

# TRAFFIC IMPACT STUDY

## ACTON RETAIL CENTER PROJECT ACTON, CA

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**County of Los Angeles**

*Prepared by:*



A Division of David Evans and Associates, Inc.

**January 20, 2015**



A Division of David Evans and Associates, Inc.

January 20, 2015

Job No. VV.150135.0000

Robert H. Friedman, AIA  
**Friedman Architects & Contractors**  
2059 E. Foothill Blvd  
Pasadena, CA 91107

**RE: TRAFFIC IMPACT ANALYSIS –ACTON RETAIL CENTER PROJECT -  
ACTON, CALIFORNIA, LOS ANGELES COUNTY**

Dear Mr. Friedman;

**Hall & Foreman, a Division of David Evans and Associates, Inc.** is pleased to submit this Traffic Impact Study (TIS) for the proposed Acton Retail Center Project located in the unincorporated community of Acton, California, Los Angeles County. The project is comprised of a 6,000 square-foot retail building and a 3,300 square-foot restaurant, on an approximate 85,250 square foot parcel. The proposed project is located near the intersection of Sierra Highway and Crown Valley Road in the unincorporated community of Acton, California, Los Angeles County.

The report examines the traffic impacts specifically for the project and presents recommended traffic improvements. The report also addresses the impacts of overall growth within the area to assure that cumulative traffic mitigations can be addressed.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 760-524-9115.

Respectfully submitted,

**Hall & Foreman, a Division of David Evans and Associates, Inc.**

  
Robert A. Kilpatrick, P.E., T.E.  
Project Director/Associate





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## 1. INTRODUCTION

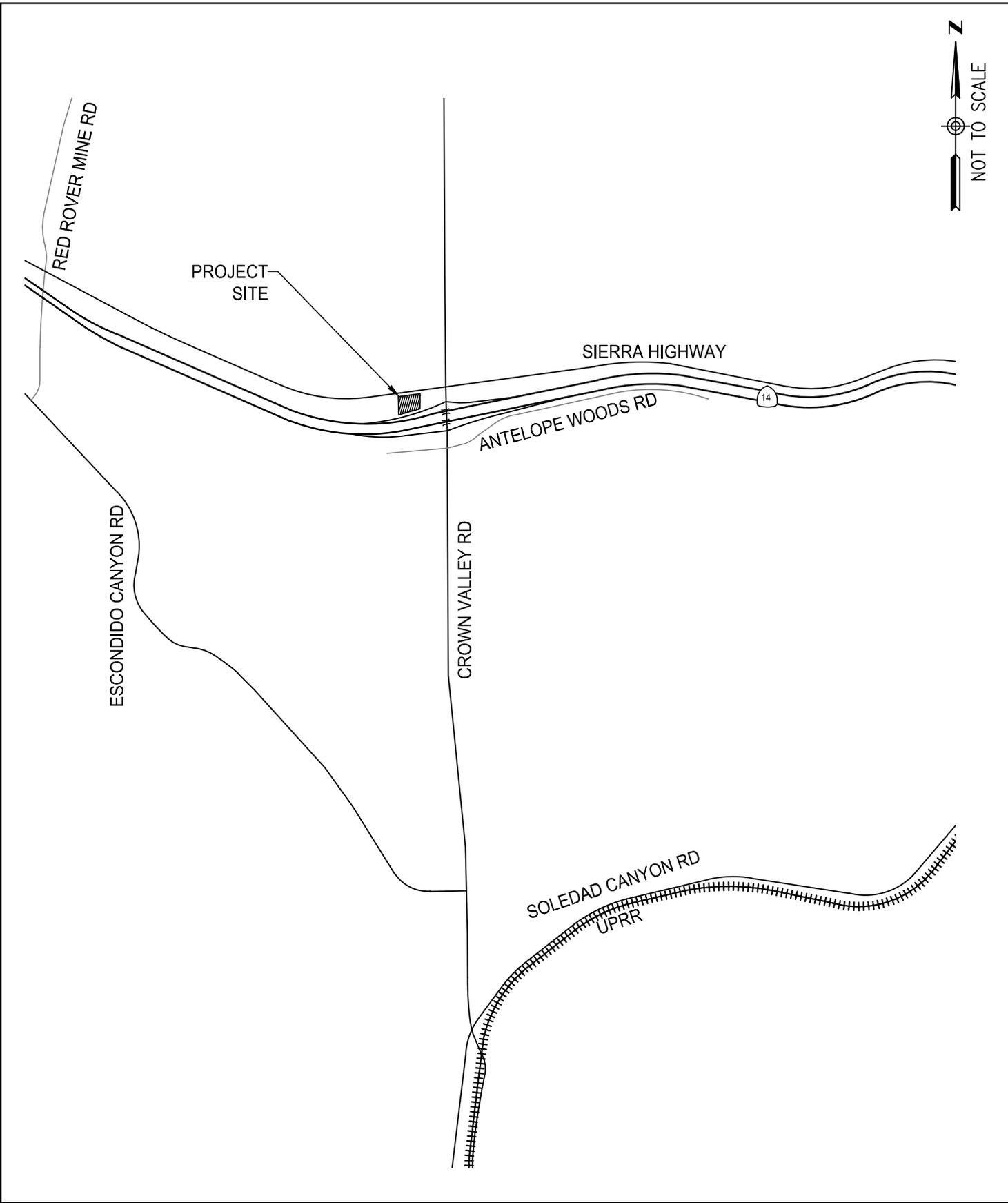
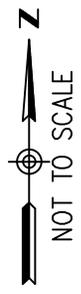
This report identifies the traffic impacts and presents recommendations for access and traffic mitigation for the proposed project located near the intersection of Sierra Highway and Crown Valley Road in the unincorporated community of Acton, California, Los Angeles County. The proposed project is comprised of a 6,000 square-foot retail building and a 3,300 square-foot restaurant, on an approximate 85,250 square foot parcel. The site will be accessible from two driveways on Sierra Highway. *Figure 1* illustrates the vicinity map and project location and *Figure 2* illustrates the proposed project site plan.

The project is located in the unincorporated community of Acton in Los Angeles County. The project is bound by Sierra Highway to the north, SR 14 (Antelope Valley Freeway) to the south, an existing Jack in the Box Restaurant to the east, and an Auto & Tire Retail to the west. Access to the project site is proposed off of Sierra Highway.

The intent of this Traffic Impact Study (TIS) is to address the impacts and mitigations required for the proposed development. This report identifies three (3) study scenarios. The scenarios include an Existing Condition, Existing Plus Project Condition, and Project Condition Year 2016.

The Existing Plus Project Condition addresses impacts due to Project Traffic. The analysis determines project specific impacts.

The Project Condition Year 2016 addresses impacts due to ambient growth up to the Opening Year 2016 and traffic generated by Other Area Projects within the study area. The ambient growth is estimated at an annual 2% growth rate. The Project Conditions Year 2016 considers a trip distribution utilizing existing intersections included in the study area. The trip information for the Other Area Projects were provided by Los Angeles County Planning.



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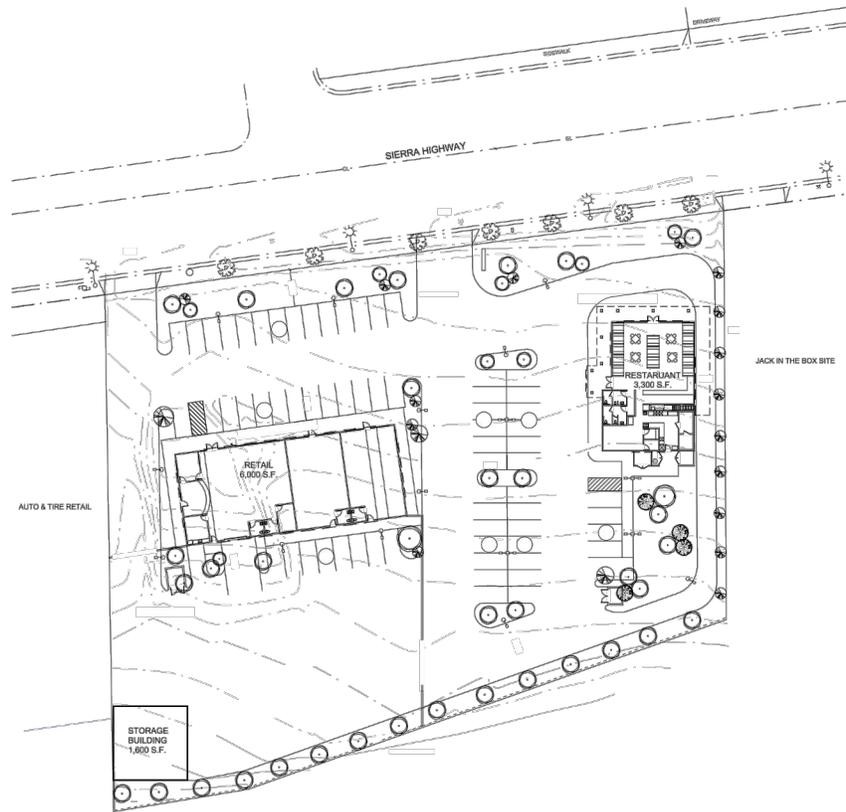
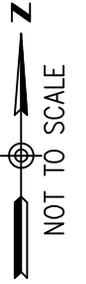
VICINITY MAP

ACTON RETAIL CENTER  
ACTON, CALIFORNIA

FIGURE

**1**

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**SITE PLAN**

ACTON RETAIL CENTER  
ACTON, CALIFORNIA

FIGURE  
**2**

## 2. EXISTING CONDITION

### Existing Street System

The following roadways provide access to and within the study area;

**Sierra Highway** is an old alignment of SR-14 from Los Angeles to Mojave. It is a two lane highway (one in each direction) with left turn channelization at major intersections.

**Crown Valley Road** is a north-south roadway providing local access within the Project area. It is a two lane road (one lane in each direction) with left turn channelization at major intersections.

**State Route 14 Freeway** (SR 14) provides regional access from Los Angeles to Mojave. The freeway is a four-lane (two in each direction) facility with interchange access at Crown Valley Road.

The project is bound by Sierra Highway to the north, SR 14 (Antelope Valley Freeway) to the south, and Crown Valley Road to the east. The project proposes to construct two driveways on Sierra Highway.

It is recommended that the four (4) intersections identified as study intersections be analyzed to determine if any specific mitigation is necessary. Based on our review of the proposed trip generation and distribution of the project trips, we are recommending four (4) intersections in the study area, be identified for analysis;

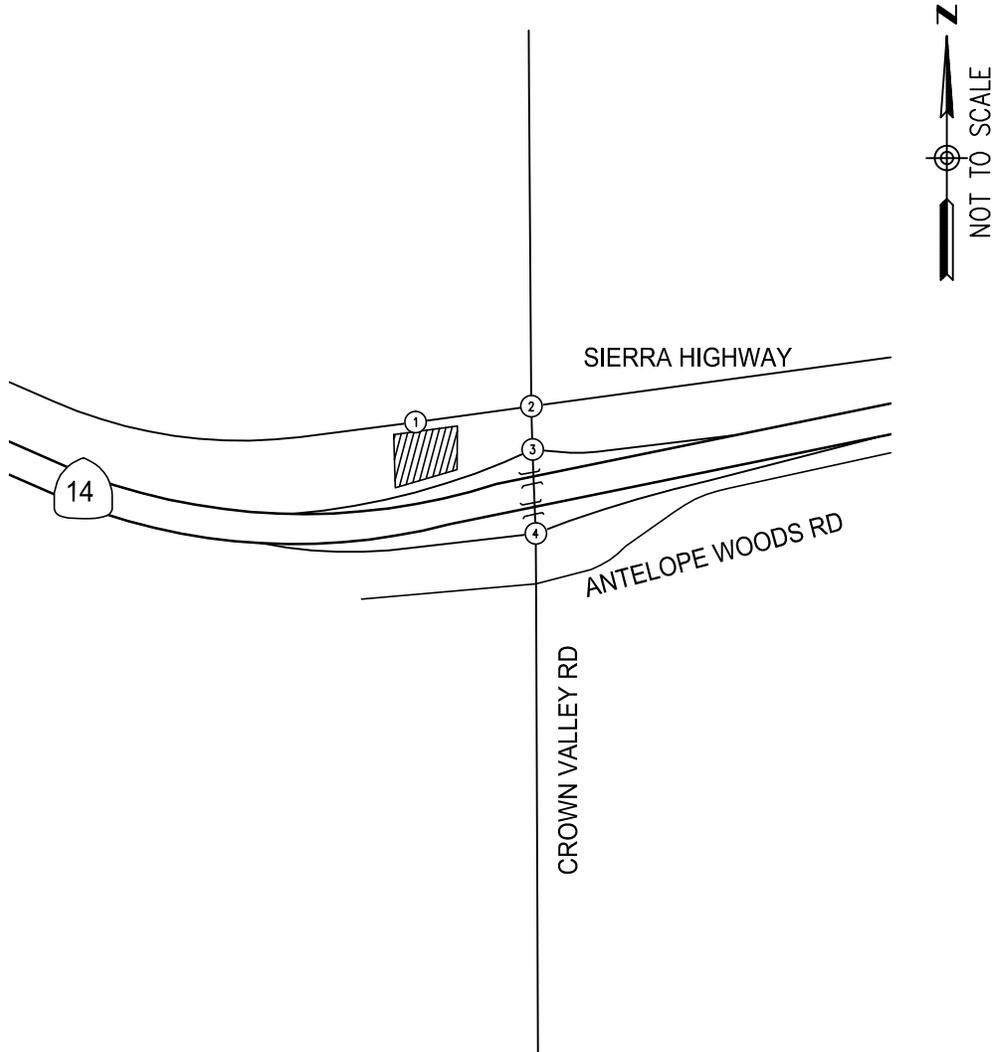
1. Project Driveway and Sierra Highway
2. Crown Valley Road and Sierra Highway
3. Crown Valley Road and SR 14 SB Ramps
4. Crown Valley Road and SR 14 NB Ramps

The 2010 Congestion Management Program for Los Angeles County Traffic Impact Guideline identifies that all intersections, where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic) are to be included in intersection level of service analysis.

### Existing Traffic Volumes

*Figure 3* illustrates the existing peak hour traffic volumes in the study area. The traffic volume data used in the following intersectional analysis were based on traffic counts conducted by Newport Traffic Studies, an independent traffic data collection company. Turn movement counts were collected during the AM (7-9 AM) and PM (4-6 PM) peak hour at the above-mentioned existing intersections identified for detailed analysis. These counts were conducted in January 2015. The resulting turn movement volumes are presented in *Appendix C*.

<p>② CROWN VALLEY RD / SIERRA HIGHWAY</p> <table border="1"> <tr> <td>15/20 50/65 15/20</td> <td>5/15 170/70 130/80</td> </tr> <tr> <td>10/15 40/195 105/105</td> <td>205/150 30/90 95/100</td> </tr> </table>	15/20 50/65 15/20	5/15 170/70 130/80	10/15 40/195 105/105	205/150 30/90 95/100	<p>③ CROWN VALLEY RD / SR 14 SB RAMPS</p> <table border="1"> <tr> <td>155/95 195/220</td> <td>185/135 5/5 50/55</td> </tr> <tr> <td></td> <td>95/50 180/235</td> </tr> </table>	155/95 195/220	185/135 5/5 50/55		95/50 180/235	<p>④ CROWN VALLEY RD / SR 14 NB RAMPS</p> <table border="1"> <tr> <td>195/170 50/100</td> <td></td> </tr> <tr> <td>45/125 5/5 95/150</td> <td>230/170 80/125</td> </tr> </table>	195/170 50/100		45/125 5/5 95/150	230/170 80/125
15/20 50/65 15/20	5/15 170/70 130/80													
10/15 40/195 105/105	205/150 30/90 95/100													
155/95 195/220	185/135 5/5 50/55													
	95/50 180/235													
195/170 50/100														
45/125 5/5 95/150	230/170 80/125													



### LEGEND

- XX/XX - AM/PM PEAK HOUR VOLUMES
- ① - STUDY INTERSECTIONS

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## EXISTING TRAFFIC VOLUMES

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE

3

### Capacity Analysis Methodologies

In order to verify the intersection capacity analysis impacts, present Level-of-Service (LOS) were conducted for the study intersections. The intersection capacity analyses are based on the existing intersection geometrics and traffic volumes during the AM and PM peak hours. The study intersections are under the jurisdiction Los Angeles County or Caltrans. Each has different criteria and thresholds to identify the lowest acceptable service levels. Los Angeles County requires the use of the Intersection Capacity Utilization (ICU). Caltrans requires the use of the Highway Capacity Manual (HCM).

A Synchro analysis was completed since Synchro can provide the LOS per the HCM and ICU methodologies. To further understand the concepts and differences between the methodologies, a description is provided below.

#### ***Intersection Capacity Utilization (ICU)***

The ICU method compares the V/C ratios of conflicting turn movements at an intersection, sums these critical conflicting V/C ratios for each intersection approach, and determines the overall ICU. *Table 1* provides ICU LOS Criteria from the Congestion Management Program (CMP) for Los Angeles County.

**Table 1:** CMP for Los Angeles County - ICU LOS Criteria

V/C Ratio	LOS
0.00 - 0.60	A
> 0.60 - 0.70	B
> 0.70 - 0.80	C
> 0.80 - 0.90	D
> 0.90 - 1.00	E
> 1.00	F

Source: **CMP for Los Angeles County**

#### ***Highway Capacity Manual (HCM) Methodology***

The Highway Capacity Manual (HCM) traffic analysis methodology is a method developed by the Transportation Research Board (TRB). Under the HCM methodology the LOS of an intersection is determined based on the delay of vehicles at the intersections. The TWSC intersection analysis LOS is computed for each movement and the most critical LOS is the one that describes the effectiveness of that intersection, which is typically the stop controlled left turn movement from the minor street. The AWSC intersection analysis LOS is defined by the control delay of the whole intersection. *Table 2* provides the HCM 2010 LOS thresholds for TWSC and AWSC intersections.

**Table 2:** HCM 2010 - LOS Criteria for TWSC and AWSC

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: **HCM 2010**

Significant Impact Threshold

The Significant Impact Threshold is dependent on jurisdiction.

**Los Angeles County**

For the Los Angeles County intersections, the impact is considered significant if the project related increase in the volume to capacity (v/c) ratio equals or exceeds the threshold shown in *Table 3*.

**Table 3:** Los Angeles County - Significant Impact Threshold

INTERSECTIONS		
Preproject		Project V/C Increase
LOS	V/C	
C	0.71 to 0.80	0.04 or more
D	0.81 to 0.90	0.02 or more
E/F	0.91 or more	0.01 or more

Source: **Los Angeles County Traffic Impact Analysis Report Guidelines**

**Caltrans**

For the Caltrans intersections, the impact is considered significant if the project traffic increases the intersection Level of Service (LOS) to an LOS E or worse. All ramp terminus intersections and State highways are under the jurisdiction of Caltrans. Caltrans endeavors to maintain a level of service between C and D at all intersections under its jurisdiction; when conducting traffic impact analyses, this has been interpreted to mean that a maximum average delay at a Caltrans unsignalized intersection exceeding 35 seconds is considered a significant impact.

### Existing Traffic Analysis

Intersection capacity analysis were conducted for the study intersections to determine an existing intersection level-of-service (LOS), based on the existing intersection geometrics and the AM and PM peak hour traffic volumes. The results of the analysis are shown in *Table 4* and provided in *Appendix C. Figure 4* illustrates the existing intersection geometrics utilized in the capacity analysis.

**Table 4:** Intersection Capacity Analysis - Existing Condition  
Acton Retail Center - Traffic Impact Study

Intersection	AM				PM			
	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)
2 Crown Valley Road and Sierra Highway (5)	0.41	A	14.8	B	0.38	A	11.3	B
3 Crown Valley Road and SR 14 SB Ramps (5)	0.36	A	17.2	C	0.42	A	12.4	B
4 Crown Valley Road and SR 14 NB Ramps (5)	0.36	A	16.3	C	0.42	A	15.7	C

(1) ICU – Intersection Capacity Utilization

(2) ICU LOS – Level of Service based on the 2003 Intersection Capacity Utilization Methodology

(3) Delay – In Seconds per vehicle (sec/veh)

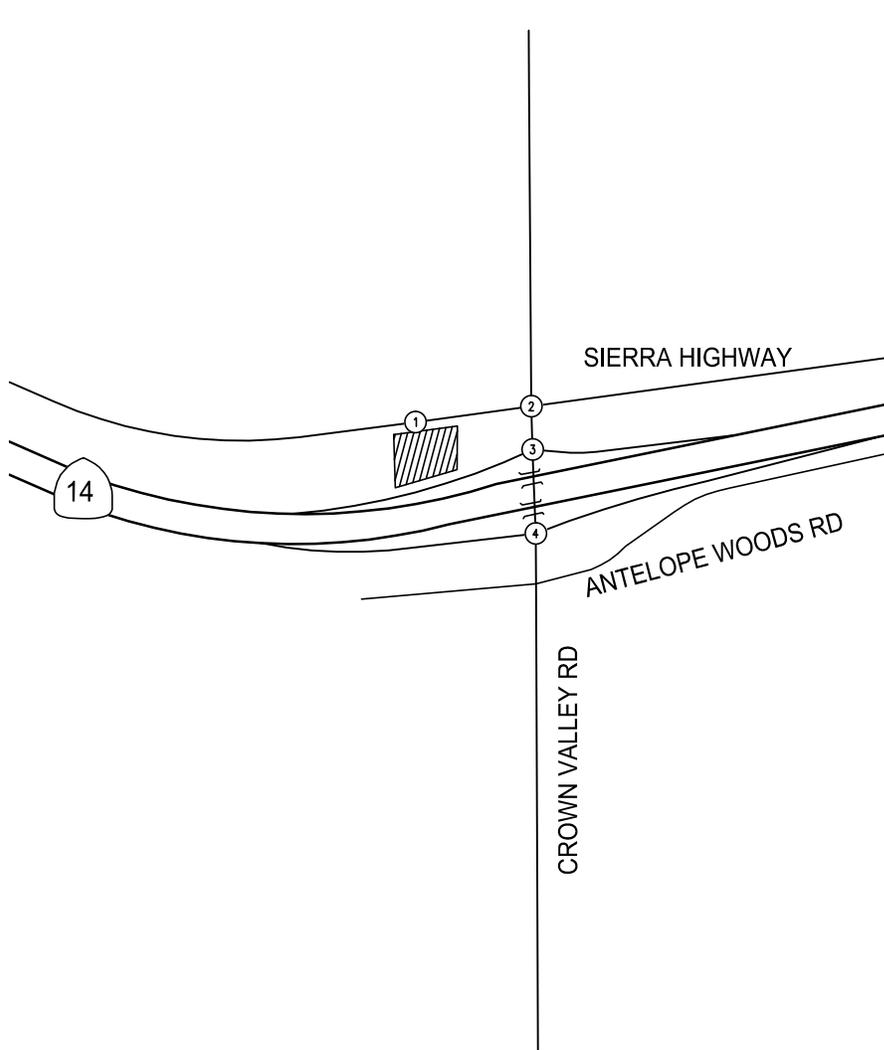
(4) HCM LOS - Level of Service based on the 2010 Highway Capacity Manual Methodology

(5) Un-Signalized Intersection

Source: **Hall & Foreman, Inc.**

As provided in *Table 4* under Existing Condition, all study intersections are operating at LOS “C” or better under both ICU and HCM methodologies. All study intersections are currently operating acceptably under the Los Angeles County preferred ICU methodology and the Caltrans preferred HCM methodology.

② CROWN VALLEY RD / SIERRA HIGHWAY		③ CROWN VALLEY RD / SR 14 SB RAMPS		④ CROWN VALLEY RD / SR 14 NB RAMPS	
					
					



**LEGEND**

-  - UNSIGNALIZED INTERSECTION
-  - STUDY INTERSECTIONS
-  - EXISTING GEOMETRICS



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EXISTING CONDITION  
 INTERSECTION GEOMETRICS

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE  
4

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### 3. EXISTING PLUS PROJECT CONDITION

The Existing Plus Project Condition addresses impacts due to Project Traffic. The analysis determines project specific impacts.

#### Project Trip Generation

The project was analyzed to determine the amount of traffic that would be generated from the proposed development. To identify potential traffic impacts from the project, trip generation factors were applied to the type of use to generate project traffic estimates. The trip generation factors for a Specialty Retail Center and Fast-Food Restaurant with Drive-Through Window were obtained from the 9th Edition of the Institute of Transportation Engineers trip generation report.

An internal trip reduction is assumed at a 10 % reduction rate. The specific trip generation factors, calculated trips, assumed internal trip reduction, and total primary trips are presented in *Table 5*.

**Table 5:** Project Trip Generation  
Acton Retail Center - Traffic Impact Study

Use	Daily	A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total
<b>1 Specialty Retail Center</b>							
(ITE 826) Per 1,000 GSF	44.30	1.19	1.52	2.71	3.28	3.56	6.84
6,000 GSF	266	7	9	16	20	21	41
<b>2 Fast-Food Restaurant with Drive-Through Window</b>							
(ITE 934) Per 1,000 GSF	496.12	23.16	22.26	45.42	16.98	15.67	32.65
3,300 GSF	1,637	76	73	150	56	52	108
Subtotal Trips	1,903	84	83	166	76	73	149
Internal Trip Reduction (10%)	190	8	8	17	8	7	15
<b>Total Primary Trips</b>	<b>1,713</b>	<b>75</b>	<b>74</b>	<b>150</b>	<b>68</b>	<b>66</b>	<b>134</b>

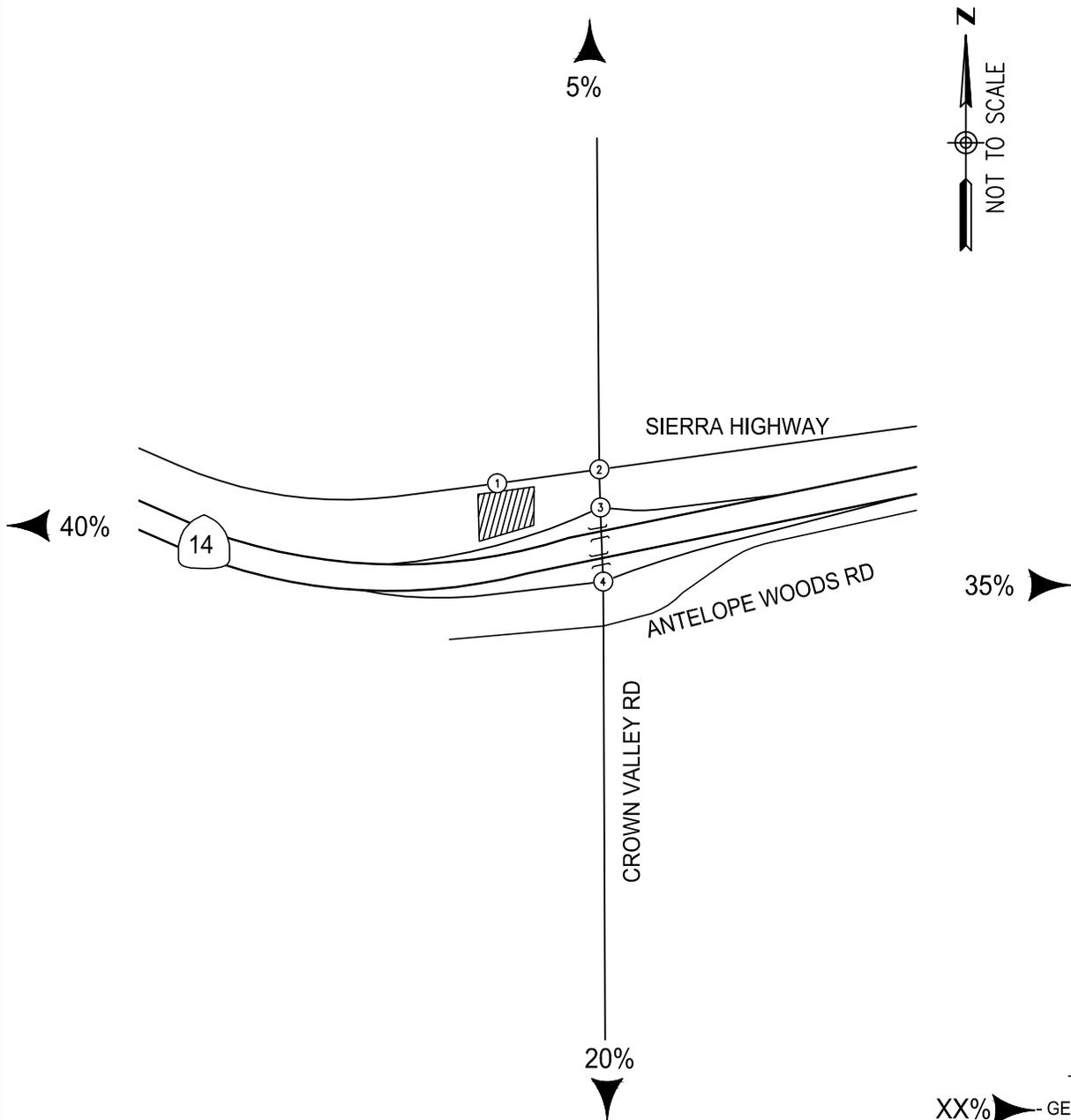
**Source:** "Trip Generation Manual, Institute of Transportation Engineers", 9<sup>th</sup> Edition

As presented in *Table 5*, it is estimated that the project will generate 1,713 Daily Primary Trips, 150 Primary Trips during the AM peak hour trips and 134 Primary Trips during the PM peak hour.

#### Project Trip Distribution

To address the impacts of the estimated project traffic, the trips were distributed and assigned to the surrounding streets and study intersections. The project traffic was distributed based on the anticipated project utilization. The project utilization is based on anticipated travel patterns to and from the project site, established through coordination with Los Angeles County Planning. Once the distribution pattern was established, project trips were assigned to the area streets that serve the project. *Figure 5* illustrates the general and specific estimated distribution pattern for the project trips. *Figure 6* illustrates the estimated project trip vehicle distribution.

① PROJECT DWY / SIERRA HIGHWAY	② CROWN VALLEY RD / SIERRA HIGHWAY	③ CROWN VALLEY RD / SR 14 SB RAMPS	④ CROWN VALLEY RD / SR 14 NB RAMPS
	5% ← 15%	20% 40% 20%	20% 20%
20% 20% 80%	5% 15% 60%	40%	20%



**LEGEND**

- XX% - GENERAL PROJECT TRIP DISTRIBUTION
- XX% - SPECIFIC PROJECT TRIP
- STUDY INTERSECTIONS

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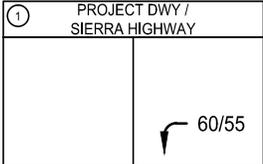
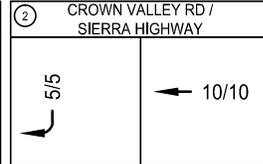
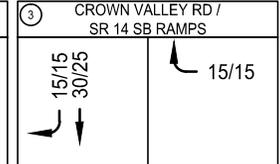
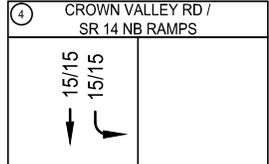
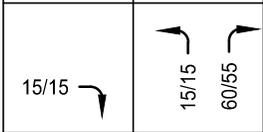
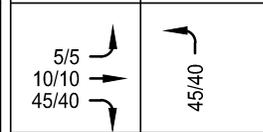
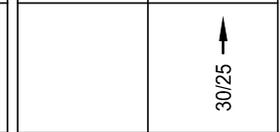
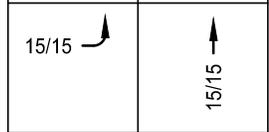
**TRIP DISTRIBUTION**

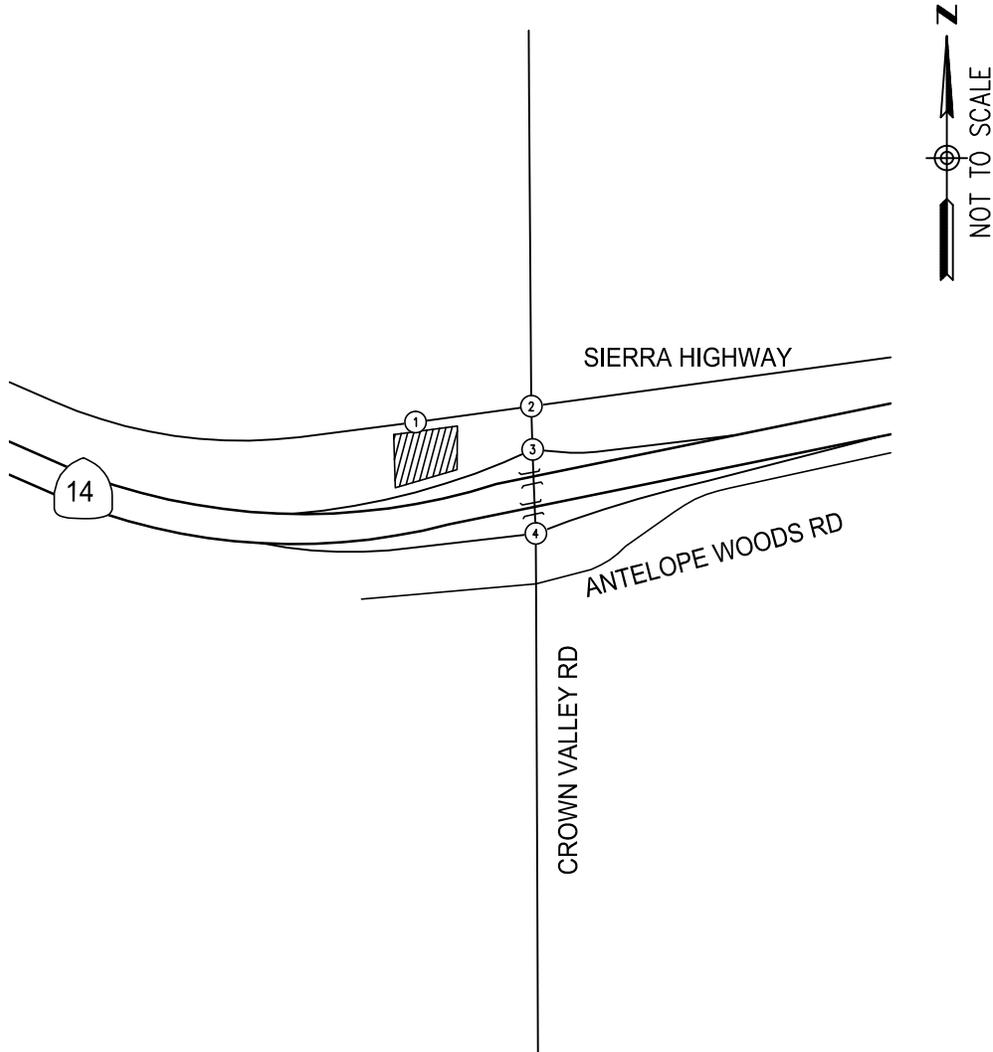
ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

**FIGURE**

**5**

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<p>① PROJECT DWY / SIERRA HIGHWAY</p> 	<p>② CROWN VALLEY RD / SIERRA HIGHWAY</p> 	<p>③ CROWN VALLEY RD / SR 14 SB RAMPS</p> 	<p>④ CROWN VALLEY RD / SR 14 NB RAMPS</p> 
			



**ADJUSTED TRIPS**

AM PEAK PERIOD - 75 IN / 74 OUT  
 PM PEAK PERIOD - 68 IN / 66 OUT

**LEGEND**

XX/XX  - AM/PM PROJECT TRIP  
 - STUDY INTERSECTIONS



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**PROJECT TRIPS**

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE

**6**

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### Existing Plus Project Traffic Analysis

Based on the proposed project trip generation, traffic distribution, and assignment patterns, intersection capacity analyses were conducted to assess the estimated project impacts. To determine the project impacts at the study intersections and driveways, project trips were added to the Existing Traffic Volumes to produce the Existing Plus Project Traffic Volumes, illustrated in *Figure 7*.

Intersection capacity analysis for the Existing Plus Project Condition was performed using the methodology presented in *Chapter 2*. The results of the analysis are shown in *Table 6* and provided in *Appendix C*.

**Table 6:** Intersection Capacity Analysis - Existing Plus Proposed Project Condition  
Acton Retail Center - Traffic Impact Study

Intersection	AM				PM			
	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)
1 Project Driveway and Sierra Highway (5)	0.37	A	11.0	B	0.34	A	11.6	B
2 Crown Valley Road and Sierra Highway (5)	0.44	A	19.1	C	0.42	A	12.4	B
3 Crown Valley Road and SR 14 SB Ramps (5)	0.38	A	18.5	C	0.43	A	12.8	B
4 Crown Valley Road and SR 14 NB Ramps (5)	0.38	A	19.1	C	0.43	A	17.5	C

(1) ICU – Intersection Capacity Utilization

(2) ICU LOS – Level of Service based on the 2003 Intersection Capacity Utilization Methodology

(3) Delay – In Seconds per vehicle (sec/veh)

(4) HCM LOS - Level of Service based on the 2010 Highway Capacity Manual Methodology

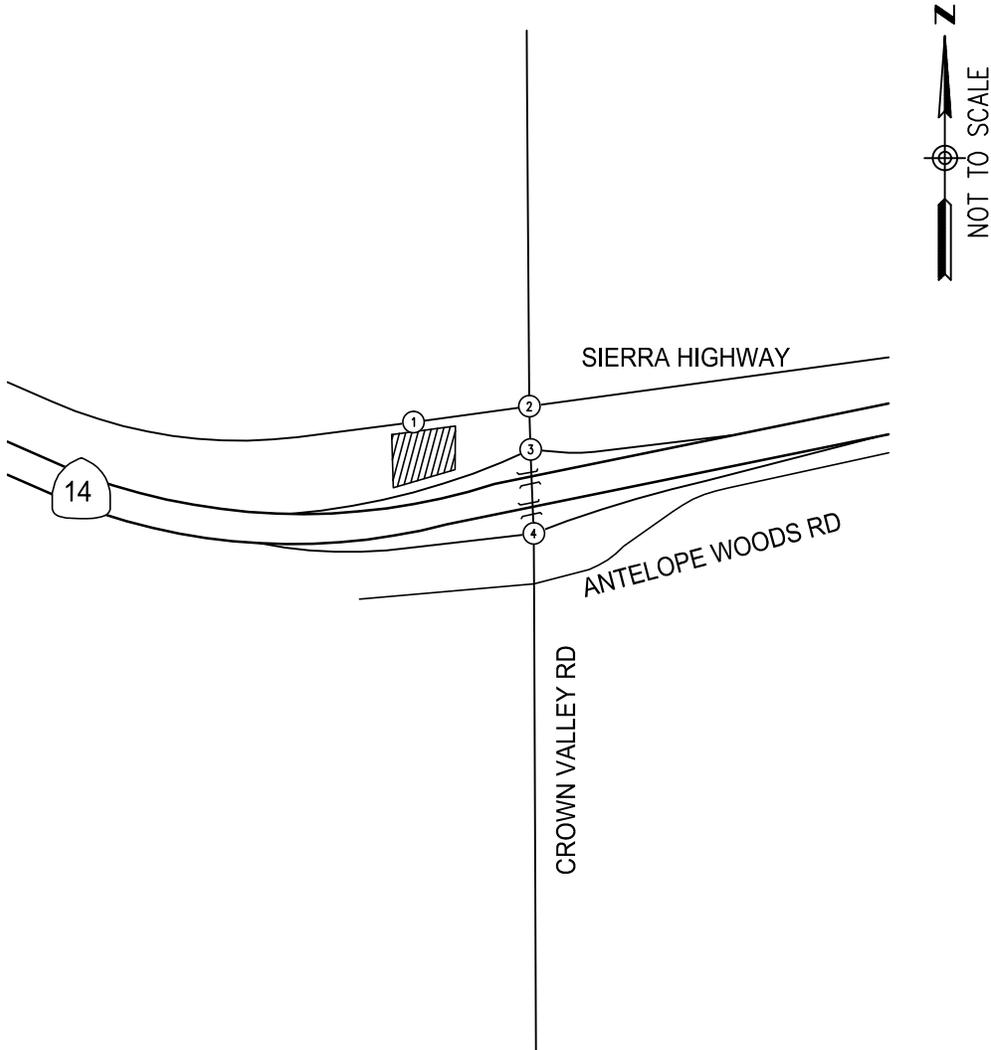
(5) Un-Signalized Intersection

Source: **Hall & Foreman, Inc.**

As presented in *Table 6* under Existing Plus Project Condition, all study intersections are anticipated to continue to operate at LOS “C” or better under both ICU and HCM methodologies. All study intersections are anticipated to continue to operate acceptably under the Los Angeles County preferred ICU methodology and the Caltrans preferred HCM methodology.

The project driveway is provided as a full access driveway at the newly developed t-intersection with Sierra Highway. The lane configuration is illustrated in *Figure 8*. The Project Specific Improvements are outlined in *Chapter 5*.

<p>① PROJECT DWY / SIERRA HIGHWAY</p>	<p>② CROWN VALLEY RD / SIERRA HIGHWAY</p>	<p>③ CROWN VALLEY RD / SR 14 SB RAMPS</p>	<p>④ CROWN VALLEY RD / SR 14 NB RAMPS</p>
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**LEGEND**

XX/XX - AM/PM PEAK HOUR VOLUMES  
 ① - STUDY INTERSECTIONS

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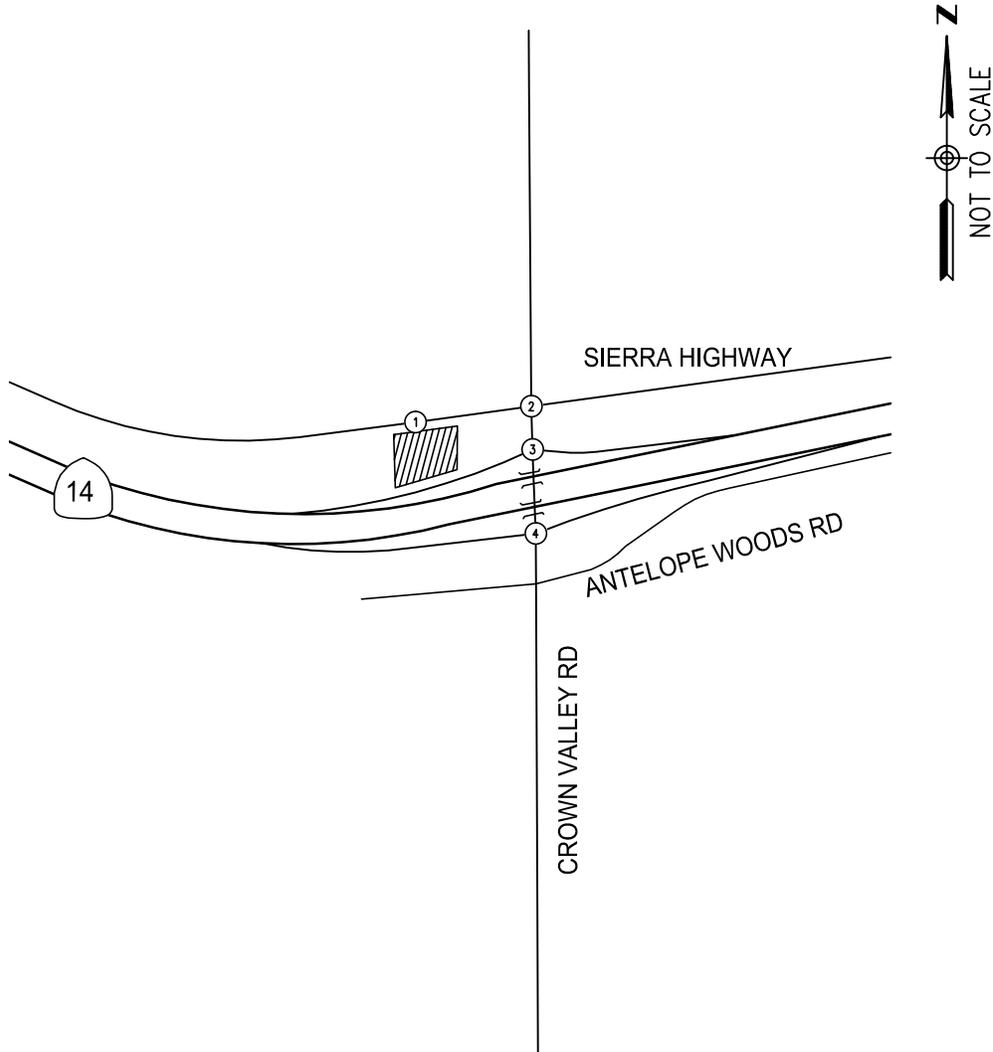
**EXISTING PLUS PROJECT TRAFFIC VOLUMES**

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE  
**7**

Drawing Name: V:\150135\Eng\150135-000\Exhibit\Traffic\Study\Figure 7.dwg  
 Last Opened: Jan 14, 2015 - 9:09am by: TMinoz

①	PROJECT DWY / SIERRA HIGHWAY	②	CROWN VALLEY RD / SIERRA HIGHWAY	③	CROWN VALLEY RD / SR 14 SB RAMPS	④	CROWN VALLEY RD / SR 14 NB RAMPS



**LEGEND**

- UNSIGNALIZED INTERSECTION
- STUDY INTERSECTIONS
- EXISTING GEOMETRICS
- PROPOSED GEOMETRICS

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EXISTING + PROJECT CONDITION  
 INTERSECTION GEOMETRICS

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE  
**8**

Drawing Name: V:\150135\Eng\150135-000\Exhibit\Traffic\Study\Figure 8.dwg  
 Last Opened: Jan 14, 2015 - 9:10am by: TMinoz

#### 4. PROJECT CONDITON – YEAR 2016

To analyze the project impacts, the inclusion of traffic generated by other area projects and regional ambient growth within the study area is necessary. Typically, ambient growth is expected over the years at rates ranging from 1% to 2% annually. Based on the existing traffic volumes, a straight line growth at a 2% annual increase was utilized. This growth is known as ambient traffic.

##### Other Area Projects

To analyze the cumulative impacts, the inclusion of traffic generated by other projects within the study area is necessary. The list of Other Area Projects consists of a project that is anticipated to be constructed by Project Opening Year 2016. The Other Area Projects information is provided in *Table 7*.

**Table 7:** Other Area Projects Trip Generation  
Acton Retail Center - Traffic Impact Study

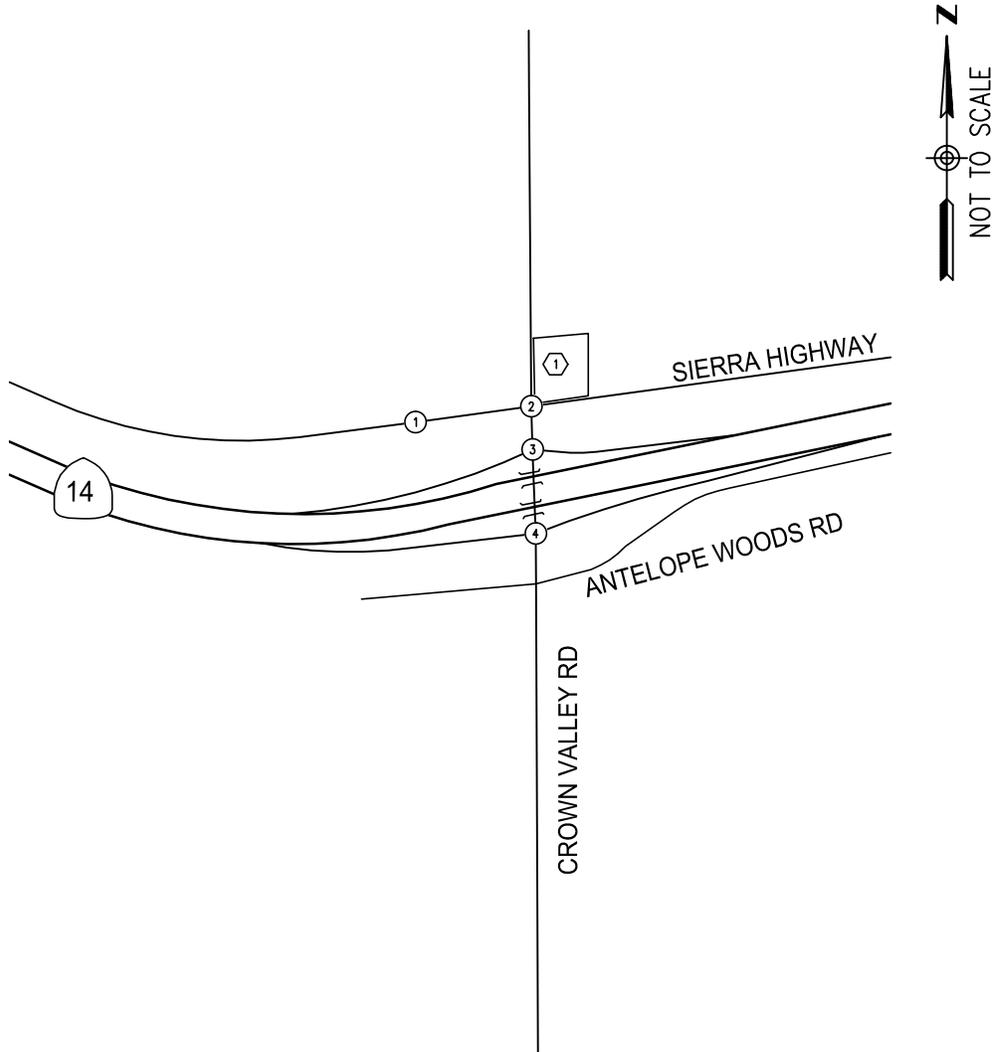
	Use	Daily	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
1	<b>Taco Bell: 2,029 SF</b> Fast Food w/Drive Thru (934)	906	42	40	83	31	29	59

Source: (1) - **County of Los Angeles**

The list of Other Area Projects was provided by the Los Angeles County Planning. The Other Area Project trips are illustrated in *Figure 9* and provided in *Appendix B*.

To determine the cumulative impacts at the study intersections the Other Area Projects trips and ambient growth were added to the Existing Plus Project Traffic Volumes to produce the Project Conditions Year 2016 Traffic Volumes, illustrated in *Figure 10*, and presented in the Turn Movement summary worksheets in the report *Appendix C*.

① PROJECT DWY / SIERRA HIGHWAY 	② CROWN VALLEY RD / SIERRA HIGHWAY 	③ CROWN VALLEY RD / SR 14 SB RAMPS 	④ CROWN VALLEY RD / SR 14 NB RAMPS 



**LEGEND**

- XX/XX - AM/PM PEAK HOUR VOLUMES
- ① - STUDY INTERSECTIONS
- ② - OTHER AREA PROJECT

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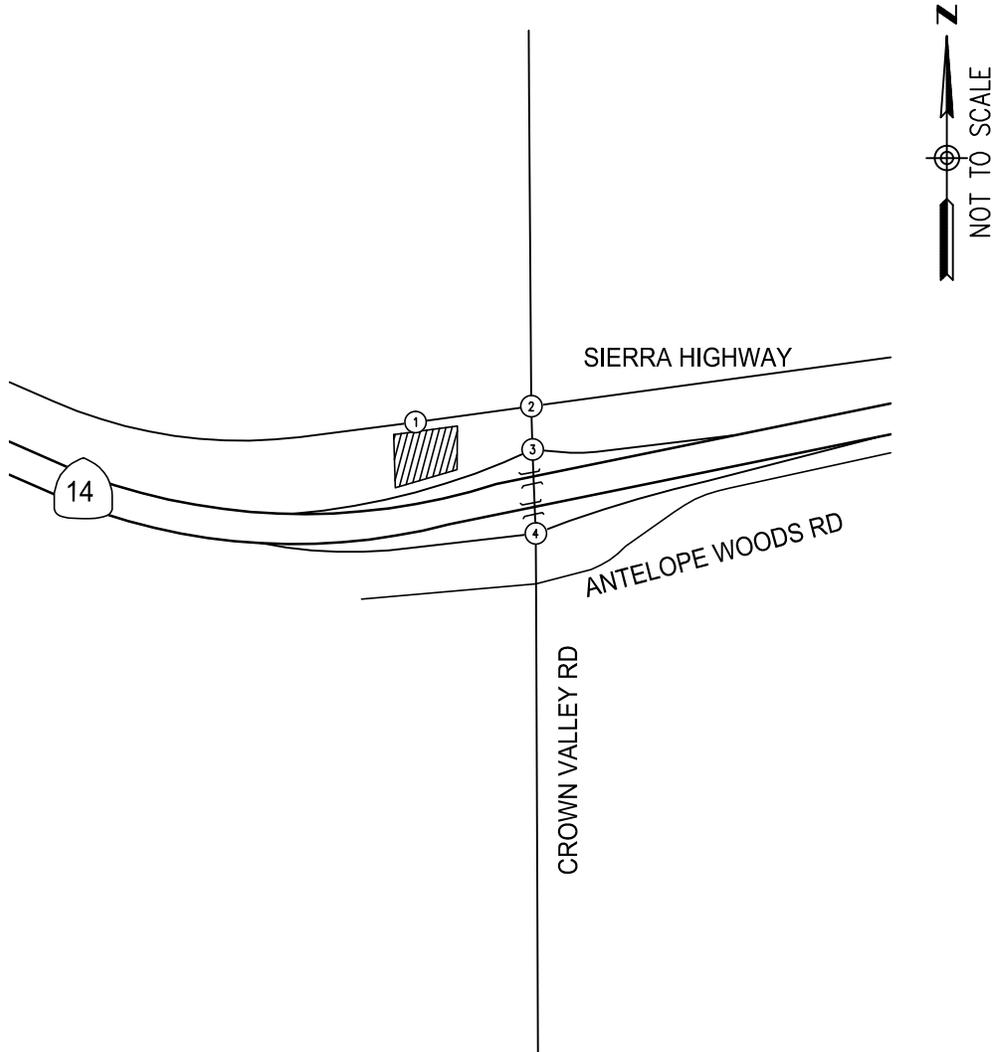
**YEAR 2016 CUMULATIVE OTHER  
 AREA PROJECT TRIPS**

ACTON RETAIL CENTER  
 ACTON, CALIFORNIA

FIGURE  
**9**

Drawing Name: V:\150135\Eng\150135-000\Exhibit\Traffic\Study\Figure 9.dwg  
 Last Opened: Jan 14, 2015 - 9:10am by: TMinoz

<p>① PROJECT DWY / SIERRA HIGHWAY</p> <p>270/170 60/55</p> <p>175/260 15/15</p> <p>15/15 60/55</p>	<p>② CROWN VALLEY RD / SIERRA HIGHWAY</p> <p>25/30 60/75 20/25</p> <p>10/20 190/90 165/110</p> <p>20/25 60/215 155/150</p> <p>255/195 40/100 135/130</p>	<p>③ CROWN VALLEY RD / SR 14 SB RAMPS</p> <p>190/125 250/265</p> <p>220/165 10/10 55/60</p> <p>100/55 235/280</p>	<p>④ CROWN VALLEY RD / SR 14 NB RAMPS</p> <p>220/195 85/130</p> <p>80/155 10/10 100/155</p> <p>255/195 85/130</p>
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### LEGEND

- XX/XX - AM/PM PEAK HOUR VOLUMES
- ① - STUDY INTERSECTIONS

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**YEAR 2016 AMBIENT TRAFFIC VOLUMES**

ACTON RETAIL CENTER  
ACTON, CALIFORNIA

FIGURE  
**10**

Drawing Name: V:\150135\Eng\150135-000\Exhibit\Traffic\Study\Figure 10.dwg  
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### Project Condition Year 2016 Traffic Analysis

Intersection capacity analysis for the Project Conditions Year 2016 Condition was performed using the methodology presented in *Chapter 2*. The signalized intersections along Cedar Avenue are a coordinated network and were evaluated as such. The results of the analysis are shown in *Table 8* and provided in *Appendix C*.

**Table 8:** Intersection Capacity Analysis - Project Conditions Year 2016  
Acton Retail Center - Traffic Impact Study

Intersection	AM				PM			
	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)	ICU(1)	ICU LOS(3)	Delay(2)	HCM LOS(4)
1 Project Driveway and Sierra Highway (5)	0.37	A	11.1	B	0.35	A	11.7	B
2 Crown Valley Road and Sierra Highway (5)	0.47	A	23.0	C	0.44	A	13.6	B
3 Crown Valley Road and SR 14 SB Ramps (5)	0.40	A	21.2	C	0.46	A	13.4	B
4 Crown Valley Road and SR 14 NB Ramps (5)	0.40	A	24.5	C	0.46	A	19.8	C

(1) ICU – Intersection Capacity Utilization

(2) ICU LOS – Level of Service based on the 2003 Intersection Capacity Utilization Methodology

(3) Delay – In Seconds per vehicle (sec/veh)

(4) HCM LOS - Level of Service based on the 2010 Highway Capacity Manual Methodology

(5) Un-Signalized Intersection

Source: **Hall & Foreman, Inc.**

As provided in *Table 8* under Project Conditions Year 2016, all study intersections are anticipated to continue to operate at LOS “C” or better under both ICU and HCM methodologies. All study intersections are anticipated to continue to operate acceptably under the Los Angeles County preferred ICU methodology and the Caltrans preferred HCM methodology.



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## **5. PROJECT IMPACT, MITIGATION, AND SUMMARY**

In summary, the project as presented will not cause any significant negative impacts to the surrounding street system. The street system will be adequate to handle estimated project and future traffic with the existing intersection geometrics.

### Year 2016 Project Mitigations

1. Install curb and gutter on Sierra Highway along the project frontage.



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## **6. APPENDIX**

**A. Scoping Memo/Memorandum of Understanding**

**B. Other Area Projects**

**C. Intersection Capacity Analysis Calculations**