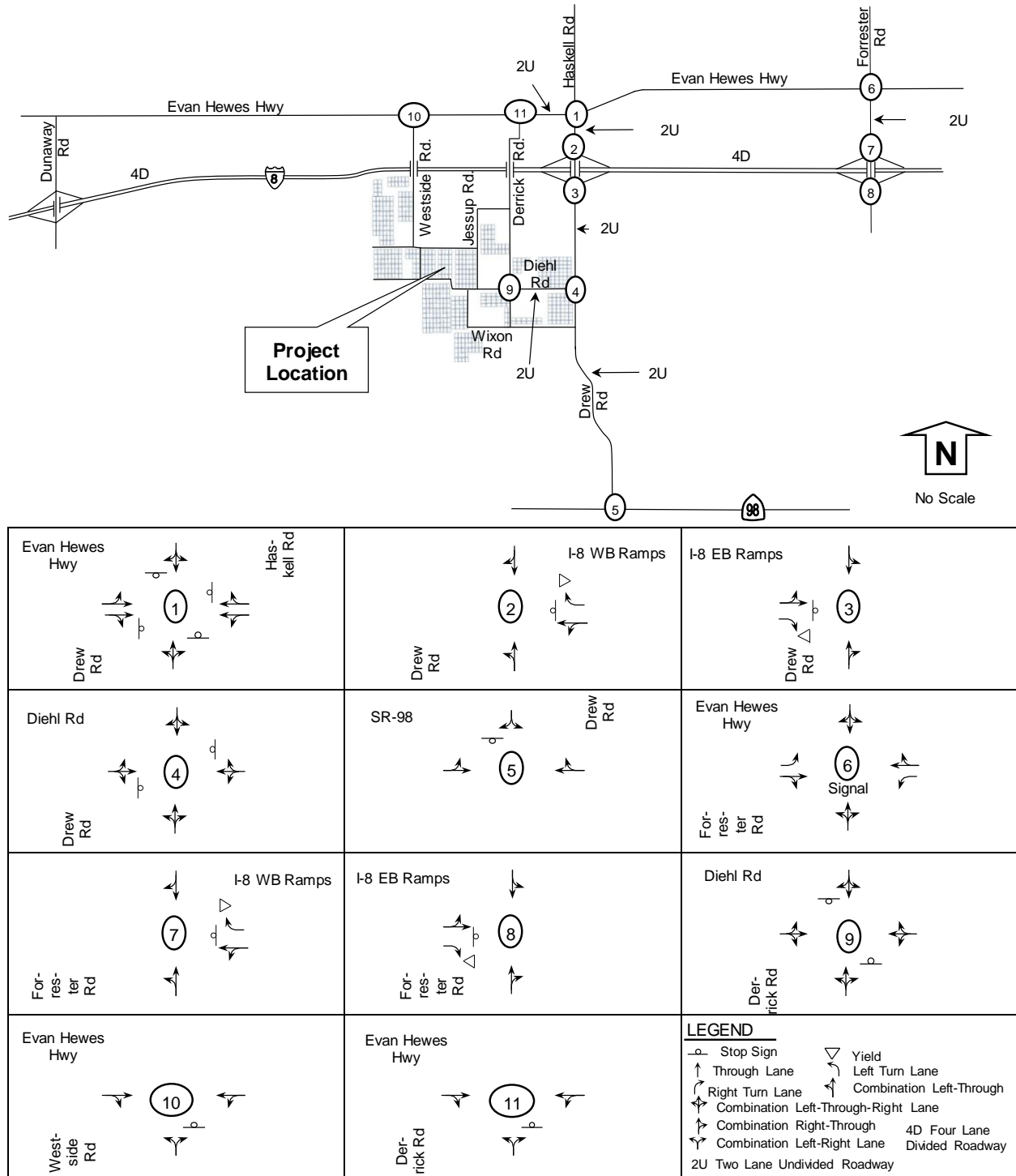
Forrester Road (S 30) is currently a paved roadway constructed as a two lane un-divided roadway between I-8 and McCabe Road. This segment of Forrester Road has a year 2003 classification of Prime Arterial in the Imperial County *Circulation and Scenic Highways Element*.

Level of Service

Intersection LOS

In order to understand existing conditions, level of service (LOS) must be explained. The operating conditions of the study intersections are measured using the Highway Capacity Manual (HCM) LOS designations ranging from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. LOS worsens from A to F based on delay in seconds at the intersection. **Table 4.3-2** shows the delays for each LOS associated with un-signalized and signalized intersections. The individual LOS criteria for each roadway component are described below.

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Source: LOS, 2012.

FIGURE 4.3-1
EXISTING (YEAR 2011) TRAFFIC VOLUMES

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**TABLE 4.3-2
UN-SIGNALIZED AND SIGNALIZED INTERSECTION LEVEL OF SERVICE (HCM 2000)**

Level of Service	Un-Signalized Average Control Delay (seconds/vehicle)	Signalized Average Control Delay (seconds/vehicle)
A	0-10	0-10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: LOS, 2012 from Highway Capacity Manual, 2000.

As noted on page 5 of Caltrans' *Guide for the Preparation of Traffic Impact Studies*, December 2002, the accepted methodology by Caltrans for un-signalized intersections is the most current edition of the HCM (excerpt included in Appendix B of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR). Therefore, all of the study interchanges with un-signalized intersections were analyzed using the most current edition of the HCM.

Roadway Segment LOS

The roadway segments were analyzed based on the functional classification of the roadway using the Imperial County Standard Street Classification capacity lookup table (copy included in Appendix C of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR). The roadway segment capacity and LOS standards used to analyze roadway segments are summarized in **Table 4.3-3**.

**TABLE 4.3-3
ROADWAY SEGMENT DAILY CAPACITY AND LOS (IMPERIAL COUNTY)**

Circulation Element Road Classification	Cross Section	LOS A	LOS B	LOS C	LOS D	LOS 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 (Collector)	64/84	<13,700	<22,800	<27,400	<30,800	<34,200
Minor Collector (Local Collector)	40/70	<1,900	<4,100	<7,100	<10,900	<16,200
Local County (Residential)	40/60	*	*	<1,500	*	*
Local County (Residential Cul-de-Sac or Loop Street)	40/60	*	*	<200	*	*
Major Industrial Collector – (Industrial)	76/96	<5,000	<10,000	<14,000	<17,000	<20,000
Industrial Local	44/64	<2,500	<5,000	<7,000	<8,500	<10,000

Source: LOS, 2012, from Imperial County Department of Planning and Development Services Circulation and Scenic Highways Element January 29, 2008.

Notes: *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.

Freeway Segment LOS

The freeway segments were analyzed based on a multi-lane highway LOS criterion using a Volume to Capacity (V/C) ratio as outlined in the 2000 HCM. The V/C ratio is the ratio of traffic to roadway

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capacity. The V/C ratio provides a measure of how much roadway capacity is being used. Freeway LOS operations are based on Caltrans' *Guide for the Preparation of Traffic Impact Studies* V/C ratios as summarized below in **Table 4.3-4**. Excerpts from Caltrans' *Guide for the Preparation of Traffic Impact Studies* are included in Appendix D of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

**TABLE 4.3-4
FREEWAY LEVEL OF SERVICE**

Measure of Effectiveness	LOS A	LOS B	LOS C	LOS D	LOS E
Max Volume/Capacity Ratio (V/C)	0.30	0.50	0.71	0.89	1.00

Source: Source: LOS, 2012 from Caltrans' *Guide for the Preparation of Traffic Impact Studies*, December 2002.

B. EXISTING (YEAR 2011) TRAFFIC VOLUMES AND LOS ANALYSIS

Intersection Volumes

Existing AM and PM peak hour intersection volumes were collected for the intersections numbered 1 through 11. **Table 4.3-5** provides a summary of the intersection locations and the count date for each intersection. Count data is included in Appendix H D of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR. The existing roadway AM, PM, and daily volumes are shown in **Figure 4.3-2**.

**TABLE 4.3-5
INTERSECTION LOCATION AND DATE OF COUNT**

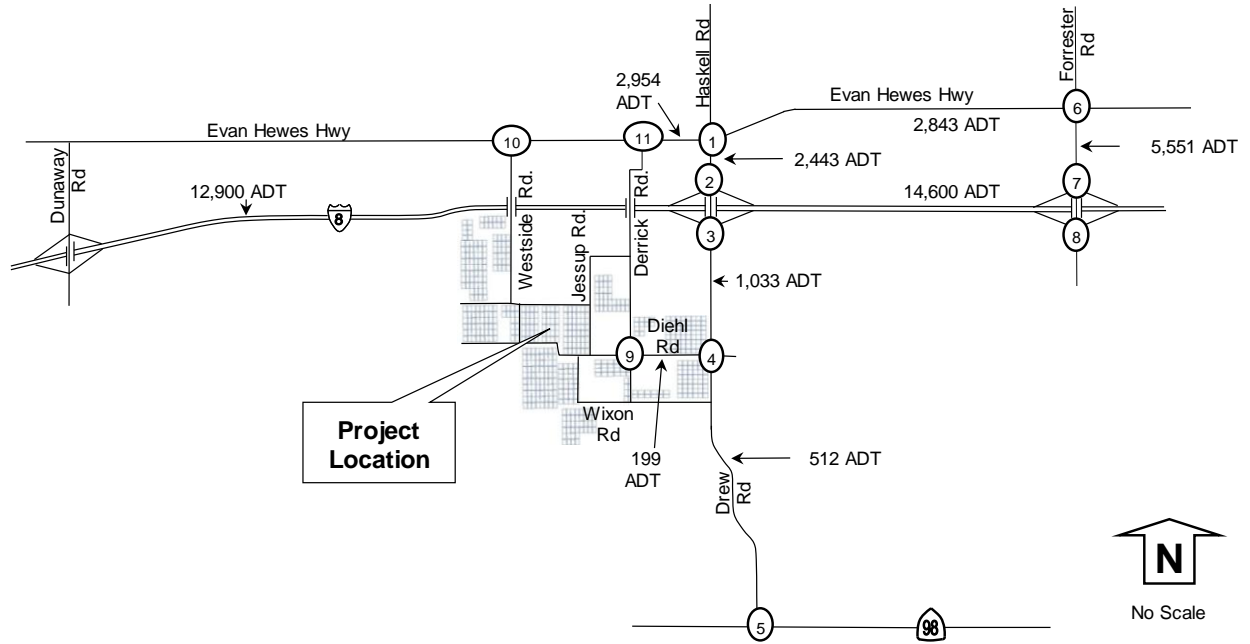
Number	Intersection	Date of Count
1	Drew Road/Evan Hewes Highway	Wednesday, June 22, 2011
2	Drew Road/I-8 Westbound Ramps	Wednesday, June 22, 2011
3	Drew Road/I-8 Eastbound Ramps	Wednesday, June 22, 2011
4	Drew Road/Diehl Road	Wednesday, June 22, 2011
5	Drew Road/SR-98	Thursday, March 24, 2011
6	Forrester Road/ Evan Hewes Highway	Wednesday, June 22, 2011
7	Forrester Road/I-8 westbound Ramps	Thursday, March 24, 2011
8	Forrester Road/I-8 eastbound Ramps	Thursday, March 24, 2011
9	Derrick Road/Diehl Road	Westside Road/Evan Hewes Highway (May 22, 2008 with a 2.8% annual growth factor applied to reach a year 2011 volume)
10	Westside Road/Evan Hewes Highway	Wednesday, June 22, 2011
11	Derrick Road/ Evan Hewes Highway	Wednesday, June 22, 2011

Source: LOS, 2012.

Roadway Segment Volumes

Daily traffic volumes with count dates were obtained or collected for 7 roadway segments. **Table 4.3-6** provides a summary of the roadway segment locations and count dates. Count data is included in Appendix H of **Appendix C**.

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<p>Evan Hewes Hwy</p> <p>10 (12) → (1) ← 6 (14)</p> <p>5 (8) → (1) ← 3 (19)</p> <p>59 (114) → (1) ← 96 (33)</p> <p>36 (92) → (1) ← 21 (13)</p> <p>Drew Rd</p> <p>69 (42) → (1) ← 11 (19)</p> <p>17 (10) → (1) ← 0</p>	<p>16 (6) ← (2) → 45 (84)</p> <p>I-8 WB Ramps</p> <p>56 (37) → (2) ← 0 (0)</p> <p>12 (14) → (2) ← 23 (12)</p> <p>Drew Rd</p> <p>7 (0) → (2) ← 2 (1)</p> <p>0 (4) → (2) ← 3 (3)</p> <p>51 (53) → (2) ← 0</p>	<p>I-8 EB Ramps</p> <p>20 (33) → (3) ← 37 (59)</p> <p>6 (7) → (3) ← 0 (0)</p> <p>0 (5) → (3) ← 27 (6)</p> <p>Drew Rd</p> <p>27 (18) → (3) ← 15 (20)</p> <p>8 (13) → (3) ← 106 (96)</p> <p>12 (24) → (3) ← 13 (95)</p> <p>15 (18) → (3) ← 0 (0)</p>
<p>Diehl Rd</p> <p>6 (1) → (4) ← 11 (24)</p> <p>0 (0) → (4) ← 1 (0)</p> <p>0 (0) → (4) ← 0 (0)</p> <p>Drew Rd</p> <p>3 (1) → (4) ← 3 (8)</p> <p>0 (0) → (4) ← 0 (0)</p>	<p>SR-98</p> <p>1 (2) → (5) ← 27 (91)</p> <p>Drew Rd</p> <p>0 (0) → (5) ← 3 (3)</p> <p>51 (53) → (5) ← 33 (31)</p> <p>91 (232) → (5) ← 35 (26)</p> <p>5 (9) → (5) ← 0 (0)</p>	<p>Evan Hewes Hwy</p> <p>25 (15) → (6) ← 104 (128)</p> <p>15 (20) → (6) ← 8 (13)</p> <p>106 (96) → (6) ← 12 (24)</p> <p>Forrester Rd</p> <p>13 (8) → (6) ← 95 (110)</p> <p>15 (18) → (6) ← 0 (0)</p> <p>1 (1) → (6) ← 3 (2)</p> <p>0 (0) → (6) ← 7 (3)</p> <p>0 (1) → (6) ← 1 (0)</p> <p>0 (0) → (6) ← 0 (0)</p>
<p>Forrester Rd</p> <p>56 (54) → (7) ← 110 (257)</p> <p>200 (160) → (7) ← 15 (8)</p> <p>4 (0) → (7) ← 74 (101)</p>	<p>I-8 EB Ramps</p> <p>40 (76) → (8) ← 0 (1)</p> <p>3 (3) → (8) ← 35 (26)</p> <p>5 (9) → (8) ← 1 (1)</p> <p>0 (0) → (8) ← 5 (4)</p>	<p>Diehl Rd</p> <p>0 (0) → (9) ← 1 (1)</p> <p>3 (2) → (9) ← 8 (1)</p> <p>0 (0) → (9) ← 0 (0)</p>
<p>Evan Hewes Hwy</p> <p>50 (164) → (10) ← 268 (17)</p> <p>3 (0) → (10) ← 1 (4)</p> <p>Westside Rd</p> <p>1 (0) → (10) ← 3 (4)</p>	<p>Evan Hewes Hwy</p> <p>52 (190) → (11) ← 142 (44)</p> <p>4 (4) → (11) ← 1 (4)</p> <p>Derrick Rd</p> <p>1 (0) → (11) ← 5 (4)</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p>(#) Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-2
EXISTING (YEAR 2011) VOLUMES

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**TABLE 4.3-6
ROADWAY SEGMENT AND DATE OF COUNT**

Number	Roadway Segment	Date of Count
1	Diehl Road from Derrick Road to Drew Road	Wednesday, June 22, 2011
2	Drew Road from Evan Hewes Highway to I-8	Wednesday, June 22, 2011
3	Drew Road from I-8 to Diehl Road	Wednesday, June 22, 2011
4	Drew Road from Diehl Road to SR 98	Wednesday, June 22, 2011
5	Evan Hewes Highway from Derrick Road to Drew Road	Wednesday, June 22, 2011
6	Evan Hewes Highway from Drew Road to Forrester Road	Wednesday, June 22, 2011
7	Forrester Road from Evan Hewes Highway to I-8	Wednesday, June 22, 2011

Source: LOS, 2012.

Freeway Segment Volumes

Daily freeway volumes with count dates were obtained for two freeway segments. **Table 4.3-7** provides a summary of the freeway segment locations and count dates. Count data is included in Appendix H of **Appendix B**.

**TABLE 4.3-7
FREEWAY SEGMENT AND DATE OF COUNT**

Number	Freeway Segment	Date of Count
1	I-8 from Dunaway Road to Drew Road	Caltrans 2010 with a 2.8% annual growth factor applied to reach a year 2011 volume
2	I-8 from Drew Road to Forrester Road	Caltrans 2010 with a 2.8% annual growth factor applied to reach a year 2011 volume

Source: LOS, 2012.

Peak Hour Intersection Performance

Table 4.3-8 summarizes the existing (Year 2011) weekday intersections LOS (Intersections LOS calculations are included in Appendix I of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR). As shown, all intersections currently operate at LOS C or better during both the weekday AM and PM peak hours. Eight of the intersections would operate at LOS A during both the AM and PM peak hours. Three of the intersections operate at LOS B during the AM peak hour. Two intersections (Forrester Road/Evan Hewes Highway and Forrester Road/I-8 Eastbound Ramps) would operate at LOS C during the PM peak hour only. **Figure 4.3-2** depict the existing AM, PM, and daily intersection, roadway segment and freeway volumes for the project study area during weekday conditions (Count data is included in Appendix H of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR).

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**TABLE 4.3-8
EXISTING (YEAR 2011) INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Existing (Year 2011)	
			Delay ²	LOS ³
1) Drew Road/Evan Hewes Highway (U)	All	AM	7.5	A
	All	PM	7.5	A
2) Drew Road/I-8 Westbound Ramps (U)	WB LT	AM	8.7	A
	WB LT	PM	8.7	A
3) Drew Road/I-8 Eastbound Ramps (U)	EB LT	AM	10.0	B
	EB LT	PM	9.3	A
4) Drew Road/Diehl Road (U)	EB LTR	AM	8.6	A
	EB LTR	PM	8.6	A
5) Drew Road/SR-98 (U)	SB LR	AM	8.6	A
	SB LR	PM	9.2	A
6) Forrester Road/ Evan Hewes Highway (U)	All	AM	16.8	B
	All	PM	22.9	C
7) Forrester Road/I-8 westbound Ramps (U)	WB LT	AM	9.8	A
	WB LT	PM	9.8	A
8) Forrester Road/I-8 eastbound Ramps (U)	EB LT	AM	10.8	B
	EB LT	PM	16.9	C
9) Derrick Road/Diehl Road (U)	SB LTR	AM	8.7	A
	SB LTR	PM	8.7	A
10) Westside Road/Evan Hewes Highway (U)	NB LR	AM	9.1	A
	NB LR	PM	9.2	A
11) Derrick Road/ Evan Hewes Highway (U)	NB LR	AM	8.8	A
	NB LR	PM	9.3	A

Source: LOS, 2012.

Notes: ¹Intersection Control - (S) Signalized, (U) Unsignalized

²Delay - HCM Average Control Delay in Seconds.

³Los: Level Of Service.

DNE: Does Not Exist

Daily Segment Volumes

Table 4.3-9 summarizes the existing (Year 2011) daily roadway segment LOS during the weekday conditions. (Intersections LOS calculations are included in Appendix I of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR).

Under existing year 2011 conditions, all study roadway segments were calculated to operate at LOS C or better. Three segments would operate at LOS A; three segments would operate at LOS B; and one segment would operate at LOS C. **Figure 4.3-2** identifies the existing average daily trips (ADTs) along roadway segments in the project study area during weekday conditions.

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**TABLE 4.3-9
EXISTING (YEAR 2011) ROADWAY SEGMENT LOS**

Roadway Segment	Classification (as built)	Existing (Year 2011)				
		Daily Volume	# of Lanes	LOS C Capacity	V/C	LOS
Diehl Road Derrick Road to Drew Road	Minor Collector (2U)	199	2	7,100	0.03	A
Drew Road Evan Hewes Highway to I-8	Prime Arterial (2U)	2,443	2	7,100	0.34	B
I-8 to Diehl Road	Prime Arterial (2U)	1,033	2	7,100	0.15	A
Diehl Road to SR 98	Prime Arterial (2U)	512	2	7,100	0.07	A
Evan Hewes Highway Derrick Road to Drew Road	Prime Arterial (2U)	2,954	2	7,100	0.42	B
Drew Road to Forrester Road	Prime Arterial (2U)	2,843	2	7,100	0.40	B
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U)	5,551	2	7,100	0.78	C

Source: LOS, 2012. Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element.
V/C: Volume to Capacity ratio. 2U = 2 lane undivided roadway.
Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed.

Existing Freeway Analysis

Table 4.3-10 summarizes the results of the existing daily freeway analysis during the weekday conditions for the two freeway segments identified in the study area. Both I-8 freeway segments operate at LOS B or better.

**TABLE 4.3-10
EXISTING (YEAR 2011) FREEWAY SEGMENT LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Year 2011 (Forecasted from 2010)							
ADT	12,900				14,600			
Peak Hour	AM		PM		AM		PM	
Directions	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2
Capacity ¹	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor ²	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor ³	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor ⁴	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	434	1,095	624	1,304	491	1,239	706	1,476
V/C	0.092	0.233	0.133	0.277	0.104	0.264	0.150	0.314
LOS	A	A	A	A	A	A	A	B

Source: LOS, 2012.

Notes: ¹ Capacity of 2,350 passenger cars per hour per lane (pcphpl) from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002.

² Latest K factor (percentage of the ADT in both directions during the peak hour) from Caltrans (based on 2007 report).

³ Latest D factor (percentage of traffic in the peak direction during the peak hour) from Caltrans (based on 2007 report), which when multiplied by K and ADT will provide peak hour volume. V/C: Volume to Capacity ratio.

⁴ Latest truck factor from Caltrans (based on 2007 report). EB = eastbound; WB = westbound

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

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The segment between Dunaway Road to Drew Road operates at LOS A in both the AM and PM hours in both directions (eastbound and westbound); the segment between Drew Road and Forrester Road operates at LOS A in the AM peak hour in both directions, at LOS A during the PM peak hour in the eastbound direction, and LOS B during the PM peak hour in the westbound direction.

B. GEN-TIE

The Draft Traffic Impact Analysis included traffic generated by the portion of the gen-tie to be located on lands under the jurisdiction of the BLM. This portion of the project is undergoing separate environmental analysis under NEPA. However, the roadway segments described for the solar generation facility, would also apply to the gen-tie.

C. METHODOLOGY

The following describes the methodology used for the various aspects of the traffic analysis.

Intersections

The operating conditions of the study intersections are measured using the Highway Capacity Manual (HCM) LOS designations ranging from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. LOS worsens from A to F based on delay in seconds at the intersection (refer to **Table 4.3-2**, above).

Roadway Segments

Roadway segments were analyzed based on the functional classification of the roadway using the Imperial County Standard Street Classification capacity lookup table. The roadway segment capacity and LOS standards used to analyze roadway segments are summarized in **Table 4.3-3**, above.

Freeway Segments

Freeway segments were analyzed based on a multi-lane highway LOS criterion using a Volume to Capacity (V/C) ratio as outlined in the 2000 Highway Capacity Manual. The accepted methodology by Caltrans for the analysis of freeway sections is to use the most current edition of the HCM as noted on page 5 of Caltrans' *Guide for the Preparation of Traffic Impact Studies*, December 2002. Freeway LOS operations are based on Caltrans' *Guide for the Preparation of Traffic Impact Studies* V/C ratios (identified in **Table 4.3-3**, above).

D. SCENARIOS

The number of scenarios analyzed for the proposed project/Proposed Action is based on the methodology outlined in the Imperial County 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. Excerpts from the *Traffic Study and Report Policy* showing the scenario criteria are included in Appendix A of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

Six scenarios were analyzed that accounted for existing, project construction, cumulative projects and horizon year conditions. Operational findings by scenario are summarized below for the proposed project:

- Existing (Year 2011) Conditions
- Existing (Year 2011) Plus Project Conditions

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- Year 2013 Conditions (Without Project)
- Year 2013 Plus Project Conditions
- Year 2013 Plus Project Plus Cumulative Conditions
- Horizon Year 2050 Plus Project Conditions

E. PROJECT TRIP GENERATION

The project trip generation consists of a construction phase and operations phase. The construction phase will have the highest traffic intensity followed by an operations phase with significantly fewer vehicle trips. Construction and operations trip generation are described below.

Construction Trip Generation

Construction of the project includes site preparation, foundation construction, erection of major equipment and structures, installation of electrical systems, control systems, and start-up/testing. These construction activities are expected to require approximately 12 to 24 months. According to the applicant, the construction workforce is expected to reach a peak during month number seven (7) anticipated to occur during the first quarter of 2013 with a peak of up to 325 daily vehicles for construction workers and 50 daily truck deliveries (details in Appendix J of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR). The number of workers before and after the peak month will be less. Work is anticipated to start at 6 AM and conclude at 6 PM Monday through Friday. The peak construction traffic (during month number 7) is calculated at 950 ADT with 349 AM peak hour trips (337 inbound and 12 outbound) and 349 PM peak hour trips (12 inbound and 337 outbound) as shown in **Table 4.3-11**.

**TABLE 4.3-11
PROJECT TRIP GENERATION SUMMARY**

Proposed Construction Related Traffic	Daily Vehicle Trips	ADT With PCE ²	AM (6 AM)		PM (6 PM)	
			IN	OUT	IN	OUT
Peak Construction Workers	325	650	325	0	0	325
Equipment Deliveries and Construction Trucks (with PCE)	50	300	12	12	12	12
Total Traffic During Peak Construction Period	375	950	337	12	12	337

Source: LOS, 2012.

ADT: Average Daily Trips. 1) Number of construction workers and construction trucks provided by applicant. 2) Passenger Car Equivalent (PCE) factor of 3 applied to each truck, thus 50 daily trucks equals 300 ADT in one (1) day while peak hour has about 4 trucks x 3 PCE to equal 12 PCE peak hour trips.

Construction Trip Distribution and Assignment

The applicant has indicated that the labor pool for the construction workforce is anticipated at approximately 60% from within Imperial County from a combination of existing residents and workers that will temporarily reside in the County, and approximately 40% from outside Imperial County. Local cities/residential communities within Imperial County are considered to include but are not limited to Calipatria, Westmorland, Brawley, Imperial, El Centro, Holtville, and Calexico. The distribution of the construction workforce by cities/communities was based on the concentration of populations per the Census 2010 from the U.S. Census Bureau. The percentage of local construction workforce by city/community and county is shown in **Table 4.3-12**.

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**TABLE 4.3-12
CONSTRUCTION WORKFORCE SOURCES BASED ON CENSUS 2010 POPULATIONS (60 PERCENT LOCAL)**

85 Percent Local Workforce	2010 Census Population	Percentage of Total	Percentage of Construction Employees (60% From Within Imperial County)
Calipatria	7,705	6%	3%
Westmorland	2,225	2%	1%
Brawley	24,953	18%	11%
Imperial	14,758	11%	6%
El Centro	42,598	31%	19%
Holtville	5,939	4%	3%
Calxico	38,572	28%	17%
Total	136,750	100%	60%

Source: LOS, 2012. Population data from U.S. Census Bureau.

The percentage of non-local construction workforce by city/community and county were based on the population concentrations per the Census 2010 from the U.S. Census Bureau and proximity to population centers such as San Diego. The non-local workforce numbers are shown in **Table 4.3-13**.

**TABLE 4.3-13
CONSTRUCTION WORKFORCE SOURCES BASED ON CENSUS 2010 POPULATIONS (60 PERCENT LOCAL)**

Non-Local (40%) County	2010 Census Population	Percentage of Census Total	Percentage of Non-Local Workforce (With emphasis on proximity to San Diego)
San Diego County	3,095,313	56%	30%
Riverside County	2,189,641	40%	9%
Yuma County (Arizona)	195,751	4%	1%
Non-Local Total	5,480,705	100%	40%

Source: LOS, 2012. Population data from U.S. Census Bureau.

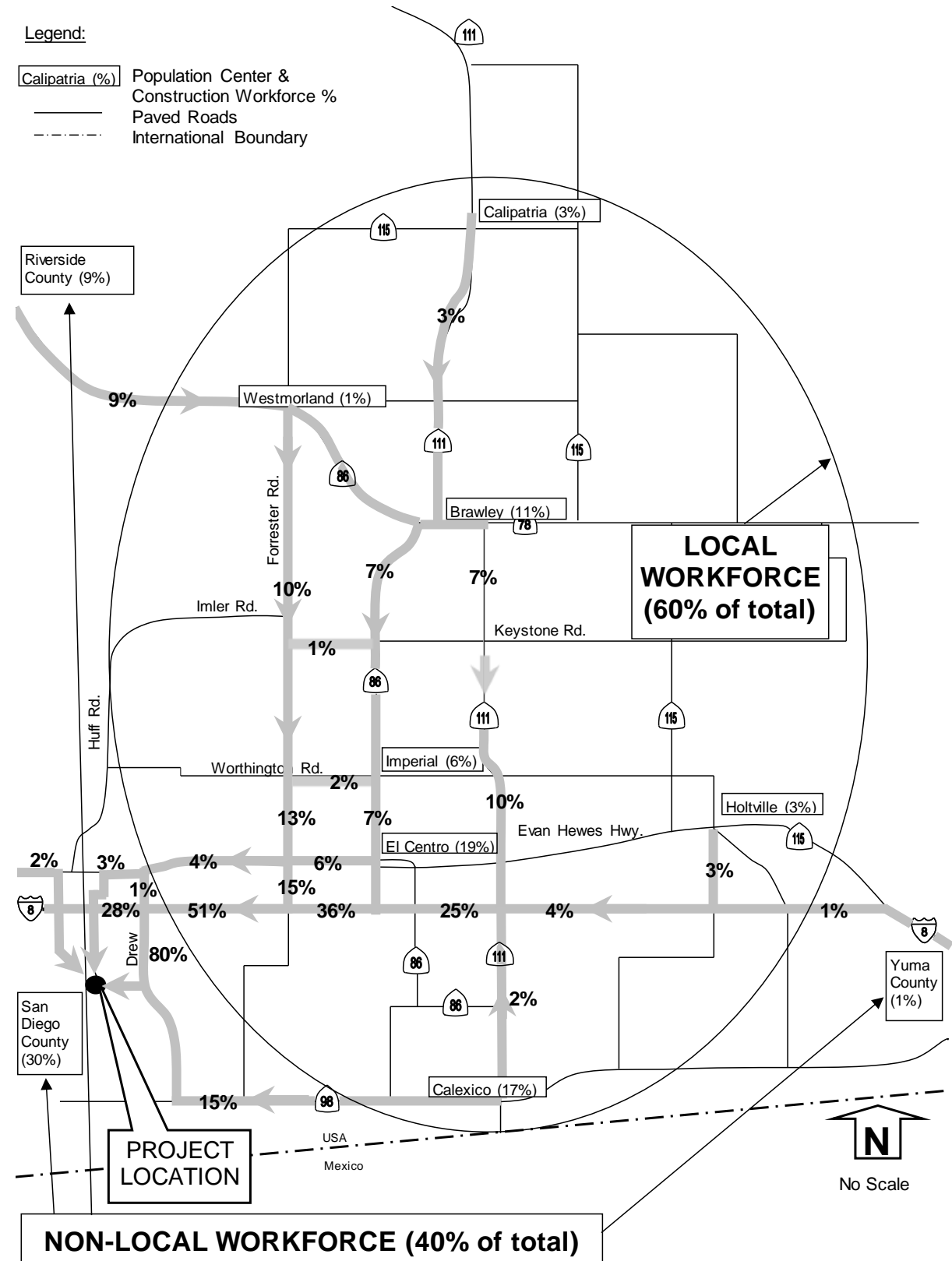
Based on the aforementioned Census information, the regional construction workforce distribution is shown in **Figure 4.3-3** with the study area distribution shown in **Figure 4.3-4**. The construction workforce trip assignment is shown in **Figure 4.3-5**.

The delivery of equipment is anticipated to arrive from outside of Imperial Valley with a majority arriving from Los Angeles and Riverside Counties, followed by San Diego County, and the possibility of some truck traffic from other locations. The project truck delivery distribution is shown in **Figure 4.3-6** with the truck delivery trip assignment shown in **Figure 4.3-7**. The total project traffic that consists of the construction workforce and delivery of equipment is shown in **Figure 4.3-8**.

Alternative Access Routes

On April 5, 2010 an earthquake struck Imperial County and caused the closure of Drew Road south of I-8. In the event an alternative route is required to reach the project site, several route options exist. These alternative access routes are shown in **Figure 4.3-9**; however, this analysis is based on primary access from Drew Road. The Drew Road bridge was rebuilt over the past year to current engineering and seismic standards and is expected to be available for use. However, alternative routes have been

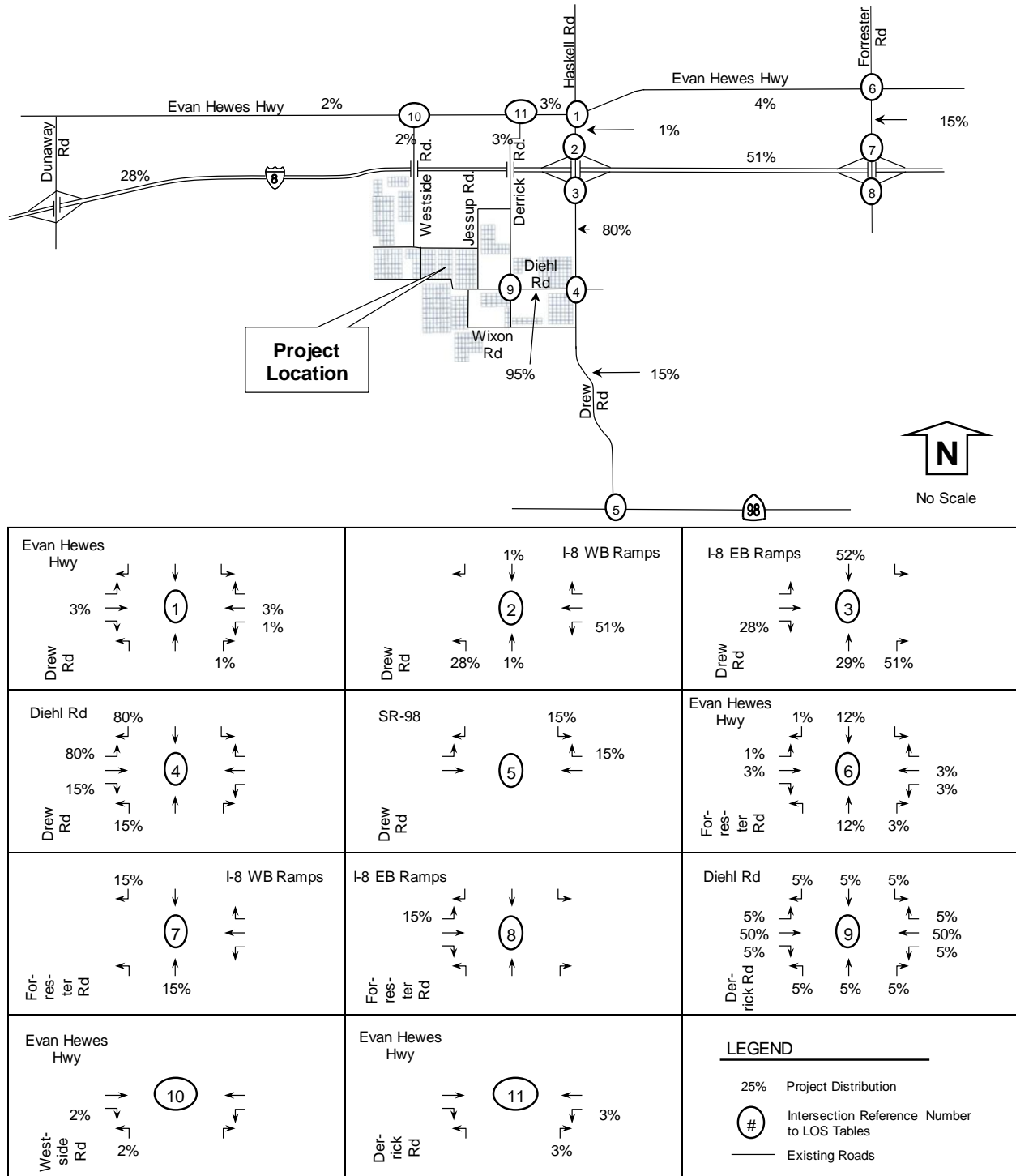
4.3 TRANSPORTATION AND CIRCULATION



Source: LOS, 2012.

**FIGURE 4.3-3
LOCAL CONSTRUCTION WORKFORCE DISTRIBUTION**

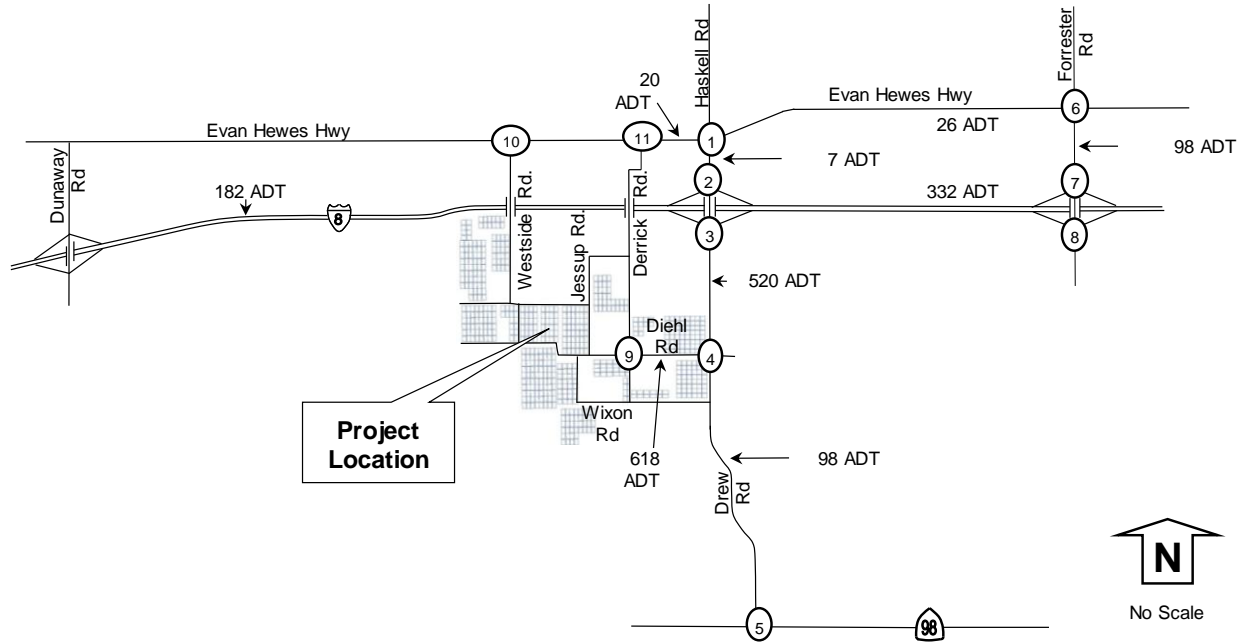
4.3 TRANSPORTATION AND CIRCULATION



Source: LOS, 2012.

FIGURE 4.3-4
STUDY AREA DISTRIBUTION

4.3 TRANSPORTATION AND CIRCULATION

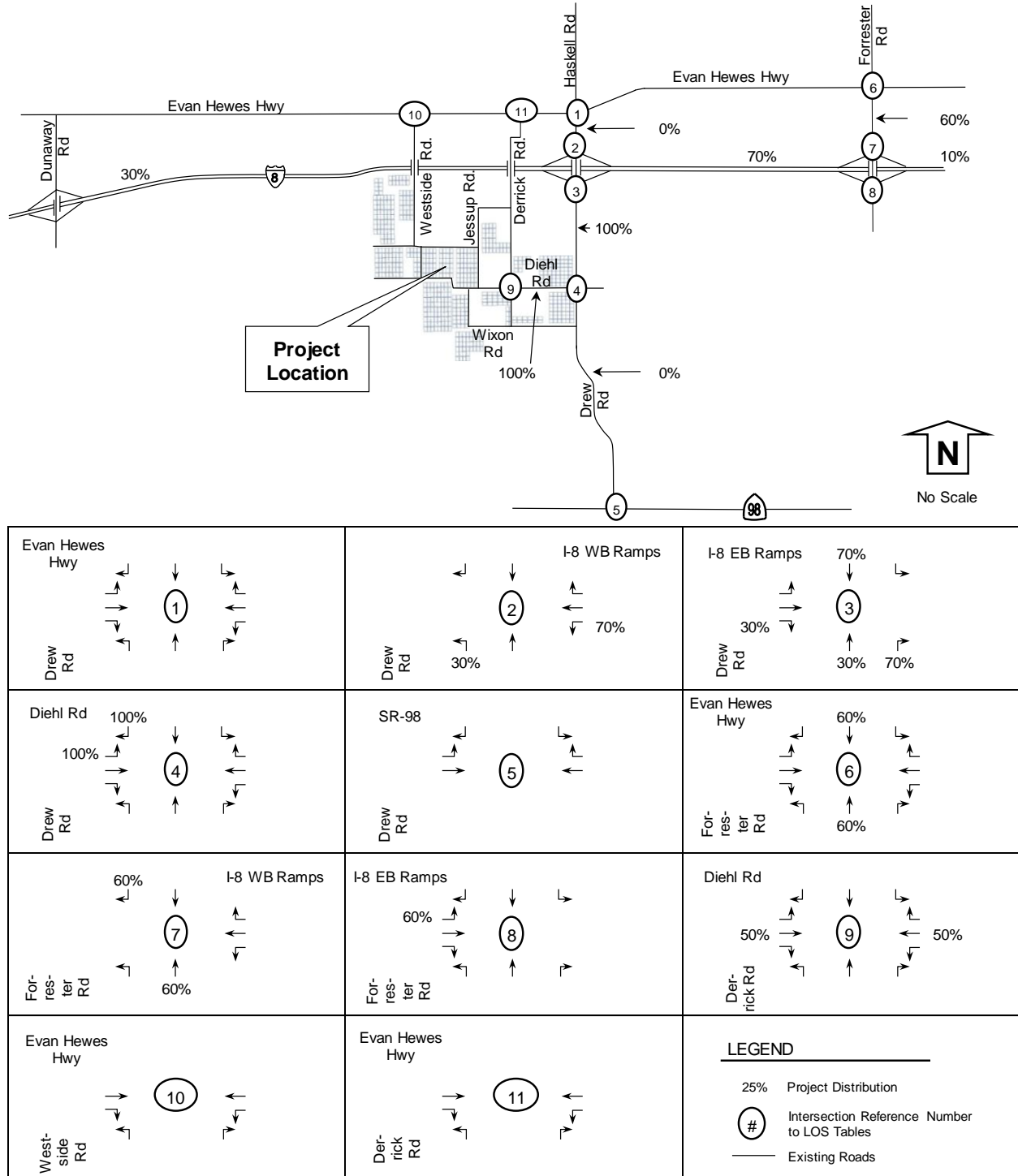


<p>Evan Hewes Hwy</p> <p>0 (10) → (1) ← 10 (3)</p> <p>Drew Rd → (3) ←</p>	<p>3 (0) I-8 WB Ramps</p> <p>Drew Rd → (91) (3) ↑ (2) ↓ 166 (0)</p>	<p>I-8 EB Ramps</p> <p>Drew Rd → (94) (166) ↑ (3) ↓ 169 (0)</p>
<p>Diehl Rd</p> <p>0 (260) → (4) ← 49 (0)</p> <p>Drew Rd → (49) (0) ↑</p>	<p>SR-98</p> <p>Drew Rd → (49) (0) ↑ (5) ↓ 49 (0)</p>	<p>Evan Hewes Hwy</p> <p>0 (3) → (6) ← 10 (0)</p> <p>Forrester Rd → (39) (10) ↑ (0) ↓</p>
<p>Forrester Rd</p> <p>→ (7) ← 0 (49)</p> <p>I-8 WB Ramps</p>	<p>I-8 EB Ramps</p> <p>Forrester Rd → (49) (0) ↑ (8) ↓</p>	<p>Diehl Rd</p> <p>5 (20) → (9) ← 20 (5)</p> <p>5 (180) → 180 (5)</p> <p>5 (20) → 20 (5)</p> <p>Derrick Rd → (20) (20) ↑ (5) ↓ (20)</p>
<p>Evan Hewes Hwy</p> <p>7 (0) → (10) ← 0 (7)</p> <p>Westside Rd → (7) ←</p>	<p>Evan Hewes Hwy</p> <p>Derrick Rd → (10) (0) ↑ (11) ↓ 10 (0)</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p>(#) Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-5
CONSTRUCTION WORKFORCE TRAFFIC

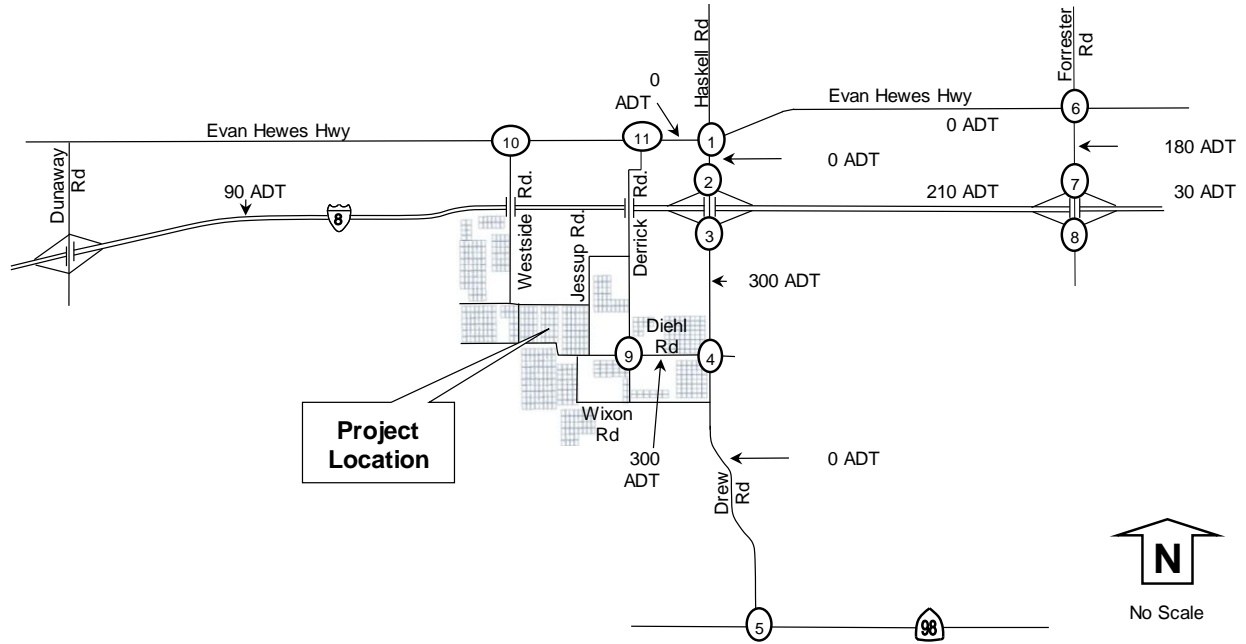
4.3 TRANSPORTATION AND CIRCULATION



Source: LOS, 2012.

FIGURE 4.3-6
TRUCK DELIVERY DISTRIBUTION

4.3 TRANSPORTATION AND CIRCULATION

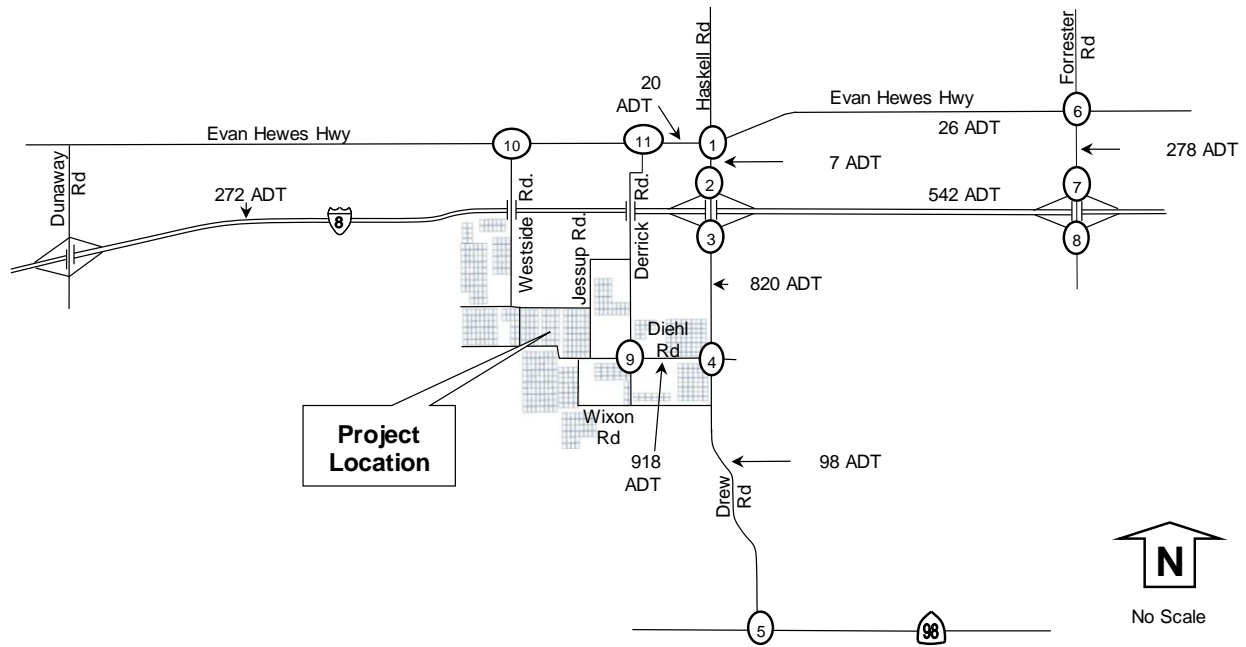


<p>Evan Hewes Hwy</p> <p>Drew Rd</p> <p>1</p>	<p>I-8 WB Ramps</p> <p>Drew Rd</p> <p>2</p> <p>8 (8)</p>	<p>I-8 EB Ramps</p> <p>Drew Rd</p> <p>3</p> <p>8 (8)</p> <p>4 (4)</p> <p>4 (4)</p> <p>8 (8)</p>
<p>Diehl Rd</p> <p>Drew Rd</p> <p>4</p> <p>12 (12)</p>	<p>SR-98</p> <p>Drew Rd</p> <p>5</p>	<p>Evan Hewes Hwy</p> <p>Forrester Rd</p> <p>6</p> <p>7 (7)</p> <p>7 (7)</p>
<p>I-8 WB Ramps</p> <p>Forrester Rd</p> <p>7</p> <p>7 (7)</p>	<p>I-8 EB Ramps</p> <p>Forrester Rd</p> <p>8</p> <p>7 (7)</p>	<p>Diehl Rd</p> <p>Derrick Rd</p> <p>9</p> <p>6 (6)</p> <p>6 (6)</p>
<p>Evan Hewes Hwy</p> <p>Westside Rd</p> <p>10</p>	<p>Evan Hewes Hwy</p> <p>Derrick Rd</p> <p>11</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p># Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-7
TRUCK DELIVERY TRAFFIC

4.3 TRANSPORTATION AND CIRCULATION

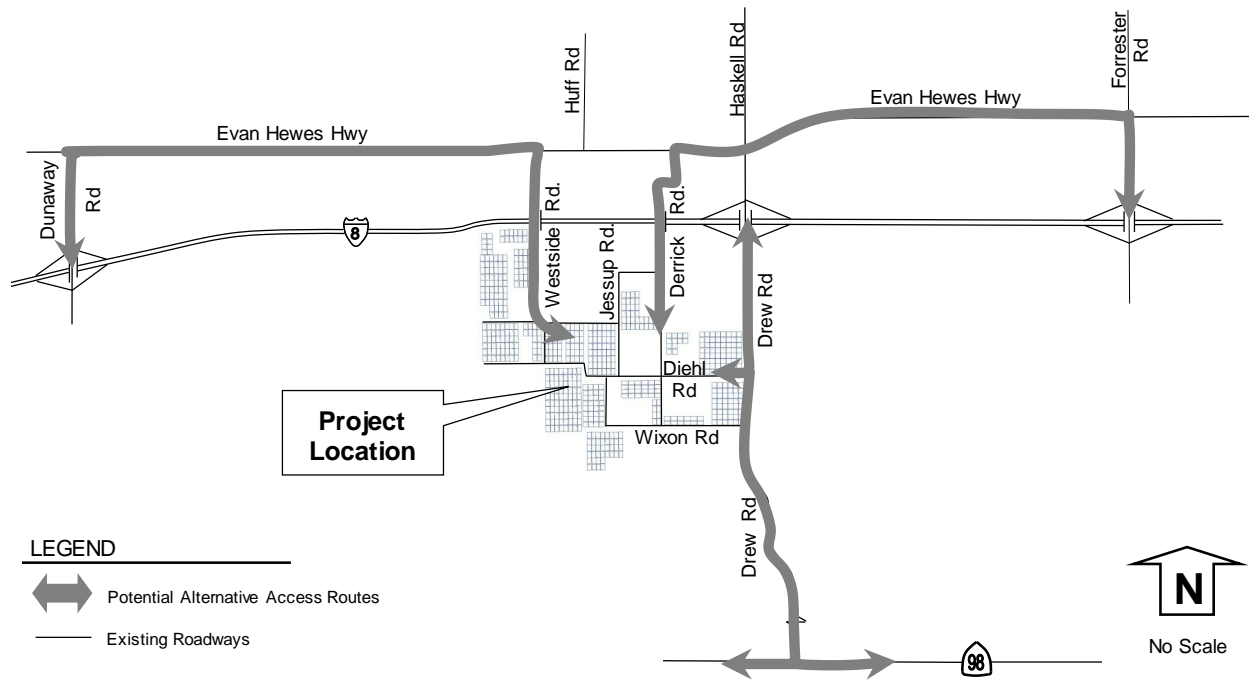


<p>Evan Hewes Hwy</p> <p>0 (10) → (1) ← 10 (0)</p> <p>Drew Rd → (3) ←</p>	<p>3 (0) I-8 WB Ramps</p> <p>Drew Rd → (95) (3) ←</p> <p>174 (8)</p>	<p>I-8 EB Ramps</p> <p>177 (8)</p> <p>Drew Rd → (98) (174) ←</p>
<p>Diehl Rd</p> <p>12 (272) → (4) ← 0 (49)</p> <p>Drew Rd → (49) ←</p>	<p>SR-98</p> <p>0 (49)</p> <p>Drew Rd → (49) ←</p>	<p>Evan Hewes Hwy</p> <p>0 (3) → (6) ← 10 (0)</p> <p>0 (10) → (6) ← 10 (0)</p> <p>Forrester Rd → (46) (10) ←</p>
<p>I-8 WB Ramps</p> <p>56 (7)</p> <p>Forrester Rd → (56) ←</p>	<p>I-8 EB Ramps</p> <p>7 (56)</p> <p>Forrester Rd → (56) ←</p>	<p>Diehl Rd</p> <p>20 (20) → (9) ← 20 (5)</p> <p>11 (186) → (9) ← 186 (11)</p> <p>5 (20) → (9) ← 20 (5)</p> <p>Derrick Rd → (20) (20) ←</p>
<p>Evan Hewes Hwy</p> <p>7 (0) → (10) ← 7 (0)</p> <p>Westside Rd → (7) ←</p>	<p>Evan Hewes Hwy</p> <p>Derrick Rd → (10) ← 10 (0)</p> <p>0 (10)</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p>(#) Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-8
TOTAL PROJECT TRAFFIC

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Source: LOS, 2012.

**FIGURE 4.3-9
POSSIBLE ALTERNATIVE ACCESS ROUTES**

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identified for emergency purposes at the County's request (e.g. if an accident is blocking the road or intersection, localized flooding makes an area impassable, etc.).

Year 2011 Plus Project Conditions

Year 2011 Plus Project Conditions reflect the addition of construction traffic onto Year 2011 Conditions Without Project during the anticipated construction peak (month six).

Proposed Action Operations and Maintenance Trip Generation

During operations and maintenance, the project will primarily operate during daylight hours and will require (on average) less than 10 fulltime personnel for operations and maintenance. Operations personnel include employees running the facility, security, and any other work associated with the operations. Maintenance personnel include employees addressing maintenance on a daily basis. On average, the operations and maintenance trip generation is estimated at about 20 ADT with approximately 10 AM and 10 PM peak hour trips.

During a typical year, assuming a worst-case scenario where panel washing is necessary (rather than the panels being cleaned by rainfall), the project will require up to 10 daily water trucks for panel washing over approximately 15 business days; however, the washing frequency is estimated from one to four times a year. During the washing period, the total project daily traffic may increase to 40 or 50 ADT over a 15 business day period.

Since the operations and maintenance traffic generation is significantly less than the construction, the higher and more conservative construction trip generation is used to determine potential project impacts. In other words, the construction phase was used for the traffic analysis because it is calculated to generate significantly higher traffic than the project operations and maintenance phase when the project is operational.

4.3.3 IMPACTS AND MITIGATION MEASURES

A. STANDARDS OF SIGNIFICANCE

The CEQA significance criteria listed below were used to determine if the proposed project would result in impacts to transportation and circulation. These criteria are the same as the significance criteria for Transportation/Traffic listed in the CEQA Environmental Checklist, Appendix G of the 2011 CEQA Guidelines. Under CEQA, the Proposed Action would have a significant impact on transportation and circulation if it would:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

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- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- e) Result in inadequate emergency access.
- f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The significance criteria for traffic impacts are based on the Imperial County Planning and Development Services Department level of service (LOS) standard of the Imperial County General Plan Circulation and Scenic Highways Element dated January 29, 2008. Imperial County’s goal is to have intersections and roadway segments operate at LOS C or better. In general, a location operating at LOS C or better under existing conditions that degrades to a LOS D or worse is considered a significant impact. Page 55 of the Circulation and Scenic Highways Element states: “The County’s goal for an acceptable traffic service standard on an ADT (average daily trips) basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections.” (An excerpt from the *Circulation and Scenic Highways Element* is included in Appendix E as part of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR).

The current practice of determining direct and cumulative impacts in Imperial County is defined by the significance criteria provided in **Table 4.3-14** which was obtained from several EIRs for projects in Imperial County. The significance criteria were confirmed with the Imperial County Department of Public Works in April 2011. (Copies of traffic significance criteria from other EIRs are included in Appendix F of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR).

**TABLE 4.3-14
SIGNIFICANCE CRITERIA**

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
Intersections			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	NA	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	LOS F	Direct
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
Any LOS	Project does not degrade LOS but adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative

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**TABLE 4.3-14
SIGNIFICANCE CRITERIA**

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
Segments			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and V/C > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	NA	Direct ¹
LOS D	LOS D and V/C > 0.02	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and V/C increases by >0.09	LOS F	Direct
Any LOS	LOS E or worse & V/C 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse & V/C < 0.02	Any LOS	None

Source: LOS, 2012.

Notes: ¹ Exception: post-project segment operation is LOS D and intersections along segment are LOS D or better resulting in no significant impact.

LOS = Level of Service.

NA = Not Applicable.

B. ISSUES SCOPED OUT AS PART OF THE INITIAL STUDY

Note that three CEQA significance criteria were scoped out as part of the Initial Study. Criterion “c” was eliminated from further analysis because the proposed project would not result in changes to existing air traffic patterns through an increase in traffic levels or change in location. Criterion “d” was eliminated because the proposed project would not change the existing surrounding circulation network. Thus, no impact with regard to an increase in hazards due to a design feature or incompatible uses is identified for this issue area. Criterion “f” was eliminated because the proposed project would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

C. METHODOLOGY

The methodology for analysis has been previously described as it was also pertinent to describing the existing traffic conditions. Please refer to the discussion under subsection 4.3.2 Environmental Setting, item C, “Methodology for Analysis.”

D. PROJECT IMPACTS AND MITIGATION MEASURES

Impacts to Intersection, Roadway and Freeway Segment LOS (Year 2011 Plus Project)

Impact 4.3.1 Implementation of the proposed project would add traffic to existing traffic volumes on study area intersections, roadways and freeways during construction. This impact is considered **less than significant**.

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Existing (Year 2011) Plus Project Conditions

The proposed project consists of two primary components: 1) a solar generation equipment and associated facilities on privately owned land (the “solar generation facility”); and, 2) 230-kilovolt (kV) aboveground, electric transmission line(s) and associated facilities (the “gen-tie”) that will connect the generation facilities with the Imperial Valley Substation. The proposed project is on approximately 1,990 acres of private land in southern Imperial County with a segment of the gen-tie extending approximately 0.9 miles through land managed by the BLM to the Imperial Valley Substation.

Further details of the proposed project are described in Chapter 2.0.

Intersection LOS

Table 4.3-15 summarizes intersection LOS while Figure 4.3-10 depicts Existing (Year 2011) Plus Project Volumes.

**TABLE 4.3-15
EXISTING (YEAR 2011) PLUS PROJECT INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Existing (Year 2011)		Existing Plus Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Change ⁴	Significant Impact? ⁵
1)Drew Road at Evan Hewes Highway (U)	All	AM	7.5	A	7.6	A	0.1	No
	All	PM	7.5	A	7.5	A	0.0	No
2)Drew Road at I-8 Westbound Ramps (U)	WB LT	AM	8.7	A	10.0	B	1.3	No
	WB LT	PM	8.7	A	9.5	A	0.8	No
3)Drew Road at I-8 Eastbound Ramps (U)	EB LT	AM	10.0	B	10.0	B	0.0	No
	EB LT	PM	9.3	A	9.9	A	0.6	No
4)Drew Road at Diehl Road (U)	EB LTR	AM	8.6	A	10.5	B	1.9	No
	EB LTR	PM	8.6	A	10.8	B	2.2	No
5)Drew Road at SR-98 (U)	SB LR	AM	8.6	A	8.7	A	0.1	No
	SB LR	PM	9.2	A	9.7	A	0.5	No
6)Forrester Road at Evan Hewes Highway (U)	All	AM	16.8	B	17.5	B	0.7	No
	All	PM	22.9	C	23.0	C	0.1	No
7)Forrester Road at I-8 westbound Ramps (U)	WB LT	AM	9.8	A	9.8	A	0.0	No
	WB LT	PM	9.8	A	10.2	B	0.4	No
8)Forrester Road at I-8 eastbound Ramps (U)	EB LT	AM	10.8	B	10.9	B	0.1	No
	EB LT	PM	16.9	C	20.0	C	3.1	No
9)Derrick Road at Diehl Road (U)	SB LTR	AM	8.7	A	11.0	B	2.3	No
	SB LTR	PM	8.7	A	10.9	B	2.2	No
10)Westside Road at Evan Hewes Highway (U)	NB LR	AM	9.1	A	9.1	A	0.0	No
	NB LR	PM	9.2	A	9.5	A	0.3	No
11)Derrick Road at Evan Hewes Highway (U)	NB LR	AM	8.8	A	8.8	A	0.0	No
	NB LR	PM	9.3	A	9.4	A	0.1	No

Source: LOS, 2012.

Notes: ¹ Intersection Control - (S) Signalized, (U) Unsignalized

² Delay - HCM Average Control Delay in seconds

³ LOS: Level of Service

⁴ Delta = increase in delay from project

⁵ Significant Impact? (Yes or No)

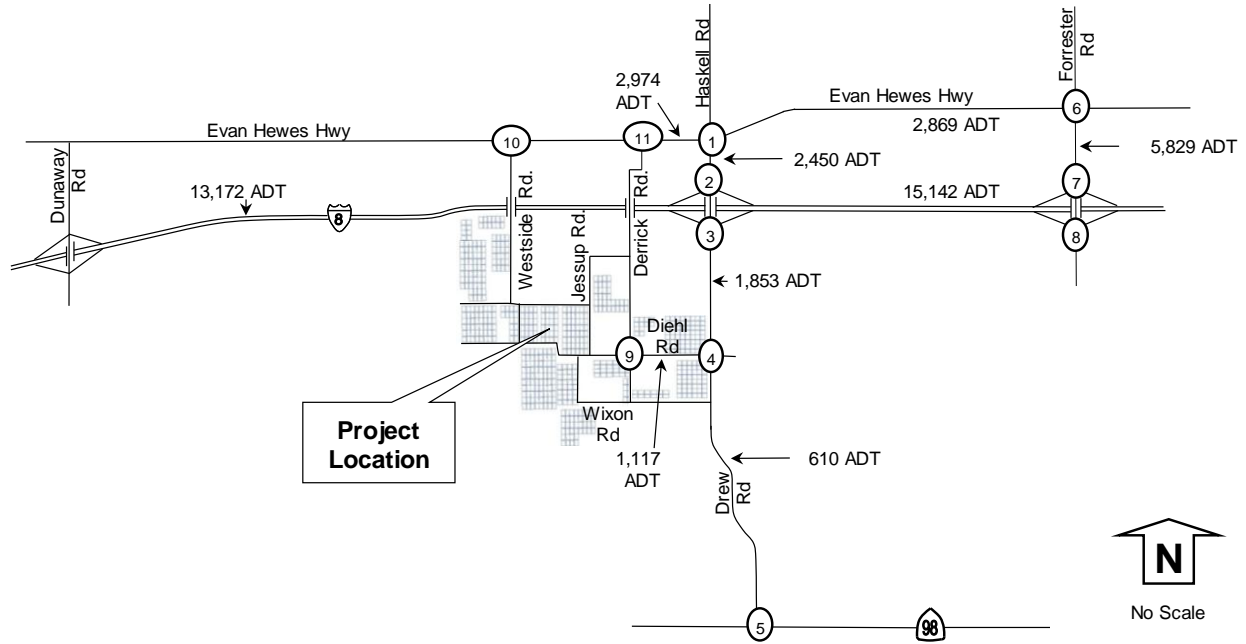
DNE: Does not exist

NA: Not Applicable

EB = eastbound

WB = westbound

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<p>Evan Hewes Hwy</p> <p>10 (12) → (10) ↓ (14) ↘</p> <p>5 (8) ↗ (19) ←</p> <p>59 (124) → (1) ←</p> <p>36 (92) ↘ (33) ←</p> <p>3 (13) ←</p> <p>Drew Rd</p> <p>69 (42) ↗ (19) ↘ (13) ↘</p> <p>11 (19) ↗ (13) ↘</p>	<p>16 (6) ↗ (84) ↓ (2) ←</p> <p>48 (84) ↓ (2) ←</p> <p>I-8 WB Ramps</p> <p>56 (37) ↗ (0) ↘ (22) ↘</p> <p>186 (22) ↘</p> <p>Drew Rd</p> <p>11 (95) ↗ (15) ↘</p> <p>23 (15) ↘</p>	<p>I-8 EB Ramps</p> <p>197 (41) ↓ (59) ↘</p> <p>6 (7) ↗ (3) ←</p> <p>0 (0) ↘ (9) ↘</p> <p>95 (9) ↘</p> <p>Drew Rd</p> <p>31 (104) ↗ (192) ↘</p> <p>35 (192) ↘</p>
<p>Diehl Rd</p> <p>278 (13) ↗ (24) ↓ (0) ↘</p> <p>15 (274) ↗ (4) ←</p> <p>0 (0) ↘ (0) ↘</p> <p>6 (51) ↘ (0) ↘</p> <p>Drew Rd</p> <p>52 (1) ↗ (8) ↘</p> <p>26 (8) ↘</p>	<p>SR-98</p> <p>2 (1) ↗ (53) ↓ (5) ←</p> <p>1 (2) ↗ (3) ←</p> <p>27 (91) → (5) ←</p> <p>52 (3) ↗ (53) ↘</p> <p>Drew Rd</p>	<p>Evan Hewes Hwy</p> <p>28 (15) ↗ (135) ↓ (20) ↘</p> <p>15 (20) ↘ (13) ←</p> <p>8 (13) ←</p> <p>52 (185) → (6) ←</p> <p>116 (96) ↘</p> <p>22 (24) ↘</p> <p>Forrester Rd</p> <p>13 (8) ↗ (156) ↓ (28) ↘</p> <p>102 (156) ↓ (28) ↘</p> <p>15 (28) ↘</p>
<p>I-8 WB Ramps</p> <p>112 (61) ↗ (257) ↓ (7) ←</p> <p>200 (160) ↗ (8) ↘</p> <p>15 (8) ↘</p> <p>Forrester Rd</p> <p>4 (157) ↗ (81) ↘</p> <p>81 (157) ↘</p>	<p>I-8 EB Ramps</p> <p>33 (31) ↓ (91) ↘</p> <p>47 (132) ↗ (1) ↘ (3) ↘</p> <p>3 (3) ↘ (8) ↘</p> <p>Forrester Rd</p> <p>35 (26) ↗ (9) ↘</p> <p>5 (9) ↘</p>	<p>Diehl Rd</p> <p>20 (5) ↗ (6) ↓ (7) ↘</p> <p>23 (7) ↘ (5) ←</p> <p>21 (5) ↘ (5) ←</p> <p>5 (20) ↗ (21) ↘</p> <p>18 (189) → (9) ←</p> <p>194 (12) ↘</p> <p>20 (5) ↘</p> <p>Derrick Rd</p> <p>6 (21) ↗ (20) ↓ (20) ↘</p> <p>5 (20) ↘</p> <p>5 (20) ↘</p>
<p>Evan Hewes Hwy</p> <p>50 (164) → (10) ←</p> <p>7 (0) ↘ (17) ←</p> <p>268 (17) ←</p> <p>3 (0) ↘</p> <p>Westside Rd</p> <p>1 (7) ↗ (4) ↘</p> <p>3 (4) ↘</p>	<p>Evan Hewes Hwy</p> <p>52 (190) → (11) ←</p> <p>1 (0) ↘ (44) ←</p> <p>14 (4) ↘</p> <p>Derrick Rd</p> <p>1 (0) ↗ (14) ↘</p> <p>5 (14) ↘</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p>(#) Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-10
EXISTING (YEAR 2011) PLUS PROJECT VOLUMES

4.3 TRANSPORTATION AND CIRCULATION

Under existing (Year 2011) Plus Project Conditions, the study intersections were calculated to operate at LOS C or better. Two intersections, Forrester Road/Evan Hewes Highway and Forrester Road/I-8 eastbound ramp, operate at LOS C in the PM peak hour (and LOS B in the AM peak hour). Two intersections operate at LOS B in both the AM and PM peak hours. Four operate at LOS B in the AM peak hour only and one operates at LOS B in the PM peak hour only. No significant project impacts to study area intersections were calculated due to the addition of construction traffic to existing traffic. Moreover, the increases in traffic resulting from construction of the proposed project would not exceed LOS standards. Therefore, **less than significant** impacts to study area intersections would result from construction traffic under Year 2011 plus project conditions.

Roadway Segment LOS

Table 4.3-16 summarizes roadway segment LOS for Existing (Year 2011) Plus Project conditions. As shown, no change in LOS would occur at any of the segments. All segments would all operate at LOS C or better. Only one segment (Forrester Road from Evan Hewes Highway to I-8) was projected to operate at LOS C. Therefore, **less than significant** impacts to study area roadway segments would result from construction traffic under Year 2011 plus project conditions.

Freeway Segment LOS

Table 4.3-17 summarizes freeway segment LOS. Under existing (Year 2011) Plus Project Conditions, the freeway segments were calculated to operate above LOS C (at LOS A and LOS B). I-8 from Dunaway Road to Drew Road would continue to operate at LOS A in the AM and PM peak hours in both directions (eastbound and westbound). I-8 from Drew Road to Forrester Road would operate at LOS A during the AM and PM peak hour in the eastbound direction, LOS A in the AM peak hour in the westbound direction, and LOS B during the PM peak hour in the westbound direction. Moreover, the increases in traffic resulting from project construction would not exceed V/C ratios or LOS standards. Therefore, **less than significant** impacts to study area freeway segments would result from construction traffic under Year 2011 plus project conditions.

Under Existing (Year 2011) Plus Project Conditions, the study intersections, roadway and freeway segments were calculated to operate at LOS C or better. Thus, **less than significant** project impacts were calculated with the addition of project traffic to existing traffic.

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-16
EXISTING (YEAR 2011) PLUS PROJECT ROADWAY LOS**

Roadway Segment	Classification (as built)	Existing (Year 2011)				Project Daily Volume	Existing Plus Project					
		Daily Volume	LOS C Capacity	V/C	LOS		Daily Volume	LOS C Capacity	V/C	LOS	Change in V/C	Significant Impact?
Diehl Road Derrick Road to Drew Road	Minor Collector (2U)	199	7,100	0.28	A	918	1,117	7,100	0.157	A	0.129	No
Drew Road Evan Hewes Highway to I-8	Prime Arterial (2U)	2,443	7,100	0.344	B	7	2,450	7,100	0.345	B	0.001	No
I-8 to Diehl Road	Prime Arterial (2U)	1,033	7,100	0.145	A	820	1,853	7,100	0.261	A	0.115	No
Diehl Road to SR 98	Prime Arterial (2U)	512	7,100	0.072	A	98	610	7,100	0.086	A	0.014	No
Evan Hewes Highway Derrick Road to Drew Road	Prime Arterial (2U)	2,954	7,100	0.416	B	20	2,974	7,100	0.419	B	0.003	No
Drew Road to Forrester Road	Prime Arterial (2U)	2,843	7,100	0.400	B	26	2,869	7,100	0.404	B	0.004	No
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U)	5,551	7,100	0.782	C	278	5,829	7,100	0.821	C	0.039	No

Source: LOS, 2012.

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element.
V/C: Volume to Capacity ratio. 2U = 2 lane undivided roadway.
Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed.
Significant Impact? = identifies if a project impact is calculated (yes or no)

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-17
EXISTING (YEAR 2011) PLUS PROJECT FREEWAY SEGMENT LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Year 2011 (Forecasted from 2010)							
ADT	12,900				14,600			
Peak Hour	AM		PM		AM		PM	
Directions	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2
Capacity ¹	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor ²	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor ³	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor ⁴	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	434	1,095	624	1,304	491	1,239	706	1,476
V/C	0.092	0.233	0.133	0.277	0.104	0.264	0.150	0.314
LOS	A	A	A	A	A	A	A	B
Peak Project Hour Volume								
Existing (2011) Plus Project								
Peak Hour Volume	529	1,099	628	1,399	499	1,413	880	1,484
V/C	0.112	0.234	0.134	0.298	0.106	0.301	0.187	0.316
LOS	A	A	A	A	A	B	A	B
Increase in V/C	0.020	0.001	0.001	0.020	0.002	0.037	0.037	0.002
Impact	None	None	None	None	None	None	None	None

Source: LOS, 2012.

Notes: ¹ Capacity of 2,350 passenger cars per hour per lane (pcphpl) from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002.

² Latest K factor (percentage of the ADT in both directions during the peak hour) from Caltrans (based on 2007 report).

³ Latest D factor (percentage of traffic in the peak direction during the peak hour) from Caltrans (based on 2007 report), which when multiplied by K and ADT will provide peak hour volume.

⁴ Latest truck factor from Caltrans (based on 2007 report).

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

V/C: Volume to Capacity ratio.

EB = eastbound; WB = westbound

Impacts to Intersection, Roadway and Freeway Segment LOS (Year 2013)

Impact 4.3.2 Implementation of the proposed project would add traffic to study area intersections, roadways and freeways during peak construction. This impact is considered **less than significant**.

Year 2013 Conditions

This section documents year 2013 conditions when the project is anticipated to be at the peak month of construction activities. The year 2013 background volumes are based on increasing the existing year 2011 volumes by an annual growth rate. Determination of the annual growth rate was based on guidelines defined in 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. This document indicates that traffic projections should be based on demonstrated growth as detailed in the general plan. Four growth rate options were reviewed:

4.3 TRANSPORTATION AND CIRCULATION

- 1) The Land Use Element of the general plan indicates that the Population Research Unit of the California Department of Finance (DOF) estimates the annual change in population. Using the DOF revised July 1, 2006 population estimate of 168,979 and the projected population of Imperial County in 2030 of 283,693, an annual growth rate of 2.2 percent is calculated.
- 2) The Housing Element of the Imperial County General Plan has a 1980 population of 92,500; the Southern California Association of Governments [SCAG] has a population estimate of 148,980 for the year 2000. Based on this information, an annual growth rate of 2.4 percent is calculated.
- 3) The Southern California Association of Governments Community Development Division's 2004 *Regional Transportation Plan Socio-Economic Forecast Report*, dated June 2004, states that the population of Imperial County is projected to grow at an annual rate of 2.8 percent.
- 4) The U.S. Census Bureau population data from year 2000 to year 2010 for the local cities/residential communities within Imperial County as outlined previously in Table 9. The U.S. Census Bureau reported a population growth of 27,162 people over a 10 year period (population of 109,588 per the 2000 census and population of 136,750 per the 2010 census). Over this 10 year period, the annual growth rate was about 2.0%.

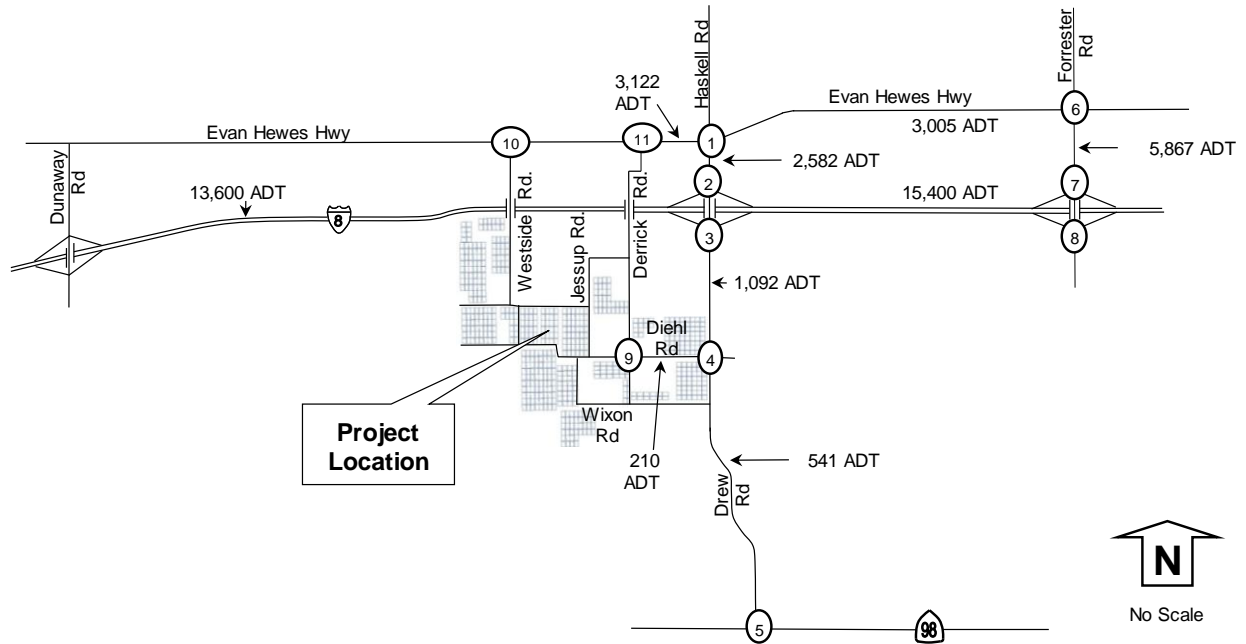
For the purpose of this traffic study, the more conservative growth rate of 2.8 percent was selected for the annual population growth rate. The growth factor support data are included in Appendix L of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR. Year 2013 volumes data was factored up from year 2011 data through the application of a 2.8% annual growth rate.

The construction peak background year 2013 volumes were calculated by increasing year 2011 volumes by 2.8% annually as shown in **Figure 4.3-11**. Intersection, segment, and freeway LOS are shown in **Tables 4.3-18, 4.3-19 and 4.3-20**. Intersection LOS calculations are included in Appendix M of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

Intersection LOS

As shown in **Table 4.3-18**, all intersections would operate at LOS 2013 or better under year 2013 conditions. Only two intersections (Forester Road at Evan Hewers Highway and Forrester road at I-8 eastbound ramp) would operate at LOS C in the PM Peak Hour. These same two intersections would operate at LOS B in the AM Peak Hour as would the intersection of Drew Road at I-8 eastbound ramp. All other intersections would operate at LOS A. Therefore, impacts to intersection LOS under Year 2013 would be **less than significant**.

4.3 TRANSPORTATION AND CIRCULATION



<table border="1"> <tr> <td>Evan Hewes Hwy</td> <td>11 (13)</td> <td>19 (11)</td> <td>6 (15)</td> <td></td> <td></td> </tr> <tr> <td>5 (8)</td> <td>↑</td> <td>↓</td> <td>3 (20)</td> <td></td> <td></td> </tr> <tr> <td>62 (120)</td> <td>→</td> <td>①</td> <td>←</td> <td>101 (35)</td> <td></td> </tr> <tr> <td>38 (97)</td> <td>↓</td> <td></td> <td>22 (14)</td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td>73 (44)</td> <td>↑</td> <td>12 (20)</td> <td>18 (11)</td> <td></td> </tr> </table>	Evan Hewes Hwy	11 (13)	19 (11)	6 (15)			5 (8)	↑	↓	3 (20)			62 (120)	→	①	←	101 (35)		38 (97)	↓		22 (14)			Drew Rd	73 (44)	↑	12 (20)	18 (11)		<table border="1"> <tr> <td></td> <td>17 (6)</td> <td>48 (89)</td> <td>I-8 WB Ramps</td> <td></td> <td></td> </tr> <tr> <td></td> <td>↓</td> <td>↑</td> <td>59 (39)</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>0 (0)</td> <td>13 (15)</td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td>7 (0)</td> <td>↑</td> <td>24 (13)</td> <td></td> <td></td> </tr> </table>		17 (6)	48 (89)	I-8 WB Ramps				↓	↑	59 (39)					0 (0)	13 (15)			Drew Rd	7 (0)	↑	24 (13)			<table border="1"> <tr> <td></td> <td></td> <td>21 (35)</td> <td>39 (62)</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↑</td> <td>↓</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>0 (0)</td> <td>29 (19)</td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td></td> <td>29 (6)</td> <td>29 (19)</td> <td></td> <td></td> </tr> </table>			21 (35)	39 (62)					↑	↓					0 (0)	29 (19)			Drew Rd		29 (6)	29 (19)								
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Source: LOS, 2012.

FIGURE 4.3-11
YEAR 2013 PROJECT TRAFFIC VOLUMES

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-18
YEAR 2013 INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Year 2013	
			Delay ²	LOS ³
1) Drew Road at Evan Hewes Highway (U)	All	AM	7.6	A
	All	PM	7.6	A
2) Drew Road at I-8 Westbound Ramps (U)	WB LT	AM	8.7	A
	WB LT	PM	8.7	A
3) Drew Road at I-8 Eastbound Ramps (U)	EB LT	AM	10.1	B
	EB LT	PM	9.3	A
4) Drew Road at Diehl Road (U)	EB LTR	AM	8.6	A
	EB LTR	PM	8.6	A
5) Drew Road at SR-98 (U)	SB LR	AM	8.6	A
	SB LR	PM	9.3	A
6) Forrester Road at Evan Hewes Highway (U)	All	AM	17.7	B
	All	PM	23.8	C
7) Forrester Road at I-8 westbound Ramps (U)	WB LT	AM	9.9	A
	WB LT	PM	9.9	A
8) Forrester Road at I-8 eastbound Ramps (U)	EB LT	AM	11.0	B
	EB LT	PM	18.0	C
9) Derrick Road at Diehl Road (U)	SB LTR	AM	8.7	A
	SB LTR	PM	8.7	A
10) Westside Road at Evan Hewes Highway (U)	NB LR	AM	9.1	A
	NB LR	PM	9.2	A
11) Derrick Road at Evan Hewes Highway (U)	NB LR	AM	8.8	A
	NB LR	PM	9.4	A

Source: LOS, 2012.

Notes: ¹ Intersection Control - (S) Signalized, (U) Unsignalized DNE: Does not exist
² Delay - HCM Average Control Delay in seconds NA: Not Applicable
³ LOS: Level of Service EB = eastbound
⁴ Delta = increase in delay from project WB = westbound
⁵ Impact? (Yes or No)

Roadway Segment LOS

Table 4.3-19 shows Year 2013 roadway segment LOS. All roadway segments would operate at LOS C or better. Only the segment of Forrester Road between Evan Hewes Highway to I-8 would operate at LOS C. Three segments would operate at LOS B (the segment of Drew Road from Evan Hewes Highway to I-8, and from Evan Hewes Highway from Derrick Road to Drew Road and from Drew Road to Forrester Road) and three would operate at LOS A (the segments of Diehl Road from Derrick Road to Drew Road and the segments of Drew Road from I-8 to Diehl road and from Diehl Road to SR 98). Therefore, impacts to roadway segment LOS under Year 2013 would be **less than significant**.

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-19
YEAR 2013 ROADWAY SEGMENT LOS**

Segment	Classification (as built)	Existing (Year 2013)				
		Daily Volume	# of Lanes	LOS C Capacity	V/C	LOS
Diehl Road Derrick Road to Drew Road	Minor Collector (2U)	210	2	7,100	0.03	A
Drew Road Evan Hewes Highway to I-8	Prime Arterial (2U)	2,582	2	7,100	0.36	B
I-8 to Diehl Road	Prime Arterial (2U)	1,092	2	7,100	0.15	A
Diehl Road to SR 98	Prime Arterial (2U)	541	2	7,100	0.08	A
Evan Hewes Highway Derrick Road to Drew Road	Prime Arterial (2U)	3,122	2	7,100	0.44	B
Drew Road to Forrester Road	Prime Arterial (2U)	3,005	2	7,100	0.42	B
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U)	5,867	2	7,100	0.83	C

Source: LOS, 2012.

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element.

V/C: Volume to Capacity ratio.

2U = 2 lane undivided roadway.

Daily volume is a 24 hour volume.

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

Freeway Segment LOS

Table 4.3-20 summarizes freeway segment LOS. Under Year 2013 (forecasted from 2010), the freeway segments were calculated to operate above LOS C (at LOS A and LOS B). I-8 from Dunaway Road to Drew Road would continue to operate at LOS A in the AM and PM peak hours in both directions (eastbound and westbound). I-8 from Drew Road to Forrester Road would operate at LOS A during the AM and PM peak hour in the eastbound direction, LOS A in the AM peak hour in the westbound direction, and LOS B during the PM peak hour in the westbound direction. No project impacts were calculated due to the addition of construction traffic to existing traffic. Moreover, the increases in traffic resulting from project construction would not exceed V/C ratios or LOS standards. Therefore, impacts to freeway segment LOS under Year 2013 would be **less than significant**.

**TABLE 4.3-20
YEAR 2013 FREEWAY SEGMENT LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Year 2013 (Forecasted from 2010)							
ADT	13,600				15,400			
Peak Hour	AM		PM		AM		PM	
Directions	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2
Capacity ¹	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor ²	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor ³	0.2616	0.7384	0.4419	0.558	0.2616	0.7384	0.4419	0.5581

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-20
YEAR 2013 FREEWAY SEGMENT LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Truck Factor ⁴	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	457	1,155	658	1,375	581	1,307	745	1,557
V/C	0.097	0.246	0.140	0.292	0.110	0.278	0.159	0.331
LOS	A	A	A	A	A	A	A	B

Source: LOS, 2012.

Notes: ¹ Capacity of 2,350 passenger cars per hour per lane (pcphpl) from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002.

² Latest K factor (percentage of the ADT in both directions during the peak hour) from Caltrans (based on 2007 report).

³ Latest D factor (percentage of traffic in the peak direction during the peak hour) from Caltrans (based on 2007 report), which when multiplied by K and ADT will provide peak hour volume.

⁴ Latest truck factor from Caltrans (based on 2007 report).

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

V/C: Volume to Capacity ratio.

EB = eastbound; WB = westbound

Intersection LOS

Table 4.3-21 summarizes Year 2013 intersection LOS with and without the project. **Figure 4.3-12** depicts Year 2013 Plus (With) Project Volumes. Under Year 2013 Plus Project Conditions, the study intersections were calculated to operate at LOS C or better. Two intersections, Forrester Road at Evan Hewes Highway and Forrester Road at I-8 eastbound ramp, operate at LOS C in the PM peak hour (and LOS B in the AM peak hour) both without and with project traffic volumes.

**TABLE 4.3-21
YEAR 2013 WITHOUT AND WITH PROJECT INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Existing (Year 2013)		Year 2013 Plus Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Change ⁴	Significant Impact? ⁵
1) Drew Road at Evan Hewes Highway (U)	All	AM	7.6	A	7.7	A	0.1	No
	All	PM	7.6	A	7.6	A	0.0	No
2) Drew Road at I-8 Westbound Ramps (U)	WB LT	AM	8.7	A	10.1	B	1.4	No
	WB LT	PM	8.7	A	9.6	A	0.9	No
3) Drew Road at I-8 Eastbound Ramps (U)	EB LT	AM	10.1	B	10.1	B	0.0	No
	EB LT	PM	9.3	A	10.0	A	0.7	No
4) Drew Road at Diehl Road (U)	EB LTR	AM	8.6	A	10.5	B	1.9	No
	EB LTR	PM	8.6	A	10.8	B	2.2	No
5) Drew Road at SR-98 (U)	SB LR	AM	8.6	A	8.7	A	0.1	No
	SB LR	PM	9.3	A	9.7	A	0.4	No
6) Forrester Road at Evan Hewes Highway (U)	All	AM	17.7	B	17.9	B	0.2	No
	All	PM	23.8	C	23.9	C	0.1	No
7) Forrester Road at I-8 westbound Ramps (U)	WB LT	AM	9.9	A	9.9	A	0.0	No
	WB LT	PM	9.9	A	10.4	B	0.5	No
8) Forrester Road at I-8	EB LT	AM	11.0	B	11.1	B	0.1	No

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-21
YEAR 2013 WITHOUT AND WITH PROJECT INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Existing (Year 2013)		Year 2013 Plus Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Change ⁴	Significant Impact? ⁵
eastbound Ramps (U)	EB LT	PM	18.0	C	21.8	C	3.8	No
9)Derrick Road at Diehl Road (U)	SB LTR	AM	8.7	A	11.0	B	2.3	No
	SB LTR	PM	8.7	A	10.9	B	2.2	No
10) Westside Road at Evan Hewes Highway (U)	NB LR	AM	9.1	A	9.2	A	0.1	No
	NB LR	PM	9.2	A	9.5	A	0.3	No
11) Derrick Road at Evan Hewes Highway (U)	NB LR	AM	8.8	A	8.8	A	0.0	No
	NB LR	PM	9.4	A	9.5	A	0.1	No

Source: LOS, 2012.

Notes: ¹ Intersection Control - (S) Signalized, (U) Unsignalized.

² Delay - HCM Average Control Delay in seconds.

³ LOS: Level of Service.

⁴ Delta = increase in delay from project.

⁵ Significant Impact? (Yes or No)

DNE: Does not exist.

NA: Not Applicable

EB = eastbound

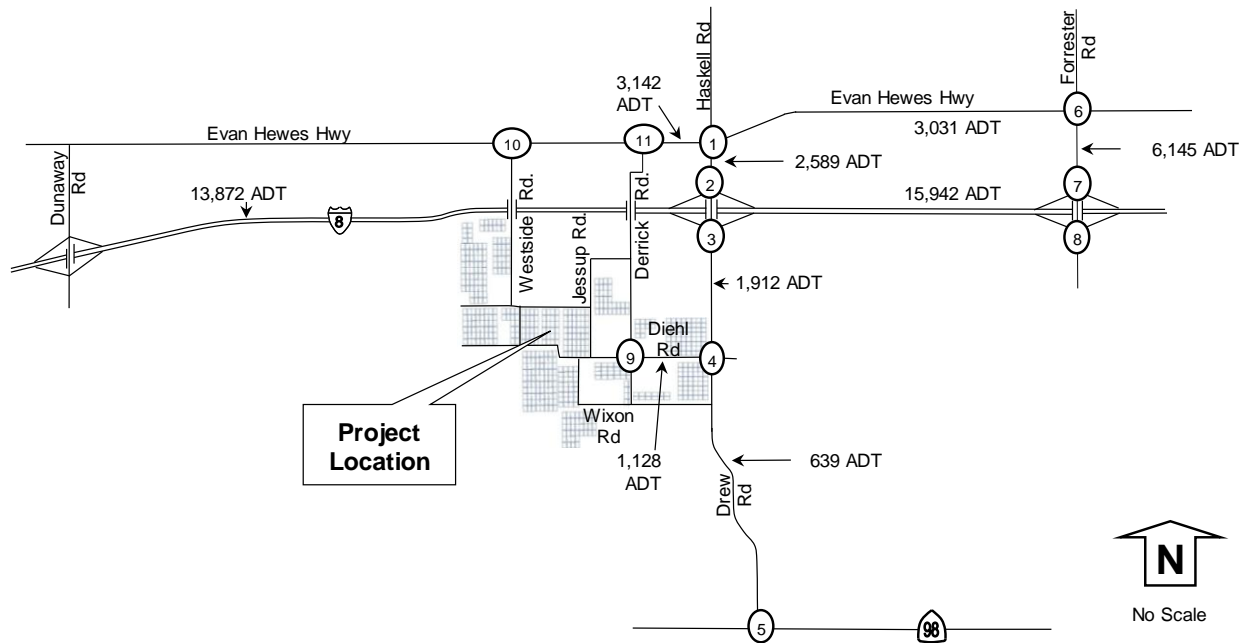
WB = westbound

Two intersections operate at LOS B in both the AM and PM peak hours. Four operate at LOS B in the AM peak hour only. Four intersections operate at LOS A in both the AM and PM peak hours. No significant project impacts to study area intersections were calculated due to the addition of construction traffic to existing traffic under Year 2013. Moreover, the increases in traffic resulting from construction of the proposed project would not exceed LOS standards. Therefore, **less than significant** impacts to study area intersection LOS would result from construction traffic under year 2013.

Roadway Segment LOS

Table 4.3-22 summarizes roadway segment LOS for Year 2013 without and with project traffic. The roadway segments were calculated to operate at LOS C or better. Only one roadway segment Forrester Road from Evan Hewes Highway to I-8 would operate at LOS C. Four segments would operate at LOS B under Year 2013 with project traffic. Two segments would operate at LOS A under Year 2013 Plus Project conditions. No significant project impacts to study area roadway segments were calculated due to the addition of construction traffic to existing traffic. Moreover, the increases in traffic resulting from construction of the proposed project would not exceed LOS standards. Therefore, **less than significant** impacts to roadway segment LOS would result from the addition of project traffic under Year 2013.

4.3 TRANSPORTATION AND CIRCULATION



<table border="1"> <tr> <td>Evan Hewes Hwy</td> <td>11 (13)</td> <td>19 (11)</td> <td>6 (15)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5 (8)</td> <td>→</td> <td>←</td> <td>←</td> <td>3 (20)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>62 (130)</td> <td>→</td> <td>①</td> <td>←</td> <td>111 (35)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>38 (97)</td> <td>→</td> <td>←</td> <td>←</td> <td>25 (14)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td>73 (44)</td> <td>12 (20)</td> <td>18 (14)</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Evan Hewes Hwy	11 (13)	19 (11)	6 (15)					5 (8)	→	←	←	3 (20)				62 (130)	→	①	←	111 (35)				38 (97)	→	←	←	25 (14)				Drew Rd	73 (44)	12 (20)	18 (14)					<table border="1"> <tr> <td></td> <td>17 (6)</td> <td>51 (89)</td> <td>I-8 WB Ramps</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>←</td> <td>↓</td> <td>↑</td> <td>59 (39)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↓</td> <td>←</td> <td>0 (0)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↓</td> <td>←</td> <td>187 (23)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td>11 (95)</td> <td>24 (16)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		17 (6)	51 (89)	I-8 WB Ramps						←	↓	↑	59 (39)						↓	←	0 (0)						↓	←	187 (23)				Drew Rd	11 (95)	24 (16)						<table border="1"> <tr> <td></td> <td></td> <td>198 (43)</td> <td>I-8 EB Ramps</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↓</td> <td>↑</td> <td>6 (7)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↓</td> <td>↑</td> <td>0 (0)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>↓</td> <td>↑</td> <td>95 (9)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drew Rd</td> <td></td> <td>33 (104)</td> <td>↑</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>37 (193)</td> <td>↑</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			198 (43)	I-8 EB Ramps							↓	↑	6 (7)						↓	↑	0 (0)						↓	↑	95 (9)				Drew Rd		33 (104)	↑							37 (193)	↑				
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Source: Ldn, 2011b.

FIGURE 4.3-12
YEAR 2013 PLUS PROJECT

4.3 TRANSPORTATION AND CIRCULATION

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4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-22
YEAR 2013 WITHOUT AND WITH PROJECT SEGMENT LOS**

Roadway Segment	Classification (as built)	Year 2013				Project Daily Volume	Year 2013 Plus Project					
		Daily Volume	LOS C Capacity	V/C	LOS		Daily Volume	LOS C Capacity	V/C	LOS	Change in V/C	Significant Impact?
Diehl Road Derrick Road to Drew Road	Minor Collector (2U)	210	7,100	0.030	A	918	1,128	7,100	0.159	A	0.129	No
Drew Road Evan Hewes Highway to I-8	Prime Arterial (2U)	2,582	7,100	0.364	B	7	2,589	7,100	0.365	B	0.001	No
I-8 to Diehl Road	Prime Arterial (2U)	1,092	7,100	0.154	A	820	1,912	7,100	0.269	B	0.115	No
Diehl Road to SR 98	Prime Arterial (2U)	541	7,100	0.076	A	98	639	7,100	0.090	A	0.014	No
Evan Hewes Highway Derrick Road to Drew Road	Prime Arterial (2U)	3,122	7,100	0.440	B	20	3,142	7,100	0.443	B	0.003	No
Drew Road to Forrester Road	Prime Arterial (2U)	3,005	7,100	0.423	B	26	3,031	7,100	0.427	B	0.004	No
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U)	5,867	7,100	0.826	C	278	6,145	7,100	0.866	C	0.039	No

Source: LOS, 2012.

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element.
V/C: Volume to Capacity ratio. 2U = 2 lane undivided roadway.
Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed.
Significant Impact? = identifies if a project impact is calculated (yes or no)

4.3 TRANSPORTATION AND CIRCULATION

Freeway Segment LOS

Table 4.3-23 summarizes freeway segment LOS. Under Year 2013 (forecasted from 2010), the freeway segments were calculated to operate above LOS C (at LOS A and LOS B). I-8 from Dunaway Road to Drew Road would continue to operate at LOS A in the AM and PM peak hours in eastbound direction; LOS A in

**TABLE 4.3-23
YEAR 2013 WITHOUT AND WITH PROJECT FREEWAY LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Year 2013 (Forecasted from 2010)							
ADT	13,600				15,400			
Peak Hour	AM		PM		AM		PM	
Directions	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2
Capacity ¹	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor ²	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor ³	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor ⁴	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	457	1,155	658	1,375	518	1,307	745	1,557
V/C	0.097	0.246	0.140	0.292	0.110	0.278	0.159	0.331
LOS	A	A	A	A	A	A	A	B
Project Peak Hour Volume	95	4	4	95	8	174	174	8
Existing (2013) Plus Project								
Peak Hour Volume	552	1,159	662	1,470	526	1,481	919	1,565
Volume to Capacity	0.117	0.247	0.141	0.313	0.112	0.315	0.196	0.333
LOS	A	A	A	B	A	B	A	B
Increase in V/C	0.020	0.001	0.001	0.020	0.002	0.037	0.037	0.002
Impact?	None	None	None	None	None	None	None	None

Source: LOS, 2012.

Notes: ¹ Capacity of 2,350 passenger cars per hour per lane (pcphpl) from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002.

² Latest K factor (percentage of the ADT in both directions during the peak hour) from Caltrans (based on 2007 report).

³ Latest D factor (percentage of traffic in the peak direction during the peak hour) from Caltrans (based on 2007 report), which when multiplied by K and ADT will provide peak hour volume.

⁴ Latest truck factor from Caltrans (based on 2007 report).

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

V/C: Volume to Capacity ratio.

EB = eastbound; WB = westbound

the AM peak hour in the westbound direction; and LOS B in the PM peak hour in the westbound direction. I-8 from Drew Road to Forrester Road would operate at LOS A during the AM and PM peak hour in the eastbound direction, and LOS B in the AM and PM peak hour in the westbound direction. No project impacts were calculated due to the addition of construction traffic to existing traffic. Moreover, the increases in traffic resulting from project construction would not exceed V/C ratios or LOS standards. Therefore, impacts to freeway segment LOS under Year 2013 With Project traffic would be **less than significant**.

4.3 TRANSPORTATION AND CIRCULATION

4.3.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

A. CUMULATIVE SETTING

The geographic scope for the cumulative setting for transportation and circulation is based on the roadways in the vicinity of the project study area that may be affected by traffic generated by the project and cumulative projects. Because cumulative projects' traffic impacts will be greatest during construction, the cumulative impact analysis is based on the estimate of construction traffic impacts that would be caused by other projects during the proposed project's expected construction schedule (approximately 12 to 24 months). Information on cumulative projects (new development) was obtained from the County of Imperial and confirmed with County of Imperial planning staff to be current as of November 2011 (refer to Table 3.0-1 in Chapter 3.0, Introduction to the Analysis and Assumptions Used). The cumulative list also includes projects within the jurisdiction of the Bureau of Land Management (BLM). Most of the cumulative projects have completed technical studies including traffic generation information; however, several do not because they are in their initial stages. For the projects that do not have detailed traffic generation information, an estimate was calculated based on traffic generation information for similar projects and added to the project's potential cumulative considerable impacts. Traffic generation calculations and copies of the individual cumulative project descriptions, locations, traffic generation, and assignments are included in Appendix O of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR. **Table 4.3-24** identifies the traffic associated with combined Imperial County and BLM cumulative projects (new development) (refer to **Table 3.0-1** in Chapter 3.0, Introduction to the Environmental Analysis and Assumptions Used for a summary describing each project):

**TABLE 4.3-24
TRAFFIC GENERATED BY CUMULATIVE PROJECTS**

Project Number	Name of Project	ADT and Peak Hour Traffic Volumes**
1+	"S" Line Upgrade 230-kV Transmission Line Project	The construction and delivery traffic associated with a transmission line moves along the project corridor as work progresses; therefore, an estimate of 240 ADT with 45 AM peak hour trips and 45 PM peak hour trips is for the segment or work area under construction.
2+	Imperial Valley Solar Project (Formerly SES Solar Two)	The construction phase of the project is calculated to generate 1,736 ADT with 772 AM peak hour trips and 772 PM peak hour trips.
3+	Sunrise 500-kV Line IV West Solar Farm Interconnection to Imperial Valley Substation	The construction and delivery traffic associated with a transmission line moves along the project corridor as work progresses; therefore, an estimate of 240 ADT with 45 AM peak hour trips and 45 PM peak hour trips is for the segment or work area under construction.

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-24
TRAFFIC GENERATED BY CUMULATIVE PROJECTS**

Project Number	Name of Project	ADT and Peak Hour Traffic Volumes**
4	SDG&E Photovoltaic Solar Field	The construction phase of the project is calculated to generate approximately 40 ADT with 15 AM peak hour trips and 15 PM peak hour trips.
5*	SDG&E Geotechnical Investigation	Limited construction traffic is anticipated to last no longer than one week in September 2011.
6+	North Gila to Imperial Valley #2	The construction and delivery traffic associated with a transmission line moves along the project corridor as work progresses; therefore, an estimate of 240 ADT with 45 AM peak hour trips and 45 PM peak hour trips is for the segment or work area under construction.
7+	Dixieland Connection to Imperial Irrigation District Transmission System	The construction and delivery traffic associated with a transmission line moves along the project corridor as work progresses; therefore, an estimate of 240 ADT with 45 AM peak hour trips and 45 PM peak hour trips is for the segment or work area under construction.
8+	Solar Reserve Imperial Valley	A 100 megawatt solar power tower generally located approximately 35 miles east of the Imperial Valley substation. The construction phase of the project is calculated to generate approximately 283 ADT with 110 AM peak hour trips and 112 PM peak hour trips.
9	Linda Vista Tentative Subdivision Map	The traffic generation for this cumulative project is calculated at 7,175 ADT with 252 AM and 676 PM peak hour trips.
10	County Center II Expansion	The total project is calculated to generate 24,069 ADT with 2,581 AM peak hour trips and 2,242 PM peak hour trips.
11+	Imperial Solar Energy Center West	The construction phase of the project is calculated to generate 750 ADT with 306 AM peak hour trips and 315 PM peak hour trips.
12+	Imperial Solar Energy Center South	The construction phase of the project is calculated to generate 680 ADT with 271 AM peak hour trips and 280 PM peak hour trips.

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-24
TRAFFIC GENERATED BY CUMULATIVE PROJECTS**

Project Number	Name of Project	ADT and Peak Hour Traffic Volumes**
13+	Mount Signal Solar Farm	The construction phase of the project is calculated to generate 522 ADT with 162 AM peak hour trips and 162 PM peak hour trips.
14+	Centinela Solar Energy	The construction phase is calculated to generate 1,260 daily trips with 414 AM peak hour trips and 414 PM peak hour trips.
15	Mayflower Solar Farm Project	The construction phase is calculated to generate 142 daily trips with 56 AM peak hour trips and 57 PM peak hour trips.
16	Arkansas Solar Farm	The construction phase is calculated to generate 142 daily trips with 56 AM peak hour trips and 57 PM peak hour trips.
17	Sonora Solar Farm	The construction phase is calculated to generate 142 daily trips with 56 AM peak hour trips and 57 PM peak hour trips.
18	Alhambra Solar Farm	The construction phase is calculated to generate 142 daily trips with 56 AM peak hour trips and 57 PM peak hour trips.
19	Acorn Greenworks	The construction phase is calculated to generate 425 daily trips with 166 AM peak hour trips and 169 PM peak hour trips.
20+	Calexico I-A	The construction phase is calculated to generate 283 daily trips with 110 AM peak hour trips and 112 PM peak hour trips.
21+	Calexico I-B	The construction phase is calculated to generate 283 daily trips with 110 AM peak hour trips and 112 PM peak hour trips.
22+	Calexico II-A	The construction phase is calculated to generate 283 daily trips with 110 AM peak hour trips and 112 PM peak hour trips.
23+	Calexico II-B	The construction phase is calculated to generate 283 daily trips with 110 AM peak hour trips and 112 PM peak hour trips.
24	Silverleaf Solar	A photovoltaic solar facility capable of producing approximately 160 megawatts of electricity generally located west of Drew Road and south of I-8 (adjacent to the proposed Campo Verde project). According to the County of Imperial staff, the Silverleaf project is estimated to start

4.3 TRANSPORTATION AND CIRCULATION

**TABLE 4.3-24
TRAFFIC GENERATED BY CUMULATIVE PROJECTS**

Project Number	Name of Project	ADT and Peak Hour Traffic Volumes**
		construction approximately one year after the proposed Campo Verde project. This means the Silverleaf peak construction will occur in 2014, which is one year after the proposed Campo Verde construction peak of early 2013. Since the construction peaks do not coincide, the Silverleaf project is noted as a cumulative project, but the Silverleaf construction peak traffic is not added to the cumulative peak construction traffic volumes.

Source: County of Imperial, 2012; BLM, 2011.

+ Denotes projects with published environmental documents that were used in preparing the cumulative analysis.

++ These projects were analyzed in a single EIR.

+++No longer moving forward as of April, 2012.

* This project was not added to the traffic aggregate because it has since been completed. It is included in the table to match list agreed upon by the County.

** ADT and Peak Hour Traffic Volumes provided by LOS, 2012.

To be conservative, all of the cumulative projects listed above (with the exception of Silverleaf) were assumed to be generating construction traffic during the construction phase of the proposed project. However, some of the cumulative projects have just started initiating the environmental review process and thus may add construction traffic after the proposed project is completed. Furthermore, most if not all of the cumulative solar projects are unlikely to have a peak construction period that coincides with the proposed project's construction period. To be conservative and assume a worst-case scenario, all of the peak cumulative construction volumes were used in the cumulative analysis even though it is highly unlikely that all construction peaks will coincide.

The cumulative project (new development) volumes are shown in **Figure 4.3-13**.

B. CUMULATIVE IMPACTS AND MITIGATION MEASURES

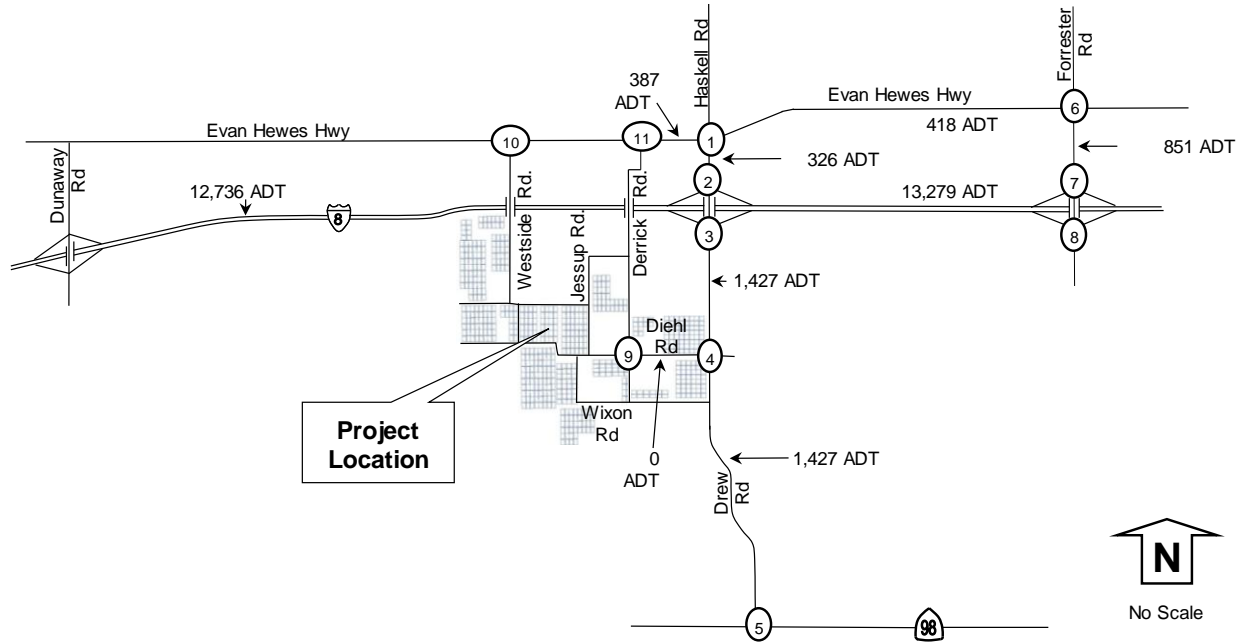
Cumulative Impacts to Intersection, Roadway and Freeway Segment LOS (Year 2013)

Impact 4.3.3 Implementation of the proposed project's construction traffic in combination with year 2013 volumes would add traffic to study area intersections, roadways and freeways during peak construction. LOS at two intersections would operate below LOS C. This impact is considered **potentially cumulatively considerable**.

Year 2013 Plus Project Plus Cumulative

This scenario documents the anticipated project construction traffic added onto year 2013 volumes. Year 2013 plus project volumes are shown in **Figure 4.3-14**. Intersection, segment, and freeway LOS are shown in **Tables 4.3-25, 4.3-26 and 4.3-27**. Intersection LOS calculations are included in Appendix P of **Appendix B** of this EIR.

4.3 TRANSPORTATION AND CIRCULATION

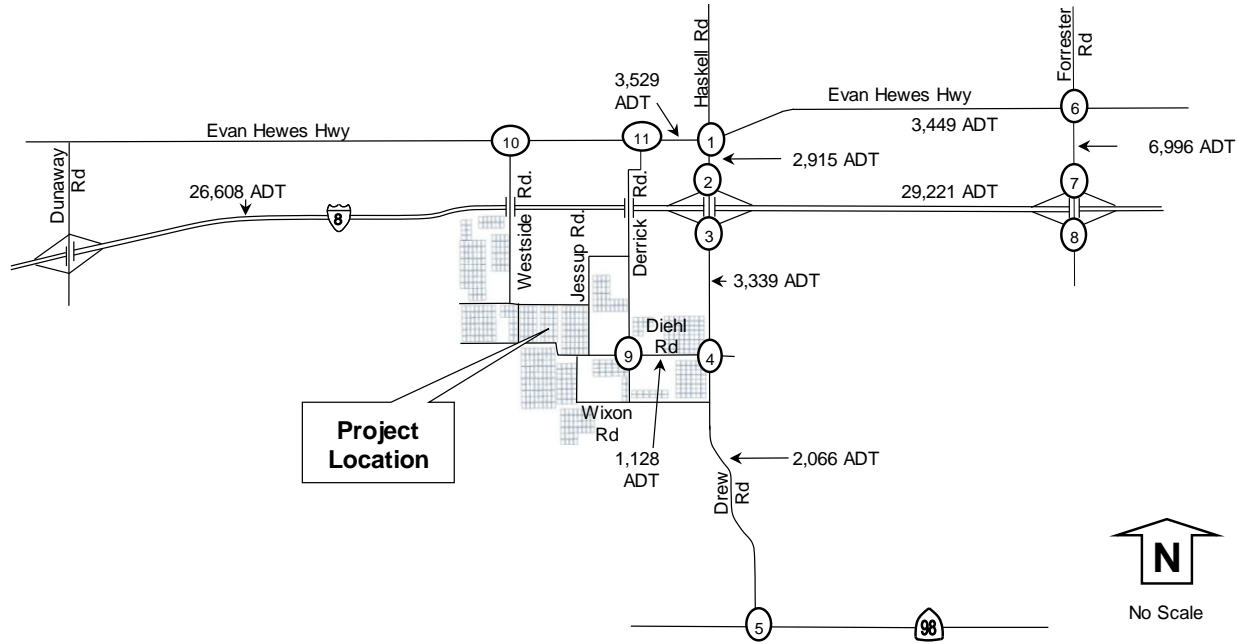


<p>Evan Hewes Hwy</p> <p>0 5 0</p> <p>0 0 → (1) ← 140 (1)</p> <p>1 (153) → (2) ← 72 (5)</p> <p>Drew Rd</p> <p>2 0 4</p> <p>(7) (5) (59)</p>	<p>30 54 I-8 WB Ramps</p> <p>(1) (6)</p> <p>← (2) →</p> <p>0 (0)</p> <p>0 (0)</p> <p>216 (32)</p> <p>Drew Rd</p> <p>33 6</p> <p>(68) (84)</p>	<p>I-8 EB Ramps</p> <p>270 0</p> <p>(38) (0)</p> <p>1 (30) →</p> <p>0 (0) → (3)</p> <p>68 (34) ↓</p> <p>Drew Rd</p> <p>38 29</p> <p>(122) (216)</p>
<p>Diehl Rd</p> <p>0 0 0</p> <p>0 0 → (4) ← 0 (0)</p> <p>0 0 → (0) ← 0 (0)</p> <p>Drew Rd</p> <p>0 67</p> <p>(0) (338)</p>	<p>SR-98</p> <p>0 103</p> <p>(9) (28)</p> <p>← (5) →</p> <p>26 (104)</p> <p>2 (76)</p> <p>Drew Rd</p> <p>0 0</p> <p>(0) (0)</p>	<p>Evan Hewes Hwy</p> <p>35 126 0</p> <p>(32) (32) (0)</p> <p>0 (35) →</p> <p>3 (128) → (6) ← 0 (0)</p> <p>0 (0) → (0) ← 128 (3)</p> <p>0 (0) → (0) ← 0 (0)</p> <p>For- res- ter Rd</p> <p>0 21</p> <p>(0) (173)</p>
<p>I-8 WB Ramps</p> <p>45 157</p> <p>(2) (35)</p> <p>← (7) →</p> <p>0 (0)</p> <p>0 (0)</p> <p>188 (12)</p> <p>For- res- ter Rd</p> <p>30 23</p> <p>(1) (160)</p>	<p>I-8 EB Ramps</p> <p>345 0</p> <p>(47) (0)</p> <p>← (8) →</p> <p>0 (0)</p> <p>0 (0)</p> <p>53 9</p> <p>(160) (188)</p> <p>For- res- ter Rd</p> <p>0 0</p> <p>(0) (0)</p>	<p>Diehl Rd</p> <p>0 0 0</p> <p>0 (0) →</p> <p>0 (0) → (9) ← 0 (0)</p> <p>0 (0) → (0) ← 0 (0)</p> <p>0 (0) → (0) ← 0 (0)</p> <p>Der- rick Rd</p> <p>0 0 0</p> <p>(0) (0) (0)</p>
<p>Evan Hewes Hwy</p> <p>8 0 (155) → (10) ← 142 (8)</p> <p>0 (0) → (0) ← 0 (0)</p> <p>West- side Rd</p> <p>0 0</p> <p>(0) (0)</p>	<p>Evan Hewes Hwy</p> <p>8 0 (155) → (11) ← 142 (8)</p> <p>0 (0) → (0) ← 0 (0)</p> <p>Der- rick Rd</p> <p>0 0</p> <p>(0) (0)</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p># Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-13
CUMULATIVE PROJECT (NEW DEVELOPMENT) VOLUMES

4.3 TRANSPORTATION AND CIRCULATION



<p>Evan Hewes Hwy</p> <p>11 (13) → 24 (11) ↓ 6 (15) ↘</p> <p>5 (8) ↗ 63 (283) → 45 (99) ↘</p> <p>Drew Rd</p> <p>75 (51) ↗ 12 (25) ↓ 22 (73) ↘</p> <p>3 (20) ← 251 (36) → 97 (19) ↘</p> <p>1</p>	<p>47 (7) ↗ 105 (95) ↓</p> <p>I-8 WB Ramps</p> <p>59 (39) ↗ 0 (0) → 403 (55) ↘</p> <p>Drew Rd</p> <p>44 (163) ↗ 30 (100) ↓</p> <p>2</p>	<p>I-8 EB Ramps</p> <p>468 (81) ↓ 39 (62) ↘</p> <p>7 (37) ↗ 0 (0) → 163 (43) ↘</p> <p>Drew Rd</p> <p>71 (226) ↗ 66 (409) ↘</p> <p>3</p>
<p>Diehl Rd</p> <p>278 (13) ↗ 350 (97) ↓ 0 (0) ↘</p> <p>15 (274) ↗ 0 (0) → 6 (51) ↘</p> <p>Drew Rd</p> <p>52 (1) ↗ 94 (346) ↓ 0 (0) ↘</p> <p>1 (0) ← 0 (0) → 0 (0)</p> <p>4</p>	<p>SR-98</p> <p>2 (10) ↗ 103 (81) ↓</p> <p>10 (2) ↗ 105 (100) →</p> <p>Drew Rd</p> <p>78 (107) ↗ 56 (132) ↘</p> <p>5</p>	<p>Evan Hewes Hwy</p> <p>64 (16) ↗ 282 (174) ↓ 16 (21) ↘</p> <p>14 (78) ↗ 58 (323) → 8 (16) ↘</p> <p>Forrester Rd</p> <p>14 (8) ↗ 128 (335) ↓ 16 (29) ↘</p> <p>8 (14) ← 250 (104) → 23 (25) ↘</p> <p>6</p>
<p>I-8 WB Ramps</p> <p>211 (169) ↗ 0 (0) → 204 (20) ↘</p> <p>Forrester Rd</p> <p>34 (1) ↗ 108 (323) ↓</p> <p>7</p>	<p>I-8 EB Ramps</p> <p>380 (80) ↓ 96 (245) ↘</p> <p>50 (181) ↗ 0 (1) → 4 (33) ↘</p> <p>Forrester Rd</p> <p>90 (187) ↗ 14 (198) ↓</p> <p>8</p>	<p>Diehl Rd</p> <p>20 (5) ↗ 21 (6) ↓ 23 (7) ↘</p> <p>5 (20) ↗ 18 (189) → 5 (21) ↘</p> <p>Derrick Rd</p> <p>6 (21) ↗ 5 (20) ↓ 5 (20) ↘</p> <p>9</p>
<p>Evan Hewes Hwy</p> <p>61 (328) → 7 (0) ↘</p> <p>Westside Rd</p> <p>1 (7) ↗ 3 (5) ↘</p> <p>10</p>	<p>Evan Hewes Hwy</p> <p>63 (356) → 1 (0) ↘</p> <p>Derrick Rd</p> <p>1 (1) ↗ 5 (14) ↘</p> <p>11</p>	<p>LEGEND</p> <p>XX AM peak hour volumes at intersections</p> <p>(YY) PM peak hour volumes at intersections</p> <p>Z,ZZZ ADT volumes shown along segments</p> <p># Intersection Reference Number to LOS Tables</p> <p>— Existing Roads</p> <p>() Represents 0 PM volume</p>

Source: LOS, 2012.

FIGURE 4.3-14
YEAR 2013 + PROJECT + CUMULATIVE VOLUMES

4.3 TRANSPORTATION AND CIRCULATION

Intersection LOS

Figure 4.3-14 depicts Year 2013 Plus Project Volumes. **Table 4.3-25** summarizes Year 2013 Plus Project Plus Cumulative Intersection LOS. Under this scenario, the study intersections were calculated to operate at LOS C or better, except for the intersection of Forrester Road at Evan Hewes Highway (LOS D in the PM peak hour), and the intersection of Forrester Road at I-8 EB Ramp (LOS F in the PM peak hour). Based on the County of Imperial significance criteria shown in **Table 4.3-14**, the project is calculated to have a potential cumulative impact at the intersection of Forrester Road and I-8 eastbound. This would occur because under Year 2013 plus project plus cumulative conditions, the delay would increase by 3.8 seconds (which falls within the 2.0 to 9.9 seconds of delay) and would result in LOS F (i.e. an LOS of E or worse). Thus, the project's contribution to cumulative traffic along this roadway segment could be cumulatively considerable based on the calculated cumulative impact from the addition of new development traffic. This potential cumulative impact may not materialize if the other cumulative projects do not occur within the same timeframe as the proposed project. If all identified cumulative projects occur concurrently, the identified cumulative impact would be mitigated to a **less than cumulatively considerable** level by the implementation of the fair share contribution as identified in MM 4.3-1. In contrast, while the intersection of Forrester Road at Evan Hewes Highway would operate at LOS D, the delay would increase by only 0.1 (which is less than the threshold delay range of 2.0 to 9.9 seconds) and the LOS would be D which is above LOS E.

The Institute of Transportation Engineers (ITE) turn lane warrants were reviewed for applicability at the intersection of Drew Road at Diehl Road due to the concentration of project traffic. The ITE warrants are silent for application on temporary construction traffic; therefore, traffic from the operational phase was used in the warrant analysis. Neither the ITE southbound right turn lane warrant nor the ITE northbound left turn lane warrant were satisfied at the intersection of Drew Road at Diehl Road. Therefore, the construction of additional lanes is not recommended at this intersection. (ITE warrants included in Appendix Q. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR).

Due to the temporary nature of the project construction traffic, temporary warning signs identifying construction truck traffic per the Manual on Uniform Traffic Control Devices (MUTCD) may be required by the County.

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**TABLE 4.3-25
YEAR 2013 PLUS PROJECT PLUS CUMULATIVE INTERSECTION LOS**

Intersection & (Control) ¹	Movement	Peak Hour	Year 2013		Year 2013 Plus Project			Year 2013 Plus Project Plus Cumulative		
			Delay ²	LOS ³	Delay ²	LOS ³	Change ⁴	Delay ²	LOS ³	Impact Type ⁵
1) Drew Road/Evan Hewes Highway (U)	All	AM	7.6	A	7.7	A	0.1	8.9	A	No
	All	PM	7.6	A	7.6	A	0.0	8.9	A	No
2) Drew Road/I-8 Westbound Ramps (U)	WB LT	AM	8.7	A	10.1	B	1.4	19.3	C	No
	WB LT	PM	8.7	A	10.0	A	0.9	13.0	B	No
3) Drew Road/I-8 Eastbound Ramps (U)	EB LT	AM	10.1	B	10.1	B	0.0	14.3	B	No
	EB LT	PM	9.3	A	10.0	A	0.7	12.7	B	No
4) Drew Road/Diehl Road (U)	EB LTR	AM	8.6	A	10.5	B	1.9	15.8	C	No
	EB LTR	PM	8.6	A	10.8	B	2.2	24.6	C	No
5) Drew Road/SR-98 (U)	SB LR	AM	8.6	A	8.7	A	0.1	10.7	B	No
	SB LR	PM	9.3	A	9.7	A	0.4	11.1	B	No
6) Forrester Road/ Evan Hewes Highway (U)	All	AM	17.7	B	17.9	B	0.2	27.3	C	No
	All	PM	23.8	C	23.9	C	0.1	37.1	D	No
7) Forrester Road/I-8 westbound Ramps (U)	WB LT	AM	9.9	A	9.9	A	0.0	15.0	B	No
	WB LT	PM	9.9	A	10.4	B	0.5	12.5	B	No
8) Forrester Road/I-8 eastbound Ramps (U)	EB LT	AM	11.0	B	11.1	B	0.1	17.9	C	No
	EB LT	PM	18.0	C	21.8	C	3.8	104.7	F	Yes
9) Derrick Road/Diehl Road (U)	SB LTR	AM	8.7	A	11.0	B	2.3	11.0	B	No
	SB LTR	PM	8.7	A	10.9	B	2.2	10.9	B	No
10) Westside Road/Evan Hewes Highway (U)	NB LR	AM	9.1	A	9.2	A	0.1	9.5	A	No
	NB LR	PM	9.2	A	9.5	A	0.3	10.7	B	No
11) Derrick Road/ Evan Hewes Highway (U)	NB LR	AM	8.8	A	8.8	A	0.0	9.1	A	No
	NB LR	PM	9.4	A	9.5	A	0.1	10.6	B	No

Source: LOS, 2012.

Notes: ¹ Intersection Control - (S) Signalized, (U) Unsignalized
² Delay - HCM Average Control Delay in seconds
³ LOS: Level of Service
⁴ Change = increase in delay from project
⁵ Impact Type? (None, Project-Specific, Cumulative)

DNE: Does not exist
 NA: Not Applicable
 EB = eastbound
 WB = westbound

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Roadway Segment LOS

Table 4.3-26 summarizes Year 2013 Plus Project Plus Cumulative Roadway Segment LOS. The roadway segments were calculated to operate at LOS C or better. Five segments would operate at LOS B under Year 2013 plus project traffic plus cumulative conditions. One segment would operate at LOS A. Only the segment of Forrester Road from Evan Hewes Highway to I-8 is projected to operate at LOS C as a result of new development traffic. If a majority of the proposed new developments do not materialize within the same timeframe as the proposed project, then the cumulatively impacted intersection may continue to operate at acceptable levels of service.

**TABLE 4.3-26
YEAR 2013 PLUS PROJECT PLUS CUMULATIVE ROADWAY SEGMENT LOS**

Roadway Segment	Classification (as built)	LOS C Capacity	Year 2013			Year 2013 Plus Project			Cum. Daily Vols.	Year 2013 + Project + Cumulative			
			Daily Vol.	V/C	LOS	Daily Vol.	V/C	LOS		Daily Vol	Change in V/C	LOS	Cum Impact?
Diehl Rd Derrick Rd to Drew Rd	Minor Collector (2U)	7,100	210	0.030	A	1,128	0.159	A	0	1,128	0.159	A	No
Drew Rd Evan Hewes Highway to I-8/ I-8 to Diehl Rd/ Diehl Rd to SR 98	Prime Arterial (2U)	7,100	2,582	0.364	B	2,589	0.365	B	326	2,915	0.411	B	No
	Prime Arterial (2U)	7,100	1,092	0.154	A	1,912	0.269	B	1,427	3,339	0.470	B	No
	Prime Arterial (2U)	7,100	541	0.076	A	639	0.090	A	1,427	2,066	0.291	A	No
Evan Hewes Highway Derrick Rd to Drew Rd/ Drew Rd to Forrester Road	Prime Arterial (2U)	7,100	3,122	0.440	B	3,142	0.443	B	387	3,529	0.497	B	No
	Prime Arterial (2U)	7,100	3,005	0.423	B	3,031	0.427	B	418	3,449	0.486	B	No
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U)	7,100	5,867	0.826	C	6,145	0.866	C	851	6,996	0.985	C	No

Source: LOS, 2012.

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element.
V/C: Volume to Capacity ratio. 2U = 2 lane undivided roadway.
Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed.
Cum Impact? = identifies if a cumulative impact is calculated (yes or no)

Freeway Segment LOS

Table 4.3-27 summarizes Year 2013 Plus Project Plus Cumulative Freeway Segment LOS. All freeway segments were calculated to operate at LOS C or better. Only one freeway segment, I-8 from Drew Road to Forrester Road, would operate at LOS C during the AM peak hour in the westbound direction. I-8 from Dunaway Road to Drew Road would operate at LOS B in the PM peak hour in the westbound direction; LOS B in the PM peak hour in the eastbound direction; and LOS A in the AM peak hour in the

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**TABLE 4.3-27
YEAR 2013 PLUS PROJECT PLUS CUMULATIVE FREEWAY LOS**

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road			
	Year 2013 (Forecasted from 2010)							
ADT	13,600				15,400			
Peak Hour	AM		PM		AM		PM	
Directions	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2
Capacity ¹	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor ²	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor ³	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor ⁴	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	457	1,155	658	1,375	581	1,307	745	1,557
V/C	0.097	0.246	0.140	0.292	0.110	0.278	0.159	0.331
LOS	A	A	A	A	A	A	A	B
Project Peak Hour Volume	95	4	4	95	8	174	174	8
Existing (2013) Plus Project								
Peak Hour Volume	552	1,159	662	1,470	526	1,481	919	1,565
Volume to Capacity	0.117	0.247	0.141	0.313	0.112	0.315	0.196	0.333
LOS	A	A	A	B	A	B	A	B
Increase in V/C	0.020	0.001	0.001	0.020	0.002	0.037	0.037	0.002
Impact?	None	None	None	None	None	None	None	None
Cumulative Peak Hour Volume	231	804	828	238	191	957	980	201
2013 Plus Cumulative Plus Project								
Peak Hour Volume	783	1,963	1,490	1,708	717	2,438	1,899	1,766
V/C	0.167	0.418	0.317	0.363	0.152	0.519	0.404	0.376
LOS	A	B	B	B	A	C	B	B
Increase in V/C	0.020	0.001	0.001	0.020	0.002	0.037	0.037	0.002
Impact?	None	None	None	None	None	None	None	None

Source: LOS, 2012.

Notes: ¹ Capacity of 2,350 passenger cars per hour per lane (pcphpl) from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002.

² Latest K factor (percentage of the ADT in both directions during the peak hour) from Caltrans (based on 2007 report).

³ Latest D factor (percentage of traffic in the peak direction during the peak hour) from Caltrans (based on 2007 report), which when multiplied by K and ADT will provide peak hour volume.

⁴ Latest truck factor from Caltrans (based on 2007 report).

LOS: Level of Service. LOS based on actual number of lanes currently constructed.

V/C: Volume to Capacity ratio.

EB = eastbound; WB = westbound

eastbound direction. The segment of I-8 from Drew Road to Forrester Road would operate at LOS A during the AM peak hour in the eastbound direction; and LOS C in the PM peak hour in the westbound direction; and LOS B in both the AM and PM peak hours in both the eastbound and westbound directions. The project's contribution to cumulative conditions is considered **less than significant**. Moreover, the cumulative increases in traffic resulting from project construction would not exceed V/C

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ratios or LOS standards. Therefore, impacts to freeway segment LOS under Year 2013 Plus Project Plus Cumulative Freeway LOS would be **less than cumulatively considerable**.

Horizon Year 2050 + Project Conditions

Horizon Year 2050 street segment information was obtained from the *Imperial County Circulation Element Update*, January 2008. An excerpt from the Circulation Element is included in Appendix G of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR. The horizon year 2050 plus project roadway segment information is shown in **Table 4.3-28**.

**TABLE 4.3-28
HORIZON YEAR 2050 SEGMENT OPERATIONS**

Segment	Year 2050 Recommended Classification (# of lanes)	Year 2050 ADT Volume	2050 LOS
Diehl Road Derrick Road to Drew Road	Minor Collector (2)	Not Reported	Not Reported
Drew Road Evan Hewes Highway to I-8 I-8 to Diehl Road Diehl Road to SR 98	Prime Arterial (2U) (6-Divided) Prime Arterial (2U) (6-Divided) Prime Arterial (2U) (6-Divided)	Not Reported Not Reported Not Reported	Not Reported Not Reported Not Reported
Evan Hewes Highway Derrick Road to Drew Road Drew Road to Forrester Road	Prime Arterial (2U) (6-Divided) Prime Arterial (2U) (6-Divided)	Not Reported Not Reported	Not Reported Not Reported
Forrester Road Evan Hewes Highway to I-8	Prime Arterial (2U) (6-Divided)	Not Reported	Not Reported

Source: LOS, 2012.

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2=2 land roadway. Daily column is a 24 hour volume. LOS: Level of Service.

Under Horizon Year 2050 Plus Project conditions, segment volumes and LOS were not reported as documented in Appendix G of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

Mitigation Measures

MM 4.3.3 If all cumulative projects occur concurrently, the proposed project shall pay a fair share contribution toward necessary improvements as follows:

- 1) The fair share participation is based on the project's temporary construction traffic volume that is significantly higher than the project's traffic volume after completion of construction. At the intersection of Forrester Road at I-8 eastbound ramp, the construction traffic fair share responsibility is 6.2% and 0.5% when based on permanent operation employees (**Table 4.3-29**). LOS and fair share calculations are included in Appendix R of the *Draft Traffic Impact Analysis*. This document is provided on the attached CD of Technical Appendices as **Appendix B** of this EIR.

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**TABLE 4.3-29
IMPACT SUMMARY AND MITIGATION**

Cumulative Impact Location	Peak Hour	Without Mitigation 2013 Plus Project Plus Cumulative			Recommended Mitigation	With Mitigation 2013 Plus Project Plus Cumulative			Fair Share % Construction Traffic	Fair Share % Operations Traffic
		Delay	LOS	Impact		Delay	LOS	Impact		
1) Forrester Road at I-8 eastbound ramp	AM PM	17.9 104.7	C F	None Cumulative	Install Traffic Signal	12.1 20.2	B C	None None	6.2%	0.5%

Source: LOS, 2012.

Notes: 1) Delay – HCM Average Control delay in seconds. 2) LOS: Level of Service. 3) Impact type (None, cumulative or project-specific)

- 2) The project fair share responsibility shall be validated at month 7 and yearly during the entire construction period. If the intersection of Forrester Road/I-8 EB Ramp is calculated to operate at an unacceptable LOS during the validation period, then the Applicant shall pay the fair share amount based on project construction traffic. If the intersection of Forrester Road/I-8 EB Ramp is calculated to operate at acceptable LOS, then the Applicant should not be required to pay the fair share amount because the intersection would be documented to operate at acceptable LOS.

It is recommended that the Applicant enter into an agreement with the County to fulfill the CEQA cumulative mitigation requirement, but not be obligated to pay a fair share if the cumulatively impacted intersection never reaches failing conditions during the project's construction period.

Significance After Mitigation

Implementation of MM 4.3.3 would reduce potential cumulative impacts at the intersection of Forrester Road/I-8 EB Ramp to a **less than significant** level through payment of fair share for any improvements, if required. Therefore, residual impacts at the intersection of Forrester Road/I-8 EB Ramp following mitigation would be **less than cumulatively considerable**.