APPENDIX H

Traffic Impact Analysis

TRAFFIC IMPACT STUDY

FOR THE BARSTOW SITE

(Alternatives A and B)

LINSCOTT
LAW &
GREENSPAN
engineers

TRAFFIC IMPACT ANALYSIS

LOS COYOTES CASINO

Barstow, California
May 19, 2010

Prepared for:

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TRAFFIC IMPACT ANALYSIS

LOS COYOTES CASINO

Barstow, California
May 19, 2010

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to prepare a traffic study for the proposed Los Coyotes Casino project. The purpose of this study is to assess the potential impacts to the local traffic circulation system as a result of the proposed Casino Project.

The site is located east of Lenwood Road and south of Mercantile Way in the City of Barstow. A detailed project description is included in the following section.

Included in this traffic study are the following:

- Project Description
- Study Area, Analysis Approach and Methodology
- Significance Criteria
- Existing Conditions Description
- Analysis of Existing Conditions
- Project Trip Generation, Distribution & Assignment
- Opening Year 2013Analysis
- Horizon Year 2035 Analysis
- Site Access Discussion
- Project Impacts/ Mitigation Measures

2.0 PROJECT DESCRIPTION

2.1 Project Location

The proposed Los Coyotes Casino project is located east of Lenwood Road and south of Mercantile Way in the City of Barstow, County of San Bernardino, California.

Figure 2–1 shows the project vicinity map. ***Figure 2–2*** shows the project area map. All figures are shown at the end of their respective section.

2.2 Project Description

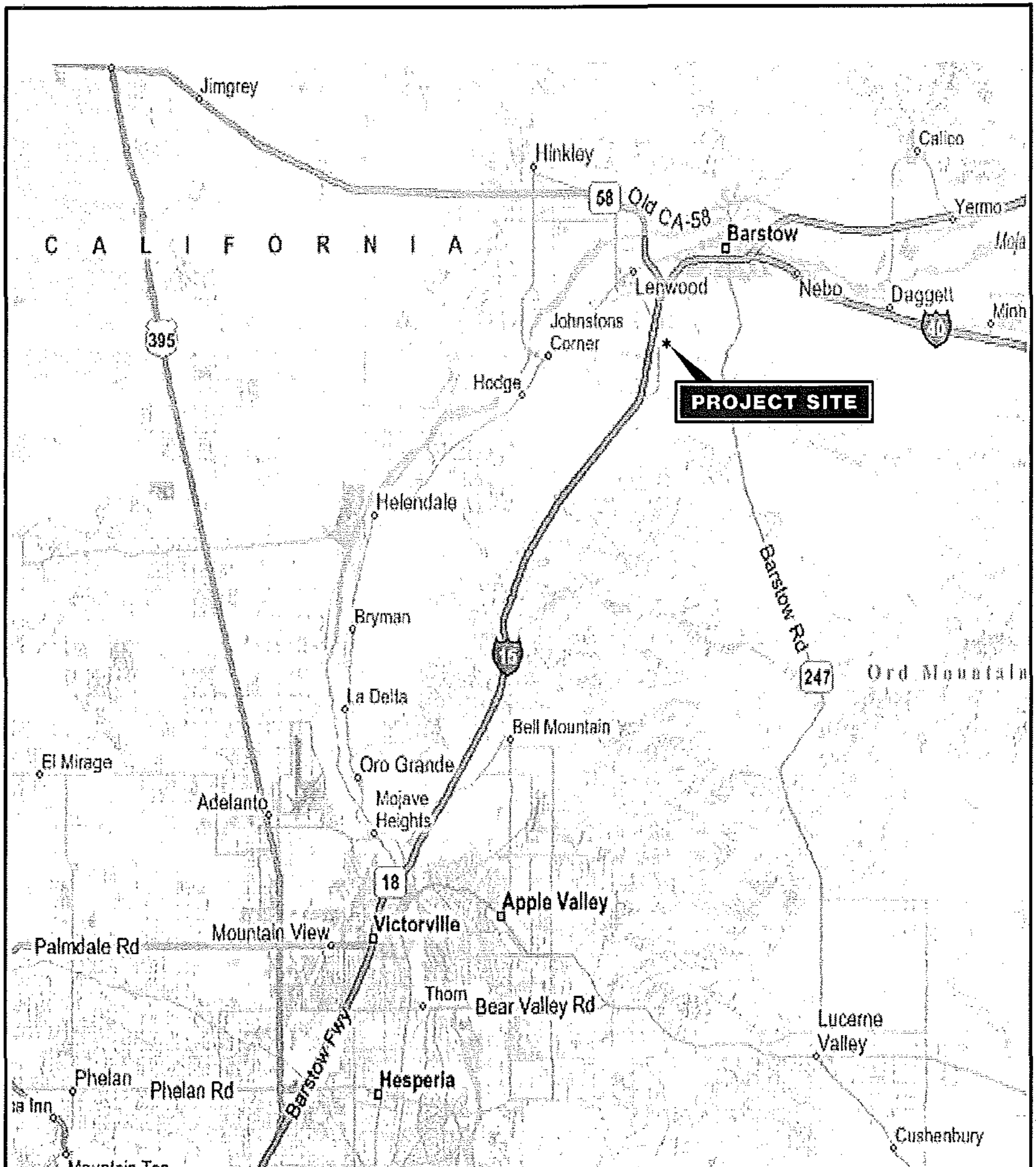
The project proposes two alternatives for the casino development at this site. Alternative A consists of the development of a 229,020-square foot casino with approximately 88,500 square feet (SF) of gaming area. Associated facilities would include food and beverage services, retail space, banquet/meeting space, and administration space. Food and beverage facilities would include two full service restaurants, two food courts with four venues in each food court, two coffee shops, and two lounge bars. The project also includes a 160-room hotel. Both the gaming facility and the hotel would be open 24 hours a day, seven days a week. Design features of the casino and hotel would be similar, and square footages would be consistent for most amenities. A total of 1,892 parking spaces would be provided.

Alternative B consists of the development of a 164,400-square foot casino with approximately 57,070 SF of gaming area. This Alternative also includes a 100-room hotel. Associated facilities would include food and beverage services, retail space, banquet/meeting space, and administration space. Food and beverage facilities would include two full service restaurants, two food courts with two venues in each food court, two coffee shops, and two lounge bars. As with Alternative A, a total of 1,405 parking spaces would be provided.

In addition, a drive-in restaurant is proposed under both project alternatives. The drive-in canopy is located at the southwest corner of the casino. The kitchen for the drive-in (2,200 SF under Alternative A and 2,240 SF under Alternative B) would serve both the drive-in and the 24/7 café/coffee shop located within the casino. The drive-in would be able to accommodate 20 vehicles under both Alternatives A and B. Also, under both alternatives the drive-in canopy would be approximately 5,860 SF.

Access to the casino project is proposed to be located along Lenwood Road approximately 300 feet south of the existing Hampton Inn driveway.

Figure 2–3a illustrates the conceptual site plan for Alternative A and ***Figure 2–3b*** illustrates the conceptual site plan for Alternative B.



Source: LLG Engineers, 2009
N:\1876\Figures\LLG1876 FIG2-1

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engineers

Figure 2-1

Vicinity Map

LOS COYOTES CASINO PROJECT

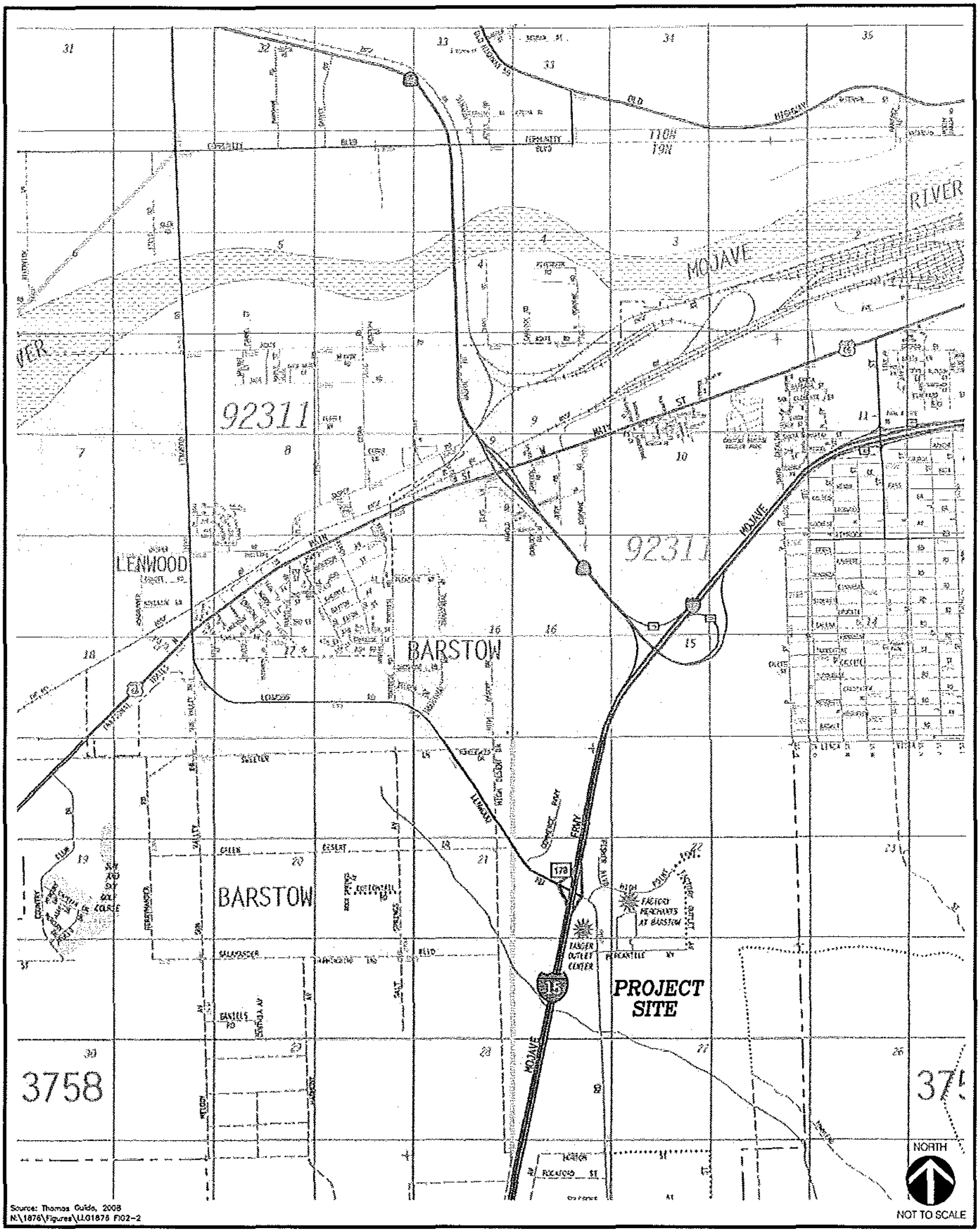
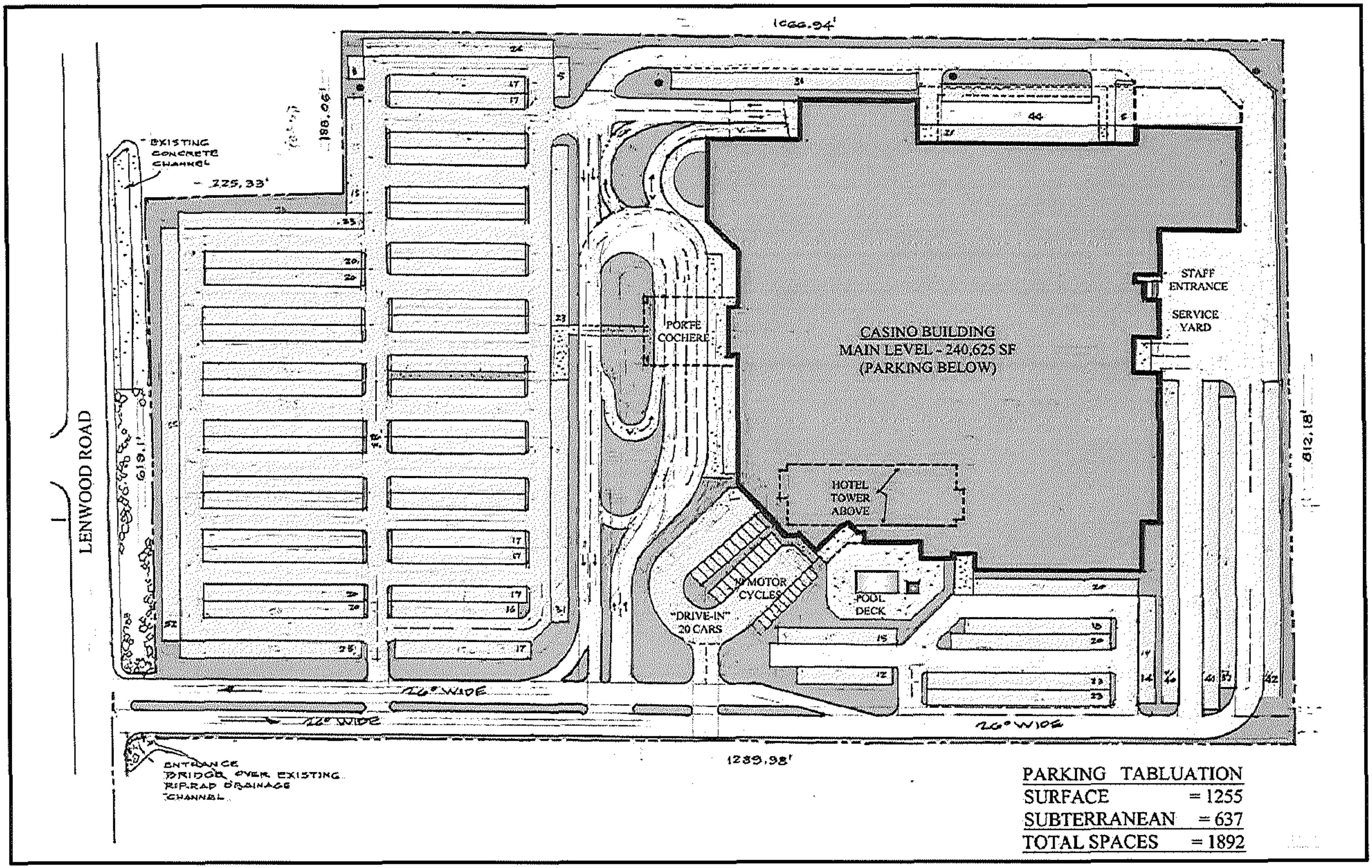


Figure 2-2

Project Area Map

Los Coyotes Casino Project

LINSCOTT LAW & GREENSPAN engineers



LINSCOTT LAW & GREENSPAN engineers

Source: Bergman Walls & Associates, 2010
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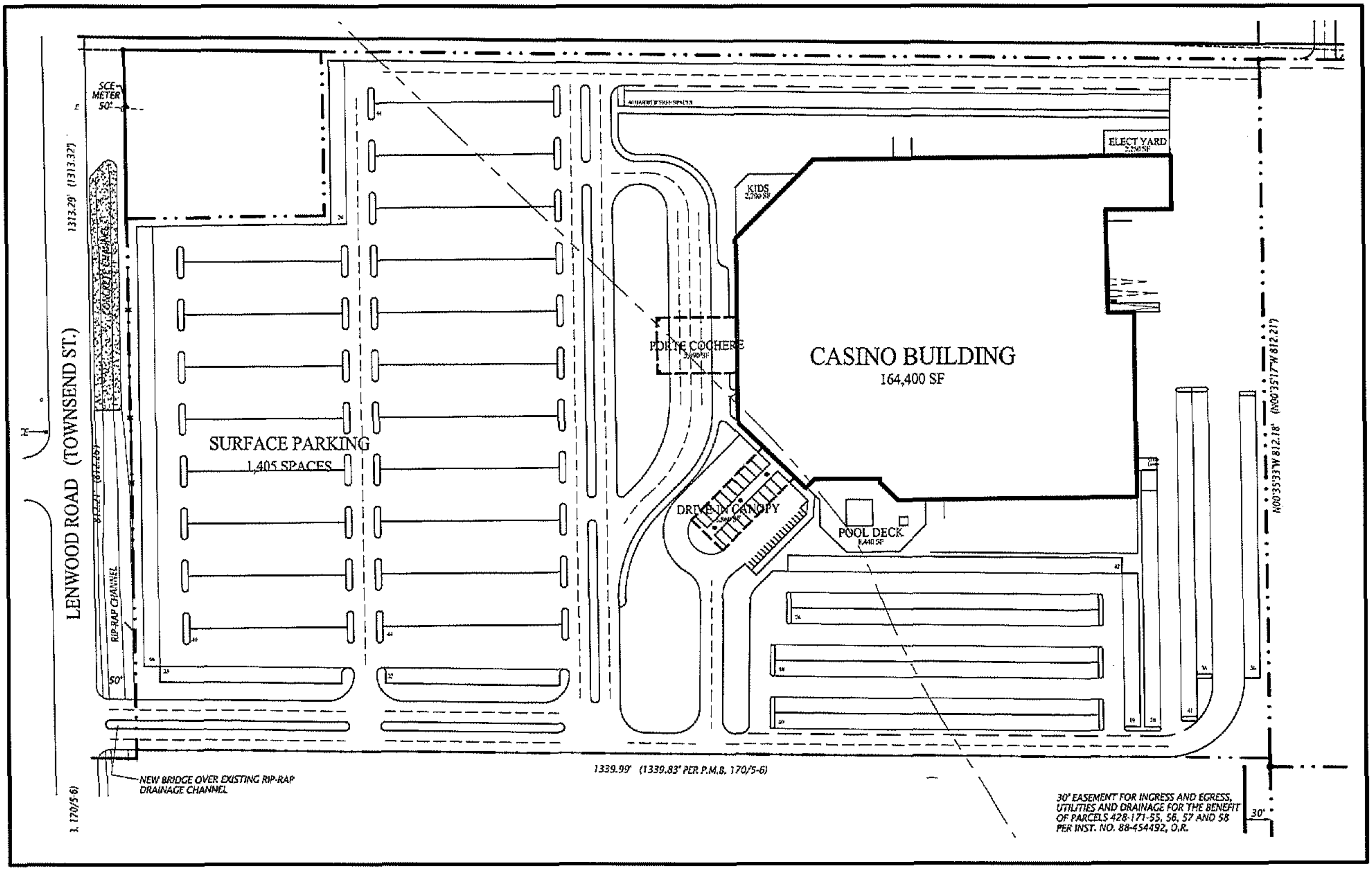
NORTH

NOT TO SCALE

Figure 2-3a

Alternate A Site Plan



LINSCOTT LAW & GREENSPAN engineers

Source: Bergmon Walls & Associates, 2010
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NORTH

NOT TO SCALE

Figure 2-3b

LCB Alternate B Site Plan

3.0 STUDY AREA, ANALYSIS APPROACH AND METHODOLOGY

3.1 Study Area

As previously mentioned, the Los Coyotes Casino Project is located in the City of Barstow. Therefore, the County of San Bernardino Congestion Management Program (CMP) guidelines apply to this traffic study. CMP guidelines require the analysis of key CMP intersections to which the project will add 50 or more trips during either the AM or PM peak hours. The term "CMP intersection" refers to the intersection of two CMP roadways. "Key intersections" include all CMP intersections plus other intersections on CMP links considered to be important for level of service monitoring. This includes all state highways and principal arterials. Principal arterials are defined by CMP guidelines as "roadways that are of multi-jurisdictional or regional significance. This means that during both peak and off-peak periods, the roadway is likely to carry traffic across city or county boundaries, or within a given jurisdiction is likely to carry a significant proportion of non-local traffic." Other criteria for principal arterials are:

- Freeways, other State highways, and major projects of those roadways
- Major roadways leading to or from a freeway interchange
- Major roadways that provide direct links between freeways and State highways
- A major roadway that is designated a principal arterial by the local jurisdiction

In addition, as stated in the CMP, Caltrans facilities require analysis of key intersections to which the project will contribute 50 or more passenger-car equivalent (PCE) adjusted two-way trips during the AM or PM peak hours. This PCE adjustment accounts for vehicles (trucks) that take up more room than automobiles and are typically slower during acceleration and deceleration, and thus utilize greater roadway capacity. Referring again to the CMP guidelines, freeway segments to which the project adds over 100 two-way AM or PM peak hour trips must be analyzed and roadway segments included in this analysis are any roadway to which the project adds over 50 two-way trips during the AM or PM peak hours. The study area was also discussed and verified in consultation with City staff. The following eleven intersections, four roadway segments, and four freeway segments are included in the study area based on the above criteria.

3.1.1 *Intersections*

1. Lenwood Road/ SR-58
2. Lenwood Road/ Main Street
3. SR-58 EB Ramps/ Main Street
4. SR-58 WB Ramps/ Main Street
5. I-15 SB Ramps/ Lenwood Road
6. I-15 NB Ramps/ Lenwood Road
7. I-15 SB Ramps/ Outlet Center Drive
8. I-15 NB Ramps/ Outlet Center Drive
9. Lenwood Road/ Mercantile Way
10. Lenwood Road/ Proposed Project Access
11. Factory Outlet Avenue/ Mercantile Way

3.1.2 *Roadway Segments*

Lenwood Road:

1. I-15 NB Ramps to Mercantile Way
2. Mercantile Way to Proposed Project Access
3. Proposed Project Access to Outlet Center Drive

Outlet Center Drive:

4. Lenwood Road to I-15 NB Ramps

3.1.3 *Freeway Segments*

I-15 Freeway Southbound:

L Street to Lenwood Road
Outlet Center Drive to Hodge Road

I-15 Freeway Northbound:

L Street to Lenwood Road
Outlet Center Drive to Hodge Road

3.2 Analysis Approach

This traffic analysis assesses the key intersections, roadway segments and freeway segments in the project area. The study area intersections and segments are analyzed for the following scenarios to determine the potential impacts to the freeway and roadway network:

- Existing (2009)
- Opening Year 2013
- Opening Year 2013 with Project Alternative A
- Opening Year 2013 with Project Alternative B
- Horizon Year 2035
- Horizon Year 2035 with Project Alternative A
- Horizon Year 2035 with Project Alternative B

3.3 Methodology

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

3.3.1 *Intersections*

Signalized intersections were analyzed under Mid-Day and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 16 of the *2000 Highway Capacity Manual (HCM),* with the assistance of the *Traffix* (version 8.0) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS. The volume to capacity ratio is defined as the critical volumes divided by the intersection capacity. A volume to capacity (V/C) ratio greater than 1.0 implies an infinite queue. Signalized intersections are considered deficient (LOS F) if the overall intersection critical V/C ratio equals or exceeds 1.0 when the LOS defined by the delay value is below the defined LOS standard.

The CMP requires the signalized intersection analysis to be run using the optimized signal timing since the future analysis will normally run using optimized timing. This includes applying the existing peak hour cycle length and loss time (2 seconds per phase) in seconds, as well as appropriating the minimum green time per cycle to account for pedestrian safety and signal coordination. In addition, saturation flow rates and peak hour factor adjustments have been inputted into the analysis software to provide for accurate intersection delay calculations.

Unsignalized intersections were also analyzed under peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapter 17 of the *2000 Highway Capacity Manual (HCM),* with the assistance of the *Traffix* (version 8.0) computer software.

Appendix A contains excerpts of the CMP Guidelines that pertain to *Traffix* software settings for existing and future scenarios.

3.3.2 *Roadway Segments*

Roadway segment analysis was conducted for Weekday volumes only and is based on the comparison of daily traffic volumes (ADTs) to the City of Barstow's *Level of Service Descriptions and Daily Roadway Capacities Table.* This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The City of Barstow's *Level of Service Descriptions and Daily Roadway Capacities Table* is included in ***Appendix B.***

3.3.3 *Freeway Segments*

The analysis of freeway segment LOS is based on the procedure developed by Caltrans District 8 based on methods described in the *Highway Capacity Manual.* The procedure involves comparing the peak hour volume of the segment to the theoretical capacity of the roadway (V/C). The procedure for calculating freeway LOS involves the estimation of volume to capacity (V/C) ratio using the following equation:

$$V/C = \frac{((AADT \times \text{Peak Hour Percent} \times \text{Directional Factor})/(\text{Truck Terrain Factor}))}{\text{Lane Capacity}}$$

AADT = Average Annual Daily Traffic
Peak Hour Percent = Percentage of ADT occurring during the peak hour.
Directional Factor = Percentage of peak hour traffic occurring in peak direction.
Truck Factor = Truck/terrain factor to represent influence of heavy vehicles & grades.
Capacity = 2,300 vehicles/lane/hour/lane for mainline.

The resulting V/C is then compared to accepted ranges of V/C values corresponding to the various LOS for each facility classification, as shown in ***Table 3–1.*** The corresponding LOS represents an approximation of existing or anticipated future freeway operating condition in the peak direction of travel during the peak hour.

Appendix C contains the 2008 24-hour count at I-15 (Barstow)/ Lenwood Road at postmile 68.770 and 2007 Caltrans volumes. Based on this information, relevant K and D factors were developed and utilized in the analysis.

TABLE 3–1
CALTRANS DISTRICT 8
FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LOS	V/C	Congestion/Delay	Traffic Description
USED FOR FREEWAYS, EXPRESSWAYS AND CONVENTIONAL HIGHWAYS			
A	<0.41	None	Free flow
B	0.42-0.62	None	Free to stable flow, light to moderate volumes.
C	0.63-0.80	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	0.81-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
E	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
USED FOR FREEWAYS AND EXPRESSWAYS			
F(0)	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
F(l)	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
F(2)	1.36-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
F(3)	>1.46	Extremely Severe 3+ hours of delay	Gridlock

Source: Caltrans District 8
Notes:
LOS = Level of Service
V/C = Volume/Capacity

4.0 IMPACT CRITERIA

The following impact criterion is based on the CMP requirements and the City of Barstow General Plan.

A project would create an adverse impact if it would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the roadway system (i.e., result in a substantial increase in either the number of vehicle trips, the V/C ratio on roads, or congestion at intersections); or
- Exceed, either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways. The City of Barstow General Plan states that peak hour intersection operations of LOS D or better are acceptable. Therefore, any intersection operating at LOS E to F is considered deficient.

Please note that for the purposes of this analysis, a "substantial" increase in intersection delay was considered to be 10 seconds or more for LOS D or better-operating intersections, and 2.0 seconds or more for LOS E/F operating intersections. A "substantial" increase in V/C ratio is considered to be 0.50 or more for LOS D or better-operating segments, and 0.02 or more for LOS E/F operating intersections.

The LOS threshold for non-freeway, state highway facilities (i.e. the I-15 interchange intersections) will be the same as the jurisdiction where the facility is located but no greater than a 45 second average delay per vehicle in the peak hour (middle of LOS D). Caltrans acknowledges that this may not always be feasible. Therefore, all study intersections, both within and outside the Barstow city limits, were analyzed using the LOS D as the minimum LOS standard.

The CMP threshold for freeway operations is based on maintaining an LOS E or better, except where an existing LOS F condition is identified in the CMP document (Table 2-1). Any freeway segment operating or projected to operate at LOS F is unacceptable, unless the segment is identified explicitly in the CMP document.

5.0 EXISTING CONDITIONS

5.1 Existing Roadway Network

Interstate 15 (I-15) is a north-south freeway located east of the project site. It currently provides a total of six lanes (three lanes in each direction) within the study area, and provides connections to the Los Angeles region to the south and I-40 to the north. I-15 is a major freight corridor.

State Route 58 (SR-58) is a major east-west roadway that provides access between the San Joaquin Valley and I-15. SR-58 is one of the few continuous east-west roadways in this portion of San Bernardino County. Between I-15 and Lenwood Road, SR-58 is classified as a Proposed Freeway on the City of Barstow General Plan Circulation and Transportation Technical Report, April 20, 1997, and is currently built as a four-lane limited-access expressway. West of Lenwood Road, SR-58 is a two-lane rural roadway.

Lenwood Road is a north-south and east-west roadway which varies from a two-lane undivided to four-lane divided road and is currently classified as a Major Highway at the point where it transition north from Outlet Center Drive at Morton Street on the City of Barstow General Plan Circulation and Transportation Technical Report.

Main Street is an east-west four-lane undivided roadway currently classified as a Major Highway on the City of Barstow General Plan Circulation and Transportation Technical Report. Main Street is the key east-west arterial through the City of Barstow.

Outlet Center Drive is an east-west two-lane undivided roadway and is currently unclassified on the City of Barstow General Plan Circulation and Transportation Technical Report. Outlet Center Drive continues northeast eventually turning into Lenwood Road.

Mercantile Way is an east-west two-lane undivided roadway and is currently classified as a Major Highway on the City of Barstow General Plan Circulation and Transportation Technical Report.

High Point Parkway is an east-west four-lane divided roadway and is currently classified as a Proposed Major Highway on the City of Barstow General Plan Circulation and Transportation Technical Report.

Factory Outlet Avenue is a north-south access driveway that serves the Barstow Outlets located on Mercantile Way.

Figure 5–1 shows the City of Barstow General Plan Circulation Element. ***Figure 5–2*** displays the existing conditions diagram of the study area.

5.2 Existing Traffic Volumes

5.2.1 *Peak Hour Intersection Volumes*

Linscott, Law & Greenspan Engineers (LLG) commissioned Weekday and Saturday Mid-Day and PM peak hour turning movement counts for the study area intersections in January 2009 (see Section 5.2.1). Truck volumes were segregated from passenger vehicle volumes and were converted to PCE volumes, to reflect the fact that trucks take up more room than automobiles and are typically slower during acceleration and deceleration, and thus utilize greater roadway capacity. Based on CMP guidelines, the following PCE values were used:

- Two-axle trucks = 1.5 Passenger Car Equivalent
- Three-axle trucks = 2.0 Passenger Car Equivalent
- Four-plus-axle trucks = 3.0 Passenger Car Equivalent

Total PCE volumes at intersections were developed by applying the average PCE factor from the existing percent of trucks on the roadway network. The same PCE conversion factors were also applied to the Saturday counts.

Peak Hour Intersection Analysis

Based on a review of Weekday traffic activity at numerous casinos, it is observed that there is minimal traffic during the AM peak hour and a higher amount of traffic during the PM peak hour. The Weekend peak tends to be around the noon hour and early evening on Saturdays and is higher than the Weekday PM peak hour. Ambient traffic is higher during the Weekday PM peak hour. Therefore, peak hour analysis of intersections was conducted for the following four time periods:

- Weekday: Mid-Day (12:00 PM to 2:00 PM) and Afternoon (4:00 PM to 6:00 PM)
- Saturday: Mid-Day (12:00 PM to 2:00 PM) and Early Evening (5:00 PM to 7:00 PM)

For consistency purposes, the Weekday and Saturday peak hours will be referred to as Mid-Day and PM throughout this report.

5.2.2 *Roadway Segment Volumes*

The existing daily roadway segment traffic volumes were calculated from the PM Weekday peak hour counts conducted by LLG in January 2009. Based on historical count data in the project area, it was determined that the PM peak hour calculates to approximately 11.5% of the average daily traffic. Therefore, the following formula was used to determine the daily segment volumes:

PM Peak Hour (Approach + Exit Volume) x 11.5 = Daily Leg Volume

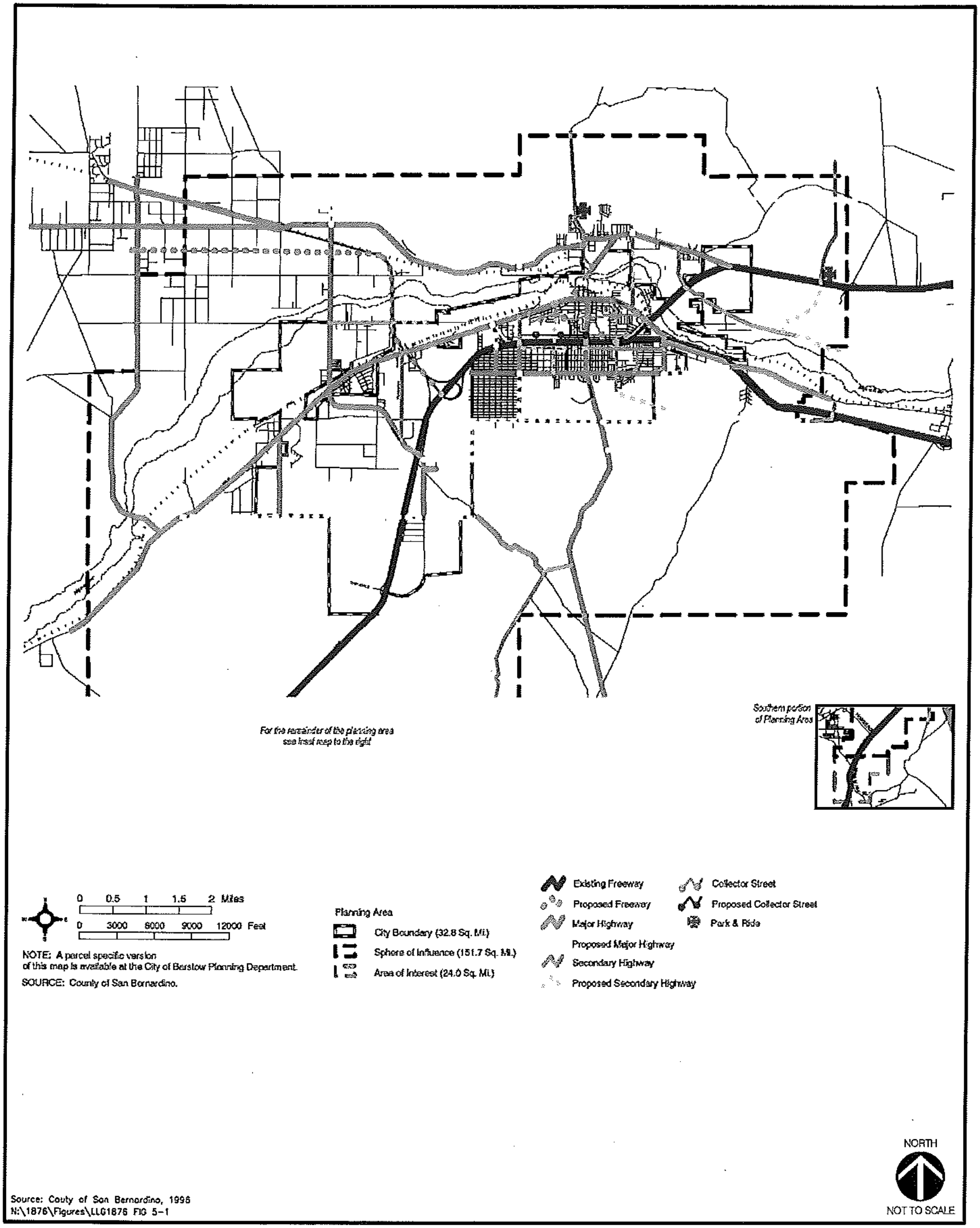
This provides for a conservative analysis as it may over estimate the average daily traffic volumes.

5.2.3 *Freeway Segment Volumes*

The most current 2008 freeway volumes were obtained from Caltrans. The most current count in the vicinity of the I-15 was at Lenwood Road. LLG received 24-hour counts for the month of June 2008. With this information, it was possible to obtain the most up-to-date Mid-Day and PM peak hour volumes and their directional splits. This information was applied to the I-15 segments analyzed in this study. Per our conversation with the Traffic Census Coordinator from Caltrans, Horatius Petreaca, the June 2008 volumes are approximately 2 percent higher than average daily conditions. Therefore, using the June volumes provides a conservative analysis. In addition, it should be mentioned that the 2008 Weekday daily traffic volumes for the Lenwood Road traffic station counts were approximately 55,800. In 2007, the average counts at this station were 55,000. Thus, considering June counts were higher than average, little or no growth has taken place.

Figure 5–3a depicts the Existing Weekday Mid-Day and PM peak hour traffic volumes and ***Figure 5–3b*** shows the existing Saturday Mid-Day and PM peak hour traffic volumes at the study intersections.

Appendix D contains the manual count sheets for study area intersections (adjusted for flow conservation).



LINSCOTT LAW & GREENSPAN engineers

Figure 5-1

City of Barstow General Plan Circulation Element

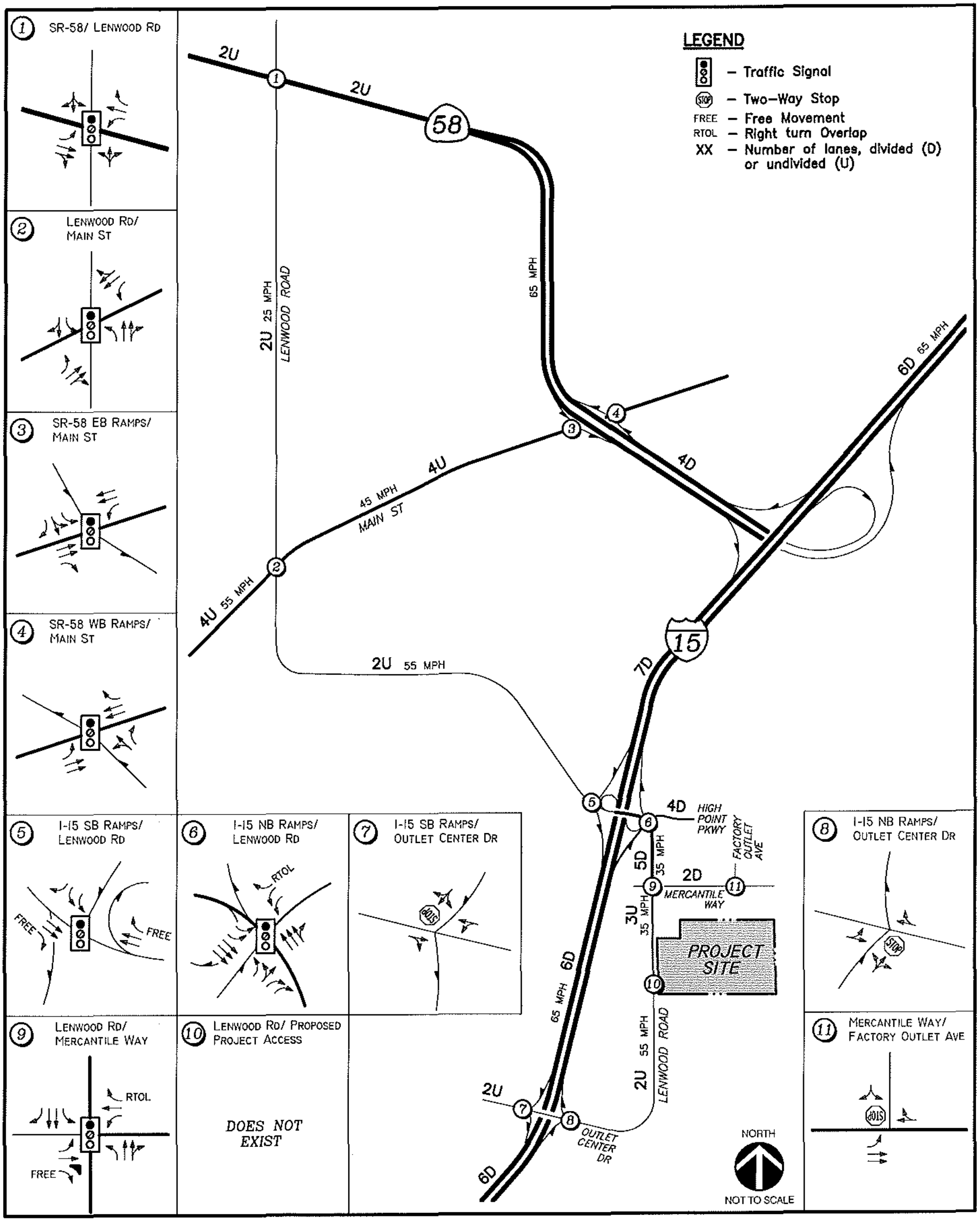


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Figure 5-2

Existing Conditions Diagram

LOS COYOTES CASINO PROJECT

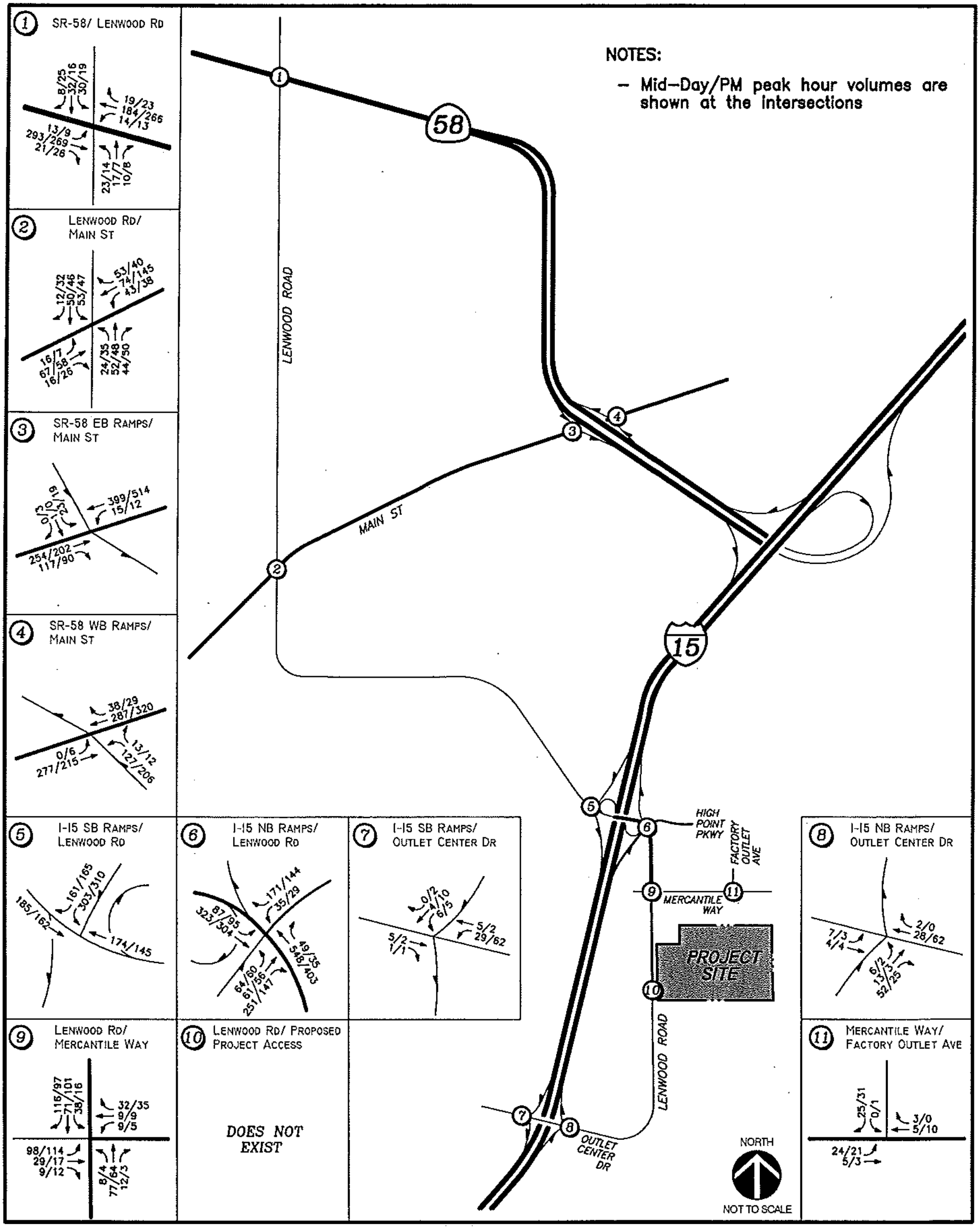

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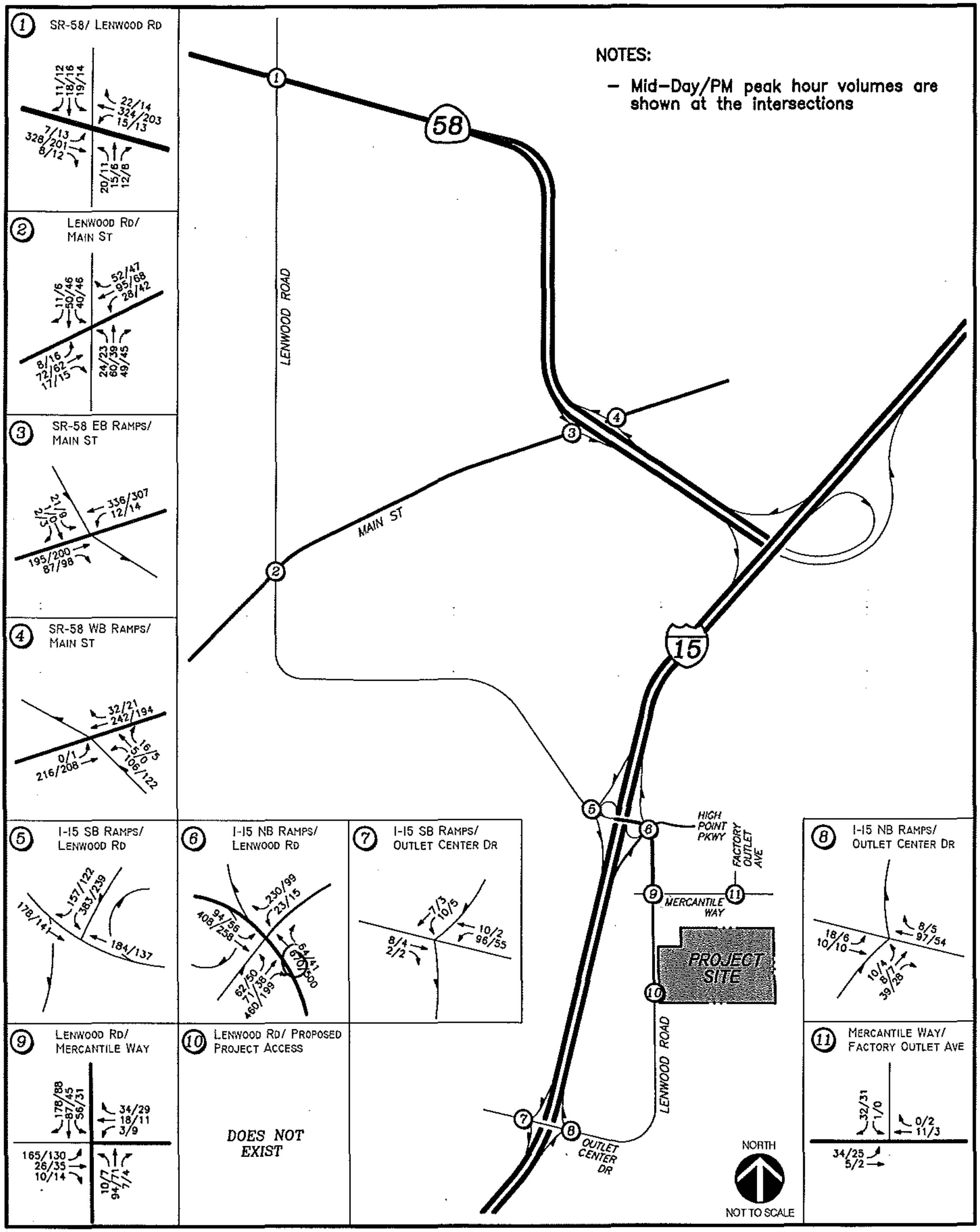
Figure 5-3a

Existing Weekday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project



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Linscott Law & Greenspan engineers

Figure 5-3b

Existing Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

6.0 ANALYSIS OF EXISTING CONDITIONS

The following is an analysis of existing conditions for the study area intersections and roadway segments.

6.1 Peak Hour Intersection Levels of Service

Table 6–1 shows that under existing conditions all of the study area intersections are calculated to currently operate at LOS C or better during the Weekday and Saturday peak hours.

Appendix E contains the Existing intersection analysis worksheets.

6.2 Roadway Segment Levels of Service

The segment LOS analysis was conducted for the study segments based on the measured traffic volumes and the methodologies described previously. ***Table 6–2*** shows that under existing conditions all of the study area roadway segments are calculated to operate at LOS A.

6.3 Freeway Segments Operations

Table 6–3 summarizes the freeway segment operations on I-15. As seen in *Table 6–3*, the all segments of I-15 operate at LOS B.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Weekday		Saturday	
			Delay [a]	LOS [b]	Delay	LOS
1. Lenwood Rd/ SR-58	Signal	MD PM	9.8 7.6	A A	7.4 7.9	A A
2. Lenwood Rd/ Main Street	Signal	MD PM	31.2 28.3	C C	28.7 27.9	C C
3. Main St/ SR-58 EB Ramps	Signal	MD PM	3.0 2.4	A A	3.2 2.2	A A
4. Main St/ SR-58 WB Ramps	Signal	MD PM	9.4 12.1	A B	9.8 10.6	A B
5. Lenwood Rd/ I-15 SB Ramps	Signal	MD PM	10.3 10.1	B B	10.3 9.9	B A
6. Lenwood Rd/ I-15 NB Ramps	Signal	MD PM	15.4 14.4	B B	17.6 14.0	B B
7. Outlet Center Dr/ I-15 SB Ramps	OWSC[c]	MD PM	9.6 9.8	A A	10.9 10.3	B B
8. Outlet Center Dr/ I-15 NB Ramps	OWSC	MD PM	8.9 8.6	A A	9.2 8.8	A A
9. Lenwood Rd/ Mercantile Way	Signal	MD PM	26.7 25.9	C C	28.6 28.1	C C
10. Lenwood Rd/ Proposed Project Access	DNE	MD PM	— —	— —	— —	— —
11. Factory Outlet Ave/ Mercantile Way	OWSC	MD PM	8.5 8.5	A A	8.5 8.5	A A

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

General Notes:
MD = Mid-Day
DNE = Does not exist

SIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS	UNSIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS
0.0 < 10.0	A	0.0 < 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
> 80.1	F	> 50.1	F

TABLE 6–2
EXISTING ROADWAY SEGMENT OPERATIONS

Weekday					
Roadway Segment	**Existing Classification**	**LOS E Capacity [a]**	**Volume [b]**	**LOS [c]**	**V/C [d]**
Lenwood Road					
I-15 NB Ramps to Mercantile Way	Five-Lane Divided [e]	33,000	10,560	A	0.32
Mercantile Way to Proposed Project Access	Three-Lane Undivided [f]	21,000	2,220	A	0.11
Proposed Project Access to Outlet Center Drive	Two-lane Undivided	14,000	1,270	A	0.09
Outlet Center Drive					
Lenwood Road to I-15 NB Ramps	Two-Lane Undivided	14,000	1,040	A	0.07

Footnotes:

a. Capacities based on VI.1.4 Level of Service Description and Roadway Classification Table.
b. Average Daily Traffic (ADT) Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Five-lane divided roadway capacity taken from averaging six-lane and four-lane capacity.
f. Three-lane undivided roadway capacity taken from averaging four-lane and two-lane capacity

V/C Ratio	LOS
0.000 – 0.600	A
0.601 – 0.700	B
0.701 – 0.800	C
0.801 – 0.900	D
0.901 – 1.000	E
> 1.000	F

TABLE 6–3
EXISTING FREEWAY SEGMENT OPERATIONS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity[a]	Volume [b]	% K [c] MD	% K [c] PM	% D[c] MD	% D[c] PM	Truck Factor [d]	Peak Hour Volume [e] MD	Peak Hour Volume [e] PM	V/C [f] MD	V/C [f] PM	LOS MD	LOS PM
Weekday															
I-15															
L Street to Lenwood Road	NB	3M	6,900	61,000	0.071	0.057	0.4710	0.4433	0.96	2,125	1,606	0.308	0.233	B	B
	SB	3M	6,900		0.071	0.057	0.5290	0.5567		2,387	2,016	0.346	0.292	B	B
Outlet Center Drive to Hodge Road	NB	3M	6,900	56,000	0.071	0.057	0.4710	0.4433	0.96	1,951	1,474	0.283	0.214	B	B
	SB	3M	6,900		0.071	0.057	0.5290	0.5567		2,191	1,851	0.318	0.268	B	B

Footnotes:

a. Capacity calculated at 2300 vehicles per hour (vph) per lane
b. Existing ADT Volumes from CALTRANS online Traffic and Vehicle Data Systems Unit, 2007
c. Peak Hour Percentage (K) and Direction Split (D) derived from CALTRANS most current volumes (June 2008)
d. Truck Factor from "2007 Annual Average Daily Truck Traffic on the California State Highway System"
e. Peak Hour Volume = ((ADT)(K)(D)/Truck Factor)
f. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

General Notes:

MD = Mid-Day

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

As previously mentioned, the proposed Los Coyotes Casino Project proposes two alternatives. Alternative A consists of the development of a 229,020-square foot casino with approximately 88,500 SF of gaming floor and a 160-room hotel. Alternative B consists of all project components identified under Alternative A with the exception of the 100-room hotel, thus making the casino development 164,400 SF with a 57,070-square foot gaming area. In addition, both alternatives propose a drive-in restaurant consisting of 5,860 SF of canopy space which would accommodate approximately 20 vehicles.

7.1 Trip Generation

Trip generation rates were determined for the Weekday Average Daily Traffic (ADT) volumes, Mid-Day and PM peak hour conditions and for the Saturday Mid-Day and PM peak hour conditions.

7.1.1 *Casino Trip Generation*

The Institute of Transportation Engineers (ITE), Trip Generation Handbook was reviewed to determine trip generation rates for casinos. However, the rates are based on casinos significantly different in nature than the proposed project, primarily those found in Reno, Las Vegas, and Atlantic City. Therefore, ITE rates for casinos were not utilized in this analysis.

The Shingle Springs Rancheria Interchange Transportation/Circulation Report dated April 2002, conducted by David Evans & Associates, was used to determine the Los Coyotes trip generation. The data collected in this study is based on casinos similar in nature to the proposed project.

Per the Shingle Springs Rancheria Interchange Transportation/Circulation Report, the approach used for establishing trip generation rates for the casino investigates trip generation characteristics at five California Indian gaming casinos. This approach uses the results of a marketing study which established potential trips to the Shingle Springs Rancheria Casino to provide a basis from which potential casino revenues could be generated. It also established rates based on information within traffic studies for five other California casinos.

The trip generation rates and directional splits surveyed from these five casinos have been used to establish the trip generation rates for the project. The use of this methodology has been confirmed through conversations with City staff.

Trip generation excerpts from the Shingle Springs Rancheria Interchange Transportation/Circulation Report are contained in ***Appendix F***.

7.1.2 *Hotel Trip Generation*

The existence of the hotel will not necessarily result in a significant increase in trip generation from that which the casino would generate if a hotel did not exist. This is due to the fact that the existence of the hotel will result in an increase in the level of internal trips. The concept of internal capture is that some of the trips occur entirely within the project boundaries and do not affect the external roadway network. The marketing study conducted for the Shingle Springs Rancheria Casino confirmed that nearly all of hotel guests are there primarily to visit the casino, hence they are internal trips accounted for within the trip generation characteristics of the casino itself. Adding trip generation for them based on the hotel would result in a double counting of trips. Although it seems reasonable to conclude that the hotel would not add new trips to those expected by the casino itself, to be conservative, this analysis assumes that the hotel would generate 25% of the trips which would be generated by the hotel if it stood alone. Trip generation rates for the hotel were obtained from the (ITE) *Trip Generation Manual*, 8th Edition, 2008 and are shown in *Appendix F.*

7.1.3 *Drive-In Restaurant Trip Generation*

The proposed drive-in restaurant would be similar in nature to a Sonic Drive-In. This type of eatery operates differently than a typical fast food restaurant. Patrons drive into the canopy space and remain in their automobiles while ordering and eating their meal. Therefore, the ITE trip generation rate for "high-turnover (sit-down) restaurant" was used to determine the number of trips. *Appendix F* contains the ITE excerpt showing these rates.

Total Trips

Based on the developed trip rate, ***Table 7–1*** shows that, Alternative A is calculated to generate approximately 10,105 ADT during the weekday with 996 total trips during the weekday Mid-Day peak hour (585 inbound / 411 outbound) and 1,223 total trips during the weekday PM peak hour (651 inbound / 572 outbound). On Saturdays, Alternative A is calculated to generate approximately 14,784 ADT with 1,692 total trips during both the Mid-Day and PM peak hours (786 inbound / 906 outbound).

Alternative B is calculated to generate approximately 7,433 ADT during the weekday with 732 total trips during the weekday Mid-Day peak hour (429 inbound / 303 outbound) and 894 total trips during the weekday PM peak hour (477 inbound / 417 outbound). On Saturdays, Alternative B is calculated to generate approximately 10,844 ADT with 1,235 total trips during the Saturday Mid-Day and PM peak hours (575 inbound / 660 outbound).

Primary Trips

In addition, a large portion of casino project trips will not be new to the roadway system, but are captured from trips already on the roadway system. A significant percentage of the through traffic on I-15 consists of vehicles traveling to and from Las Vegas (a large percentage of these trips have a known propensity to gamble). Also, the Los Coyotes Casino Project will be an attractive stop for vehicles traveling a significant distance to and from other locations. Thus, many of the people visiting the casino will be people who would have already been on the roadway system in route to their primary destinations. These trips are termed "pass-by" trips and are assumed to be already on the roadways for another purpose. For this traffic analysis, it was assumed that 40% of trips for this type of casino development would be pass-by trips. This methodology was taken from the Shingle Springs Rancheria Interchange Transportation/Circulation Report and is considered appropriate by City staff. The drive-in restaurant land use also attracts pass-by trips. Based on San Diego Association of Governments (SANDAG) trip generation rates, it is assumed 20% of the restaurant trips would be pass-by trips, thus the primary trips are calculated by subtracting the pass-by trips from the total project trips.

Table 7–1 also shows the total trips segregated by primary trips and pass-by trips.

Given the difference in the nature of primary and total trips, the analysis accounted for each in the following way: "Total Trips" were assumed to the project driveway and adjacent intersections on Lenwood Road to reflect the fact that the project generates 100% of Total Trips. "Primary Trips" were assigned to the intersections and state highway system to account for the fact that much of the total traffic is indeed pass-by related.

7.2 Trip Distribution/Assignment

Since the majority of the hotel patrons hotel would likely result from the attraction to the casino, the trip distribution for these two land uses were assumed to be the same. However, the drive-in restaurant would likely draw patrons that may not necessarily be attracted to the hotel and/or casino. Therefore, separate trip distributions were conducted for the casino and hotel, and the drive-in restaurant. The trip distributions for the primary project trips were determined based on the location of population centers from which the casino, hotel, and drive-in restaurant are expected to draw both customers and employees. ***Figure 7–1a*** illustrates the project primary trip distribution for the casino and hotel and ***Figure 7–1b*** shows the drive-in restaurant distribution. The casino project distribution was confirmed in conversations with City staff.

Pass-by trips for the casino were assigned to the roadway system assuming 75% of the trips oriented to/from the north and 25% oriented to/from the south. Pass-by trips were assumed to use the I-15/ Lenwood Road interchange. Pass-by trips for the drive-in restaurant were assumed to occur locally and were therefore only added to the project driveway. Adding the primary trips with the pass-by trips results in the total project trips assigned to the study area roadway network.

Figure 7–2a depicts the project weekday traffic volumes assignment and ***Figure 7–2b*** depicts the Project Saturday traffic volume assignment for Alternative A. Similarly, ***Figure 7–3a*** depicts the Project Weekday traffic volumes assignment and ***Figure 7–3b*** depicts the project Saturday traffic volume assignment for Alternative B.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Quantity	Daily Trip Ends (ADT)		Mid-Day Peak Hour					PM Peak Hour				
		Rate [a,b]	Volume	Rate [a,b]	In:Out Split	Volume In	Volume Out	Volume Total	Rate [a,b]	In:Out Split	Volume In	Volume Out	Volume Total
WEEKDAY ALTERNATIVE A													
Hotel	160 Rms	2.06	330	0.15	0.09:0.06	14	10	24	0.15	0.08:0.07	12	11	23
Casino	229.02 KSF	39.43	9,030	3.95	2.34:1.61	536	369	905	4.95	2.62:2.33	600	534	1,134
High-Turnover Sit-Down Restaurant	5.86 KSF	127.15	745	11.52	5.99:5.53	35	32	67	11.15	6.58:4.57	39	27	66
Total Trips			**10,105**	—	—	**585**	**411**	**996**	—	—	**651**	**572**	**1,223**
Casino Pass-by [c]	*40%*		*(3,612)*	—	—	*(214)*	*(147)*	*(361)*	—	—	*(240)*	*(213)*	*(453)*
Restaurant Pass-by [d]	*20%*		*(149)*	—	—	*(7)*	*(6)*	*(13)*	—	—	*(8)*	*(5)*	*(13)*
Primary Trips			**6,344**	—	—	**364**	**258**	**622**	—	—	**403**	**354**	**757**
SATURDAY ALTERNATIVE A													
Hotel	160 Rms	2.05	328	0.18	0.10:0.08	16	13	29	0.18	0.10:0.08	16	13	29
Casino	229.02 KSF	59.07	13,528	6.9	3.17:3.73	726	854	1,580	6.9	3.17:3.73	726	854	1,580
High-Turnover Sit-Down Restaurant	5.86 KSF	158.37	928	14.07	7.46:6.61	44	39	83	14.07	7.46:6.61	44	39	83
Total Trips			**14,784**	—	—	**786**	**906**	**1,692**	—	—	**786**	**906**	**1,692**
Casino Pass-by [c]	*40%*		*(5,411)*	—	—	*(290)*	*(342)*	*(632)*	—	—	*(290)*	*(342)*	*(632)*
Restaurant Pass-by [d]	*20%*		*(186)*	—	—	*(9)*	*(8)*	*(17)*	—	—	*(9)*	*(8)*	*(17)*
Primary Trips			**9,187**	—	—	**487**	**556**	**1,043**	—	—	**487**	**556**	**1,043**

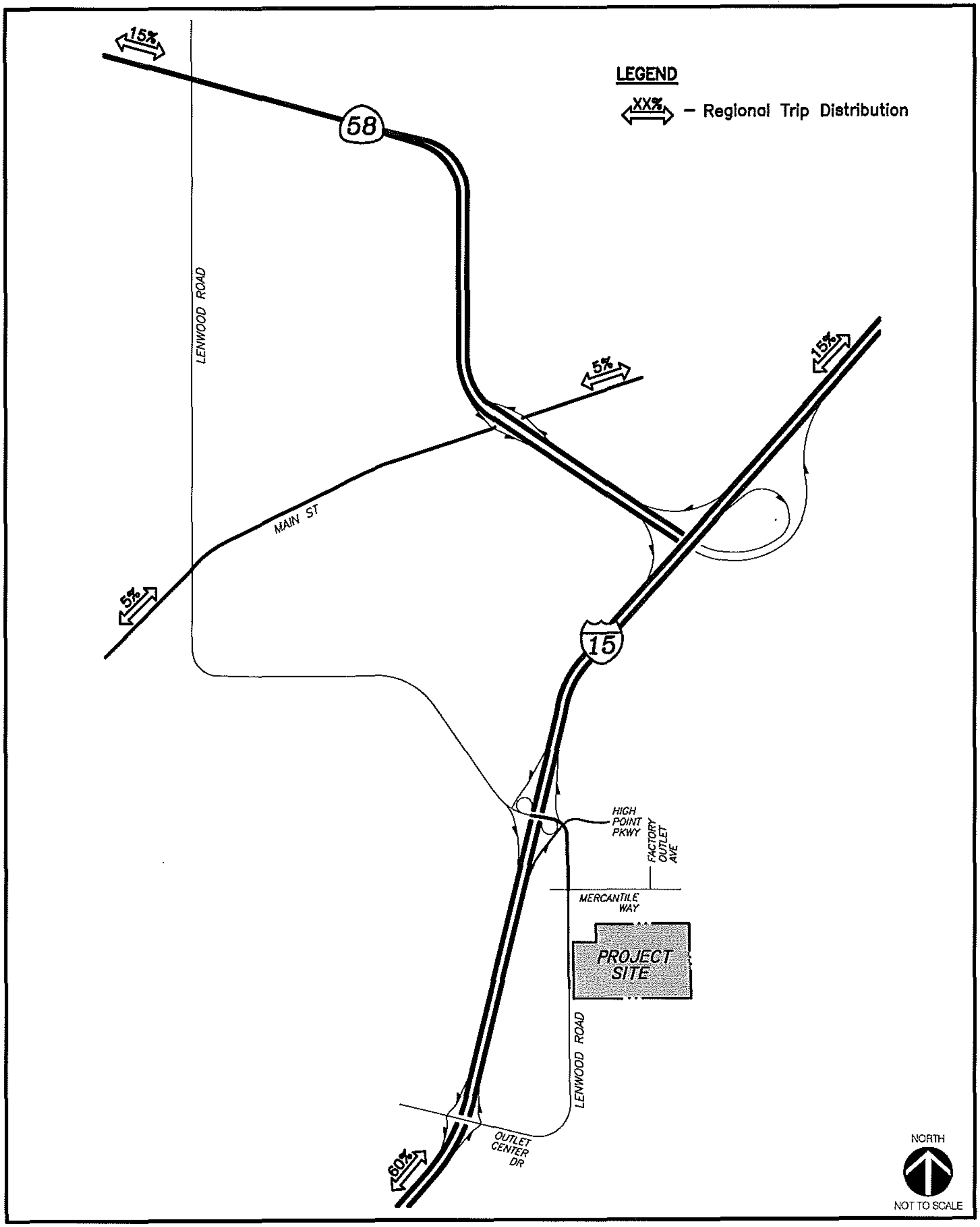
TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Quantity	Daily Trip Ends (ADT)		Mid-Day Peak Hour					PM Peak Hour				
		Rate [a,b]	Volume	Rate [a,b]	In:Out Split	Volume In	Volume Out	Volume Total	Rate [a,b]	In:Out Split	Volume In	Volume Out	Volume Total
WEEKDAY ALTERNATIVE B													
Hotel	100 Rms	2.06	206	0.15	0.09:0.06	9	6	15	0.15	0.08:0.07	8	7	15
Casino	164.4 KSF	39.43	6,482	3.95	2.34:1.61	385	265	654	4.95	2.62:2.33	430	383	813
High-Turnover Sit-Down Restaurant	5.86 KSF	127.15	745	11.52	5.99:5.53	35	32	67	11.15	6.58:4.57	39	27	66
Total Trips			**7,433**	—	—	**429**	**303**	**732**	—	—	**477**	**417**	**894**
Casino Pass-by [c]	*40%*		*(2,593)*	—	—	*(154)*	*(106)*	*(260)*	—	—	*(172)*	*(153)*	*(326)*
Restaurant Pass-by [d]	*20%*		*(149)*	—	—	*(7)*	*(6)*	*(14)*	—	—	*(8)*	*(5)*	*(13)*
Primary Trips			**4,691**	—	—	**268**	**191**	**459**	—	—	**297**	**259**	**556**
SATURDAY ALTERNATIVE B													
Hotel	100 Rms	2.05	205	0.18	0.10:0.08	10	8	18	0.18	0.10:0.08	10	8	18
Casino	164.4 KSF	59.07	9,711	6.9	3.17:3.73	521	613	1,134	6.9	3.17:3.73	521	613	1,134
High-Turnover Sit-Down Restaurant	5.86 KSF	158.37	928	14.07	7.46:6.61	44	39	83	14.07	7.46:6.61	44	39	83
Total Trips			**10,844**	—	—	**575**	**660**	**1,235**	—	—	**575**	**660**	**1,235**
Casino Pass-by [c]	*40%*		*(3,884)*	—	—	*(208)*	*(245)*	*(453)*	—	—	*(208)*	*(245)*	*(453)*
Restaurant Pass-by [d]	*20%*		*(186)*	—	—	*(9)*	*(8)*	*(17)*	—	—	*(9)*	*(8)*	*(17)*
Primary Trips			**6,774**	—	—	**358**	**407**	**765**	—	—	**358**	**407**	**765**

Footnotes:

a. Casino trip generation rate based on Shingle Springs Rancheria Interchange Transportation/Circulation Report dated April 2002. The Saturday ADT rate is estimated for hotel land use.
b. Hotel trip generation rate based on ITE Trip Generation Manual, 8th Edition. Rate decreased by 75% to account for internal trips between the hotel and casino.
c. Casino pass-by percentages are based on Shingle Springs Rancheria Interchange Transportation/Circulation Report dated April 2002.
d. High-Turnover Sit-Down Restaurant pass-by percentages are based on SANDAG *Not So Brief Guide to Vehicle Trip Generation Rates*, April 2002.

General Notes:
KSF = Thousand Square Feet
Rms = Rooms
ADT = Average Daily Traffic Volumes



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LINSCOTT LAW & GREENSPAN engineers

Figure 7-1a

Casino & Hotel Primary Trip Distribution

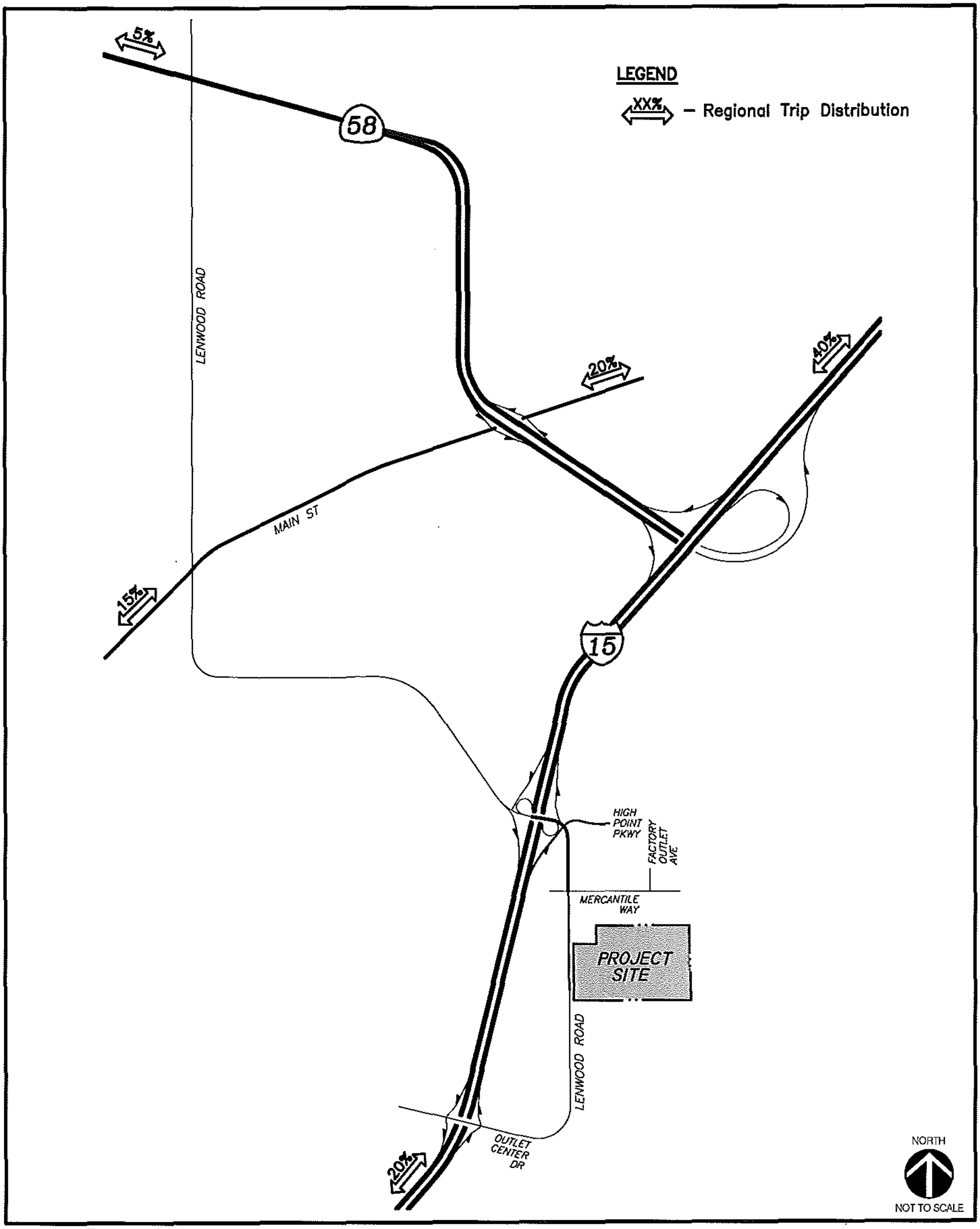

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Figure 7-1b

Drive-In Restaurant Primary Trip Distribution

LOS COYOTES CASINO PROJECT

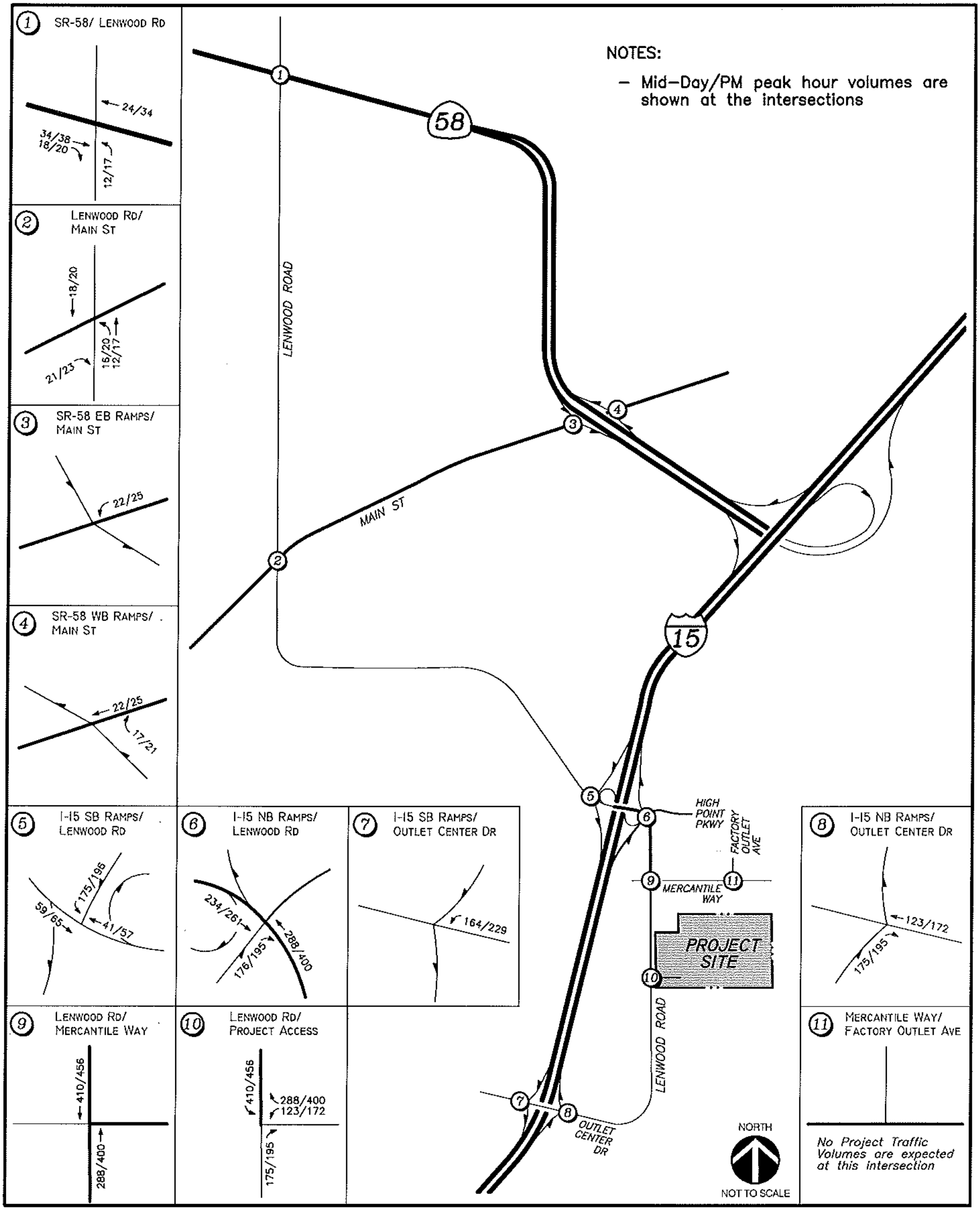

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Figure 7-2a

Project Alternative A Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

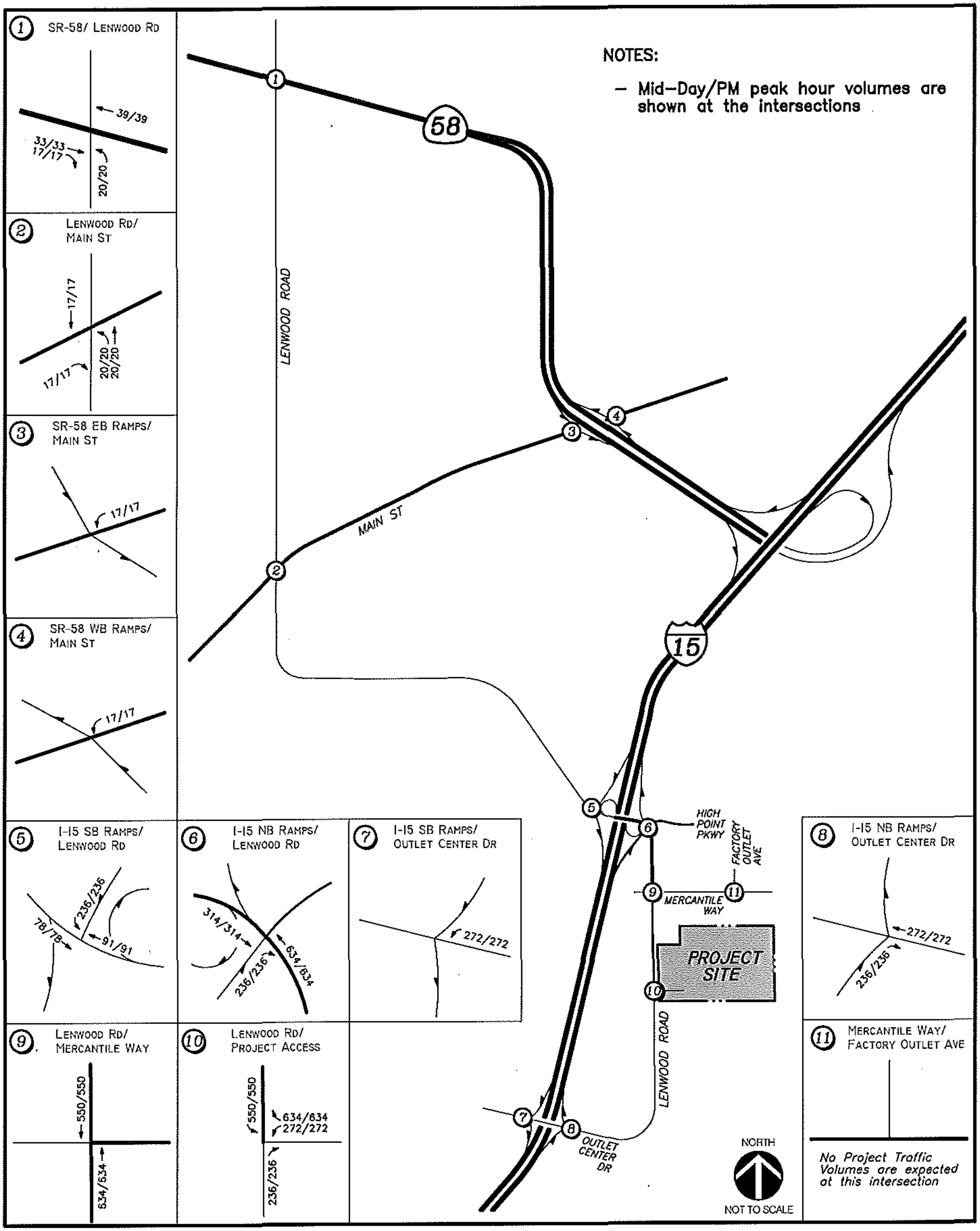

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Figure 7-2b

Project Alternative A Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

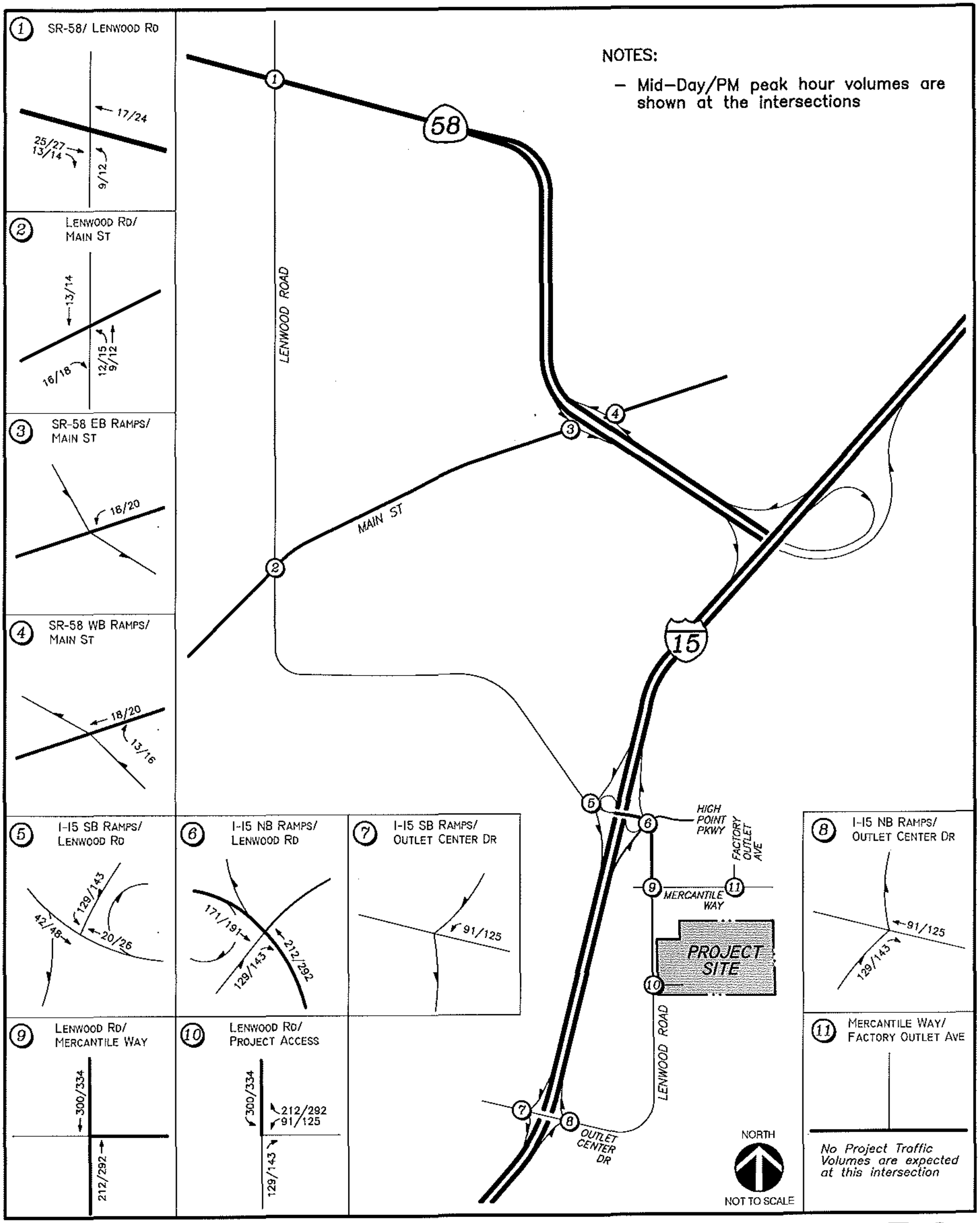

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Figure 7-3a

Project Alternative B Weekday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

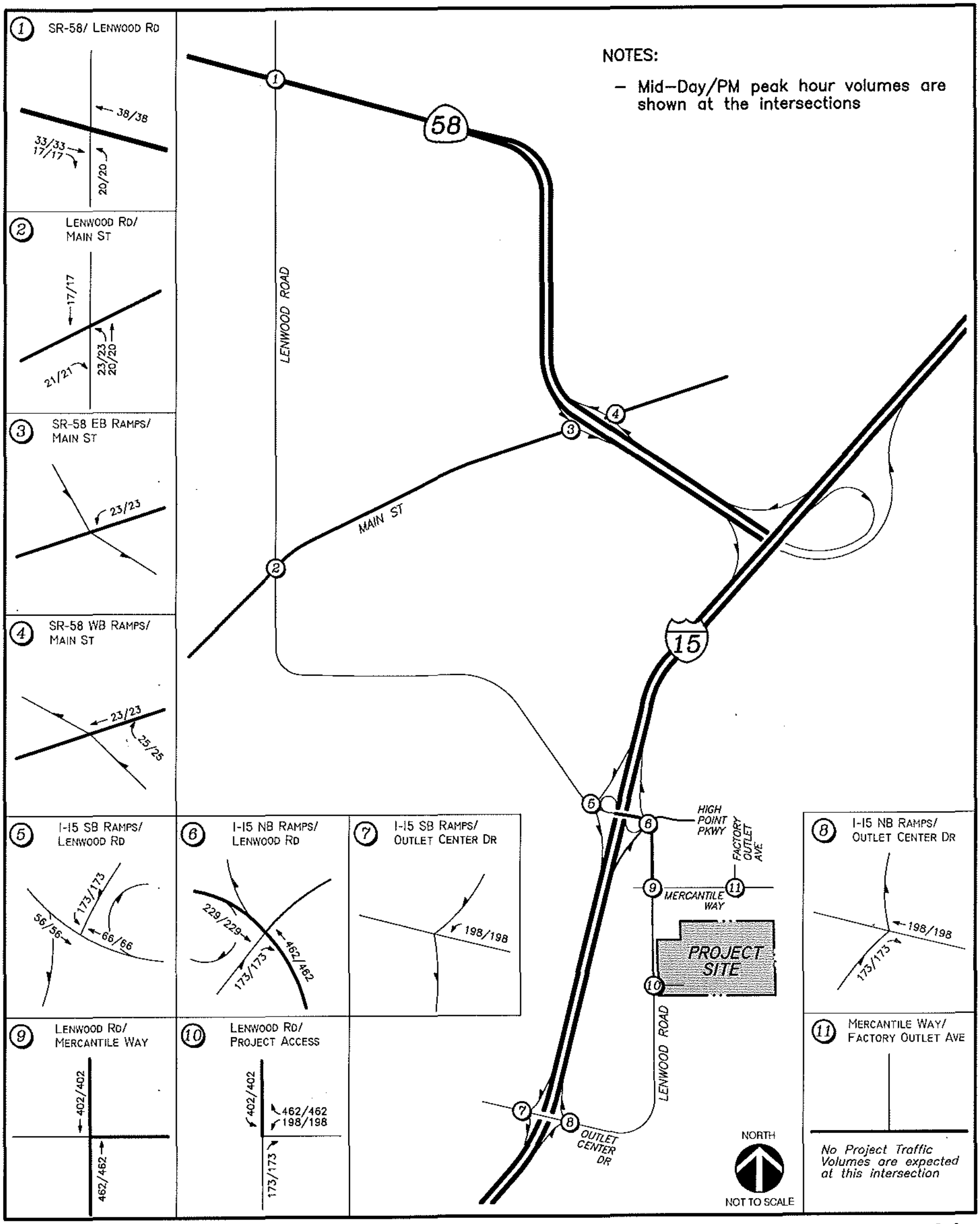

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Figure 7-3b

Project Alternative B Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

8.0 OPENING YEAR 2013 CONDITIONS

The following is a discussion of the methodology used to determined Opening Year 2013 traffic volumes. This study accounts for a general growth factor and traffic generated by specific cumulative projects.

8.1 Description of Cumulative Projects

There are other planned projects in the vicinity of the Los Coyotes Casino which will add traffic to the roadways surrounding the project site. Based on a review of other potential projects provided by the City of Barstow's Current Development Packet, July 1, 2008, it was determined that several future cumulative development projects will potentially add traffic to the study area by the Year 2013.

Since the Mid-Day 12:00 PM to 2:00 PM trip generation rates for cumulative projects were not available from the ITE Trip Generation Manual, the AM rate was used to conservatively represent Mid-Day conditions. For the Saturday analysis, Saturday trip generation rates were applied to Mid-Day and PM peak hours for land uses with available Saturday data. For land uses where Saturday data was not available, the weekday PM peak-hour trip generation rates were applied, which also is a conservative methodology.

Cumulative projects were assigned to groups (12 in total) within the vicinity of the project based on their proximity to each other, to the project, and by land use. The traffic generated by each group was then distributed to the roadway network based on its proximity to state highways and arterials that would lead to its potential destination.

The cumulative projects trip generation calculations for both Weekday Mid-Day and PM and Saturday Mid-Day and PM are shown in ***Table 8–1.***

Figure 8–1a shows the Cumulative Projects Weekday traffic volumes. ***Figure 8–1b*** shows the Cumulative Projects Saturday traffic volumes.

Appendix G contains the cumulative projects data and a group location map.

TABLE 8–1
CUMULATIVE PROJECTS
TRIP GENERATION SUMMARY

Group	Index [a]	No.	Project Name	Land Use	Quantity	Units	Weekday					Saturday	
							ADT [b]	Mid-Day		PM		Mid-Day/PM	
								In	Out	In	Out	In	Out
1	R1	1	Rimrock Ranch Specific Plan	Single-Family Residential	360	DU	3,445	68	203	238	140	177	157
1	R1	2	Canaday & Company and Rimrock Ranch Investments, LLC	Four Parcels from One Parcel	4	lots	38	1	2	3	2	2	2
1	R2	3	MGM Development	Single-Family Residential	44	DU	421	8	25	29	17	22	19
1	R3	4	A&A Surveying & Mapping/CF Properties	Single-Family and Multi-Family Residential	279	lots	2,670	52	157	185	108	138	122
1	R4	5	Mark A. Nourse	Residential	10	lots	96	2	6	7	4	5	4
1	R5	6	Mike English/ CF Properties "The Highlands"	Single-Family Residential	21	DU	201	4	12	14	8	10	9
1	R7	7	Dan Plies (Century Vintage)	Residential	450 [c]	lots	4,307	84	253	298	175	222	197
1	R8	8	Tim McCandless	Single-Family Residential	10	DU	96	2	6	7	4	5	4
1	R9	9	Rimrock Associates	Single-Family Residential	154	DU	1,474	29	87	102	60	76	67
1	R11	10	Corman-Leigh Communities, Inc.	Single-Family Residential	178	DU	1,703	33	100	118	69	88	78
1	R12	11	Desert Skys, LLC and Sun Ridge CA, LLC	Single-Family Residential	133	DU	1,273	25	75	88	52	66	58
1	R13	12	Reigel Properties	Mobile Home Park	5.26	Acres	208	3	14	15	9	12	10
1	R15	13	Project Properties Number One, LLC	Single-Family Residential	11	DU	105	2	6	7	4	5	5
1	R19	14	Pacific Holt Corporation	Single-Family Residential	301	DU	2,881	56	169	199	117	148	132
1	R22	15	Harrison Development	Single-Family Residential	379	DU	3,627	71	213	251	147	187	166

TABLE 8–1
CUMULATIVE PROJECTS
TRIP GENERATION SUMMARY

Group	Index [a]	No.	Project Name	Land Use	Quantity	Units	Weekday					Saturday	
							ADT [b]	Mid-Day		PM		Mid-Day/PM	
								In	Out	In	Out	In	Out
1	R23	16	Global Premier Development/AMG	Apartments	73	DU	485	50	198	29	16	20	18
1	R24	17	Mark Heldreth	Single-Family Residential	8	DU	77	2	5	5	3	4	3
1	R25	18	Global Premier Development/AMG	Apartments	73	DU	485	50	198	29	16	20	18
Sub-Total (Group 1)							**23,592**	**541**	**1,727**	**1,623**	**950**	**1,207**	**1,070**
2	C1	19	Drive-Thru Restaurant	Fast Food Restaurant with 2 Drive-Thru Lanes	3	KSF	1,488	76	73	53	49	94	84
				Pass-By (25%)			-372	-19	-18	-13	-12	-24	-21
				Total			1,116	57	55	40	37	70	63
2	C8	20	Office Building	Office	6.4	KSF	21	3	0	1	2	1	1
2	C9	21	Barstow Community Hospital	Hospital	118.4	KSF	616	28	11	12	27	33	29
2	C12	22	Interstate Fleet Service [c]	Tow Storage, Impound Yard, RV Repair/Sales, Propane Filling Station and Wash Bay	11.9	KSF	595	21	9	19	29	19	29
2	C15	23	Yoshinoya's Drive-Thru Restaurant	Fast-Food Restaurant w/ Drive-Thru	2.95	KSF	1,464	74	71	52	48	93	82
				Pass-By (25%)			-366	-19	-18	-13	-12	-23	-21
				Total			1,098	55	53	39	36	70	61
Sub-Total (Group 2)							**3,446**	**163**	**128**	**110**	**131**	**194**	**183**
3	C11	24	Country Inn and Suites	Hotel	92	Rooms	752	20	20	29	26	37	29
Sub-Total (Group 3)							**752**	**20**	**20**	**29**	**26**	**37**	**29**
4	C3	25	La Quinta Hotel	Hotel	103	Rooms	842	22	22	32	29	42	33
Sub-Total (Group 4)							**842**	**22**	**22**	**32**	**29**	**42**	**33**

TABLE 8–1
CUMULATIVE PROJECTS
TRIP GENERATION SUMMARY

Group	Index [a]	No.	Project Name	Land Use	Quantity	Units	Weekday					Saturday	
							ADT [b]	Mid-Day		PM		Mid-Day/PM	
								In	Out	In	Out	In	Out
5	I1	26	Concrete Manufacturing and Sales Facility	Industrial Manufacturing and Sales	15.2	KSF	32	4	2	2	3	1	1
5	I5	27	Love's Truck Stop	Industrial RV Service Shop									
				Gas Station	26	Pumps	4,383	161	155	180	180	180	180
				High-Turnover (Sit-down) Restaurant	56	Seats	270	14	13	13	10	16	14
				Fast Food w/o Drive-Thru	2.26	KSF	1,618	59	40	30	29	60	63
				Sub-Total			6,271	234	207	224	219	256	257
				Pass-By (25%)			-1,568	-59	-52	-56	-55	-64	-64
				Total			4,703	175	155	168	164	192	193
5	I9	28	Cold Storage Truck Terminal [d]	Warehouse/Truck Terminal	66.936	KSF	2,087	13	17	26	13	26	13
				Office	11.038	KSF	122	15	2	3	14	2	2
				Total			2208	28	19	29	27	28	15
Sub-Total (Group 5)							**6,944**	**208**	**176**	**199**	**194**	**222**	**209**
6	C10	28	Hotel	Hotel	92	Rooms	752	20	20	29	26	37	29
Sub-Total (Group 6)							**752**	**20**	**20**	**29**	**26**	**37**	**29**
7	R16	29	The Rock Foundation	TOTAL	450 [c]	DU	4,307	84	253	298	175	222	197
7	R17	30	Dennis Rasmussen	Single-Family Residential	12	DU	115	2	7	8	5	6	5
7	R18	31	High Desert Communities	Single-Family Residential	450 [c]	DU	4,307	84	253	298	175	222	197
Sub-Total (Group 7)							**8,728**	**171**	**513**	**603**	**354**	**450**	**399**
8	R21	32	Cambridge Homes, Inc.	Single-Family Residential	465	DU	4,450	87	262	308	181	229	203
8	R10	33	Lynn Potter and Diana Powell	Single-Family Residential	29	DU	278	5	16	19	11	14	13
Sub-Total (Group 8)							**4,728**	**93**	**278**	**327**	**192**	**243**	**216**

TABLE 8–1
CUMULATIVE PROJECTS
TRIP GENERATION SUMMARY

Group	Index [a]	No.	Project Name	Land Use	Quantity	Units	Weekday					Saturday	
							ADT [b]	Mid-Day		PM		Mid-Day/PM	
								In	Out	In	Out	In	Out
9	R20	34	Hillcrest Development	Single-Family Residential	219	DU	2,096	41	123	145	85	108	96
Sub-Total (Group 9)							**2,096**	**41**	**123**	**145**	**85**	**108**	**96**
10	I8	36	Master Planned Barstow Industrial Park 1 million SF [d]	Not Yet Established	400[e]	KSF	914	22	22	20	34	20	34
	I6	35	Wal-Mart Distribution Center	Industrial Warehouse	900	KSF							
10				Employees			708	6	0	6	12	2	1
11				Supplier Trucks (60% of truck gen)			864	22	27	23	12	22	27
12				Distribution Trucks (40% of truck gen)			576	14	18	16	18	14	18
Sub-Total (Group 10)							**3,062**	**64**	**67**	**65**	**76**	**58**	**80**
Sub-Total (Groups 11&12)							**1,440**	**36**	**45**	**39**	**30**	**36**	**45**
TOTAL							**56,380**	**1,380**	**3,120**	**3,240**	**2,121**	**2,669**	**2,433**

Footnotes:

a. Represents number assigned to project from the City of Barstow Current Development Packet, July 1, 2008.
b. Average daily traffic volume.
c. San Diego Association of Governments *Not So Brief Guide of Vehicular Traffic Generation Rates, April 2002* used to determine trip generation for specific land use.
d. *City of Fontana/ County of San Bernardino/ State of California Truck Trip Generation Study*, August 2003 used to determine trip generate for specific truck-related land use.
e. Amount of residential units or square footage for larger projects assumed to be completed by Year 2013.

General Notes:

Trip Generation based on ITE Trip Generation Manual - 8th Edition, except where noted above.
Mid-Day In/Out volumes calculated based on AM peak hour rate.
Saturday rates based on peak hour generator and applied to Mid-Day and PM peak hour.

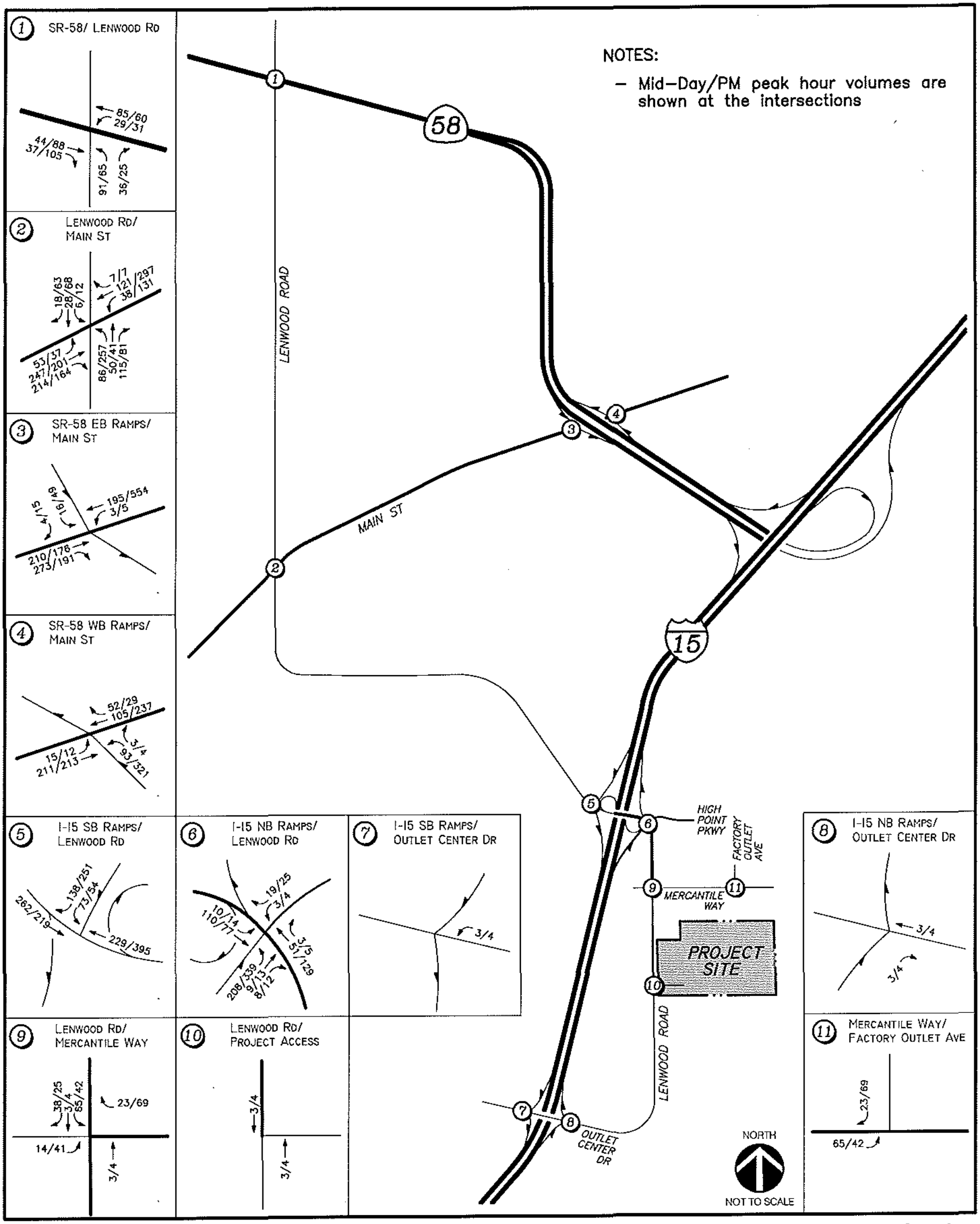

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Figure 8-1a

Cumulative Projects Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

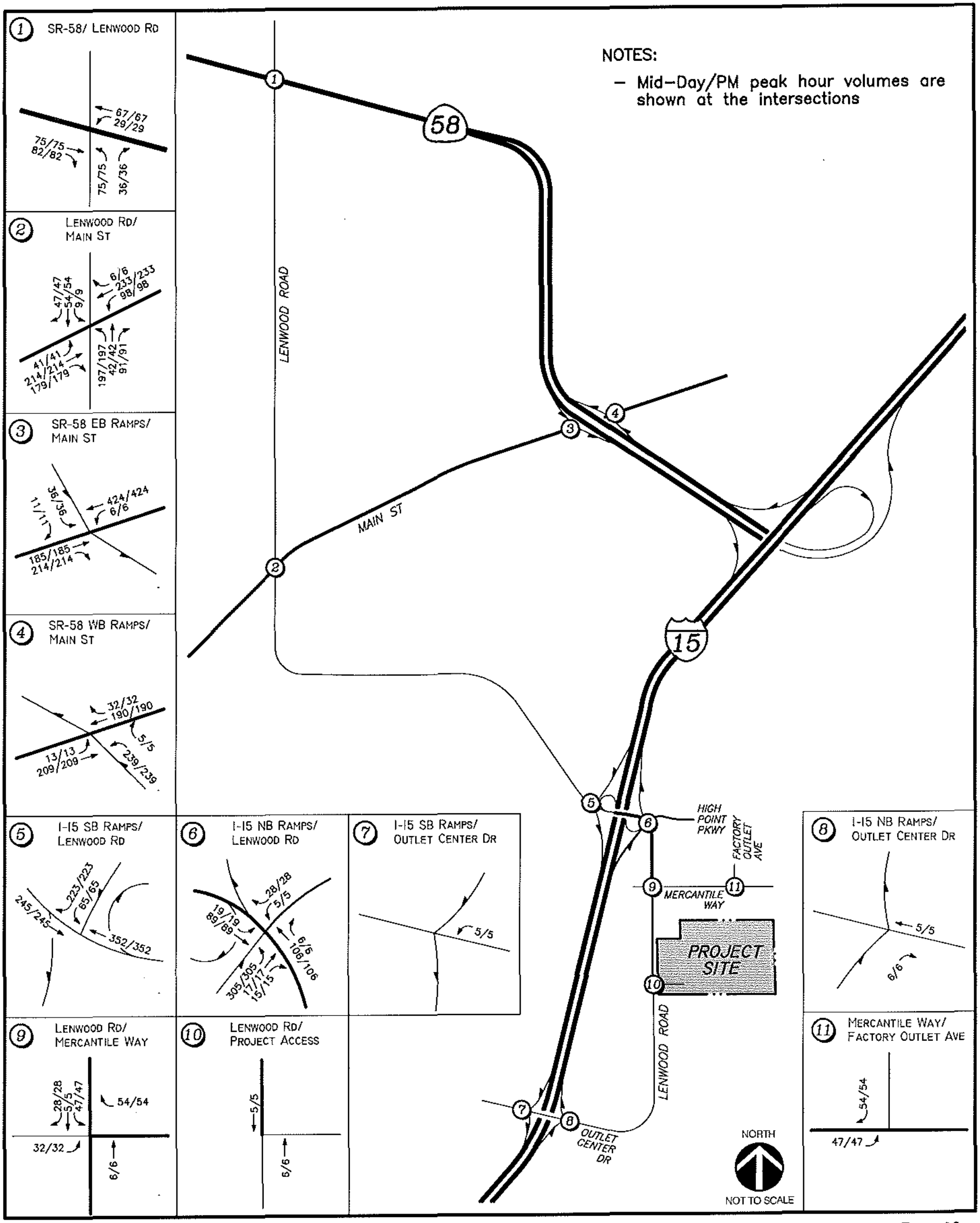

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Figure 8-1b

Cumulative Projects Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

8.2 Opening Year 2013 Traffic Volumes

Traffic generated due to general growth and specific cumulative projects were included to estimate Opening Year 2013 volumes.

8.3 Growth Factor

Opening Year 2013 traffic volumes at the existing study intersections were developed by applying a yearly growth factor to the existing peak hour volumes. An average annual growth rate was calculated using 1997 to 2007 data on California highways from Caltrans. This growth rate was found to be just over 3%. Thus, to provide for a conservative analysis, a 4 percent per year for 4 years growth rate was applied at study area intersections, segments and freeway segments to forecast the 2013 volumes.

Figure 8–2a shows the Opening Year 2013 Weekday traffic volumes and ***Figure 8–2b*** shows the Opening Year 2013 Saturday traffic volumes.

Figure 8–3a shows the Opening Year 2013 with Project Alternative A Weekday traffic volumes and ***Figure 8–3b*** shows the Opening Year 2013 with Project Alternative A Saturday traffic volumes. ***Figure 8–4a*** shows the Opening Year 2013 with Project Alternative B Weekday traffic volumes and ***Figure 8–4b*** shows the Opening Year 2013 with Project Alternative B Saturday traffic volumes.

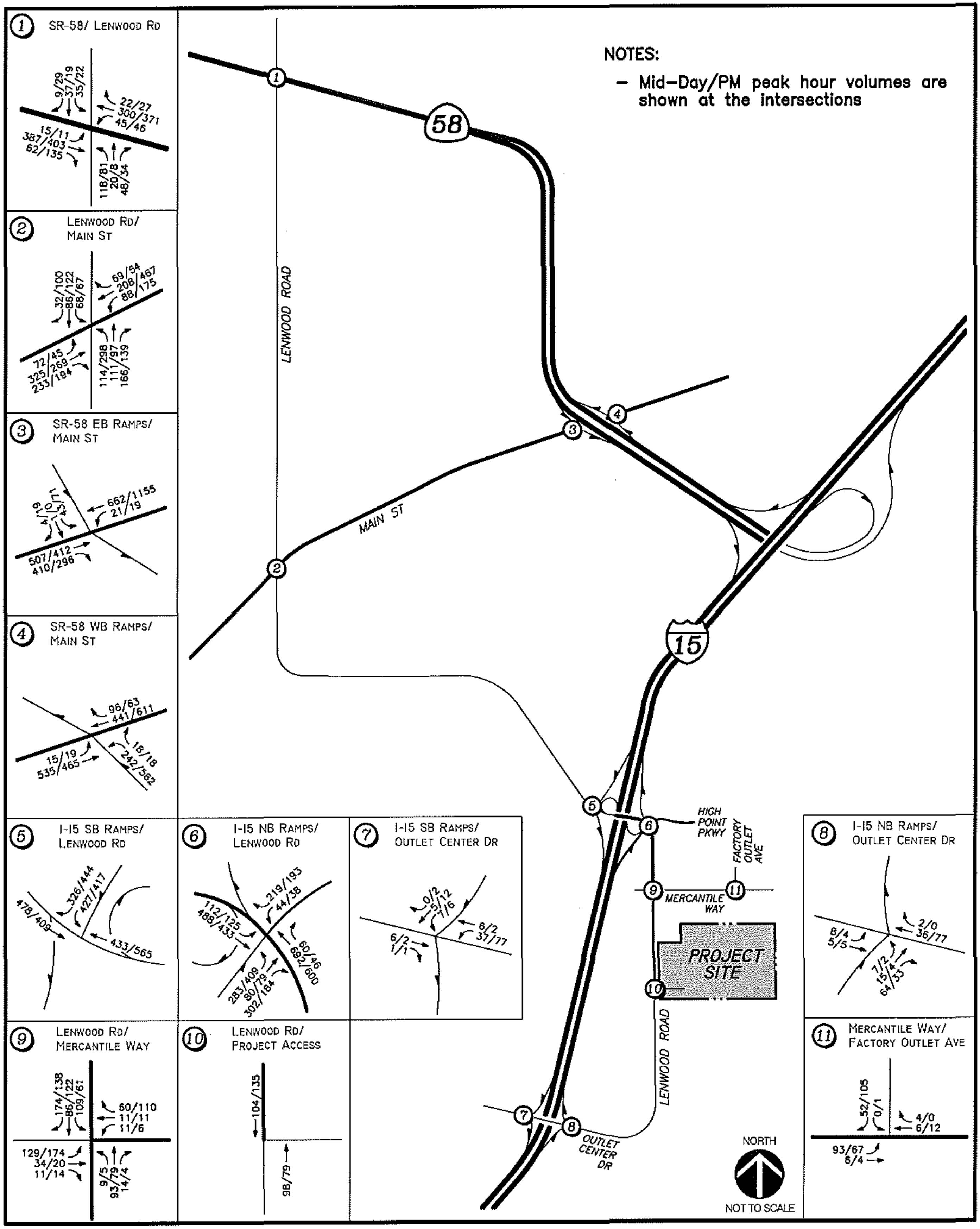

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Figure 8-2a

Opening Year 2013 Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

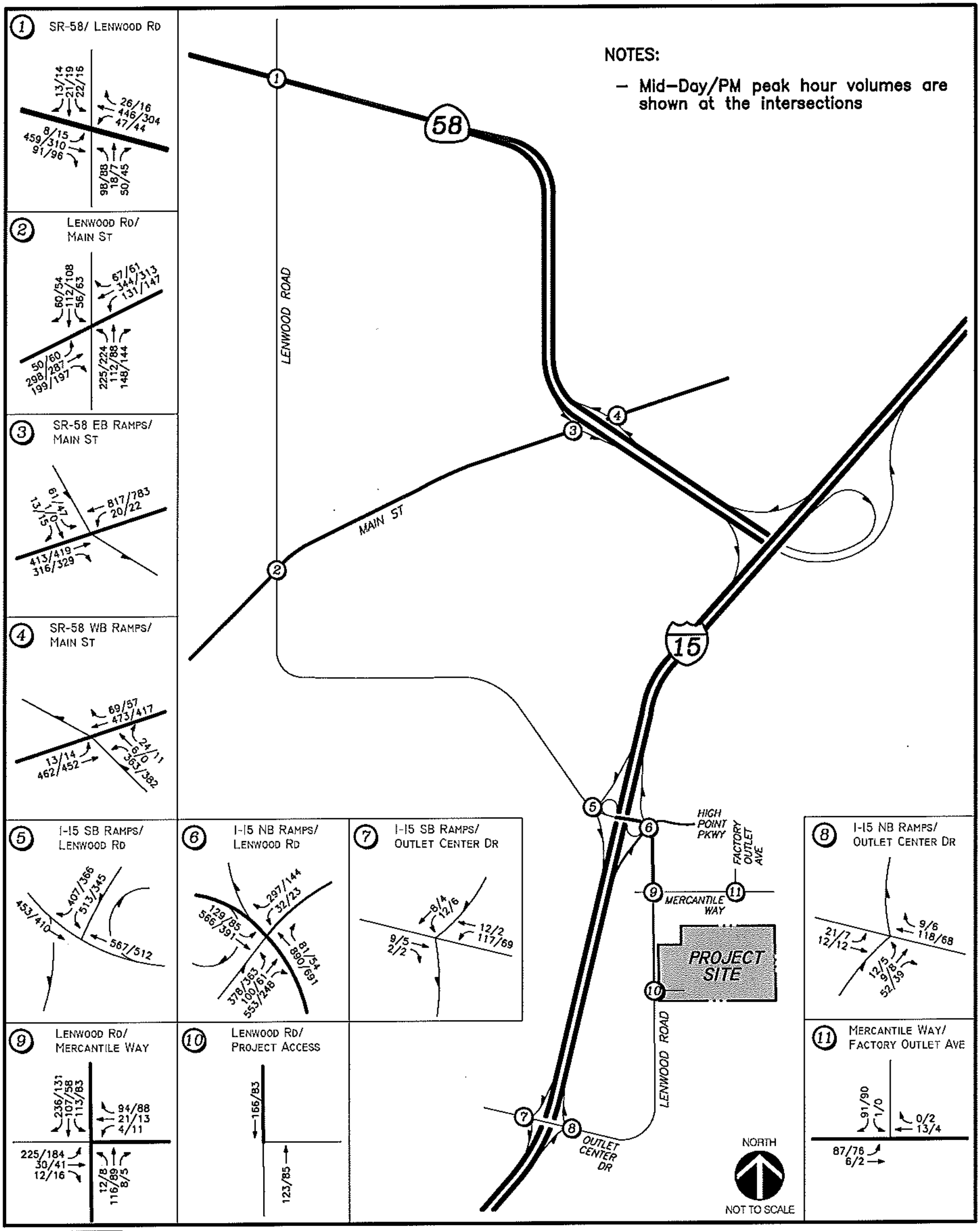

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Figure 8-2b

Opening Year 2013 Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

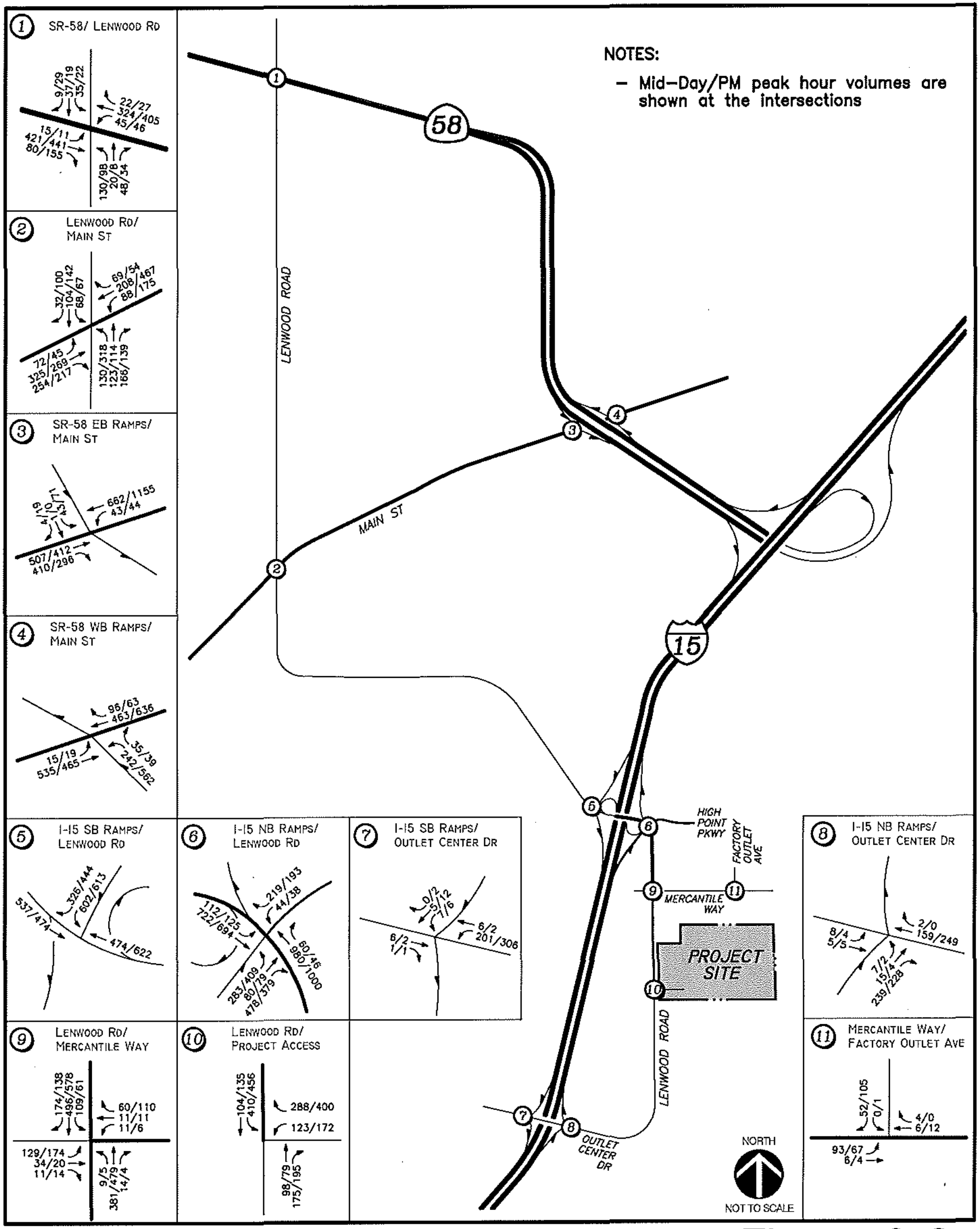

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Figure 8-3a
Opening Year 2013 with Project Alternative A Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

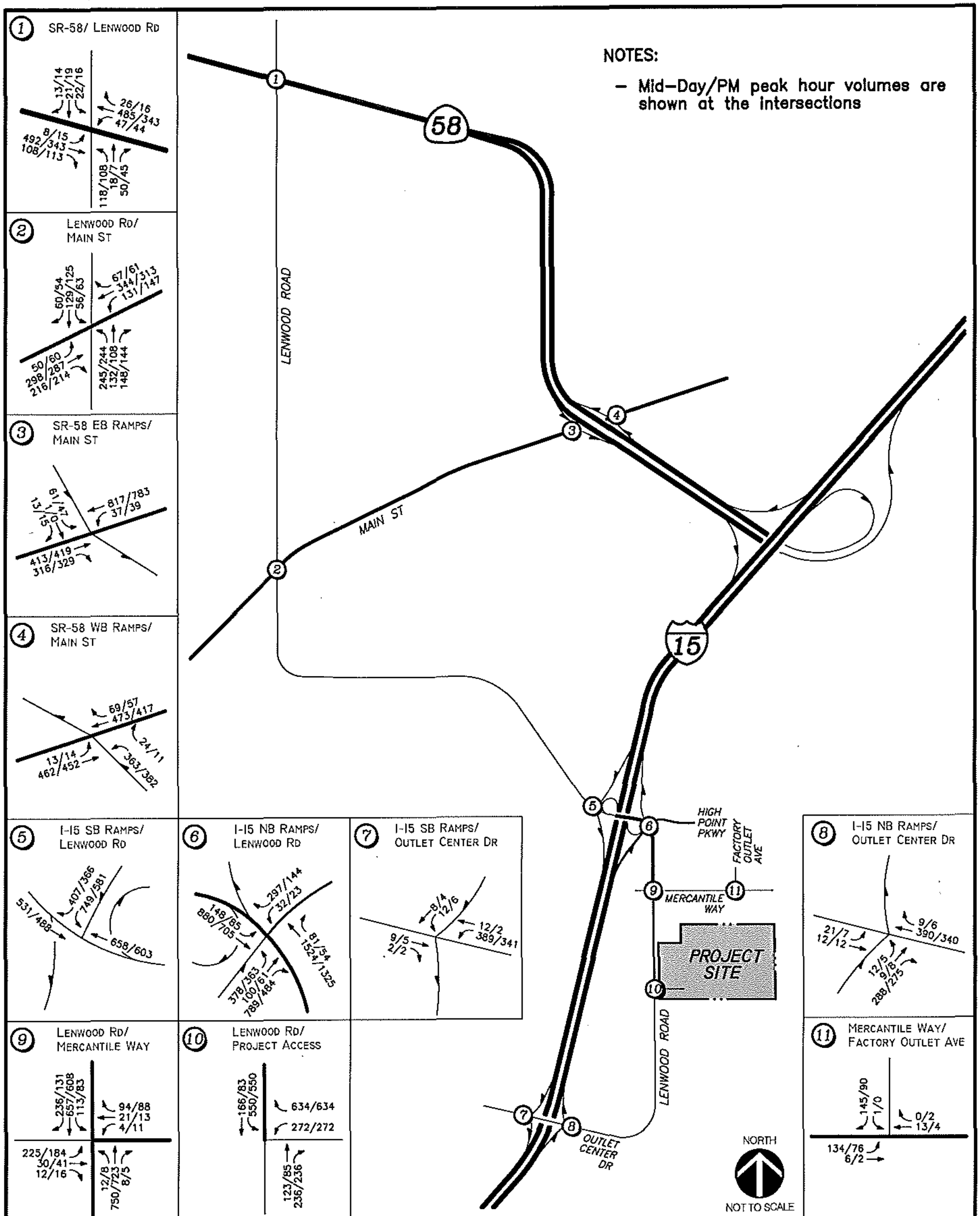

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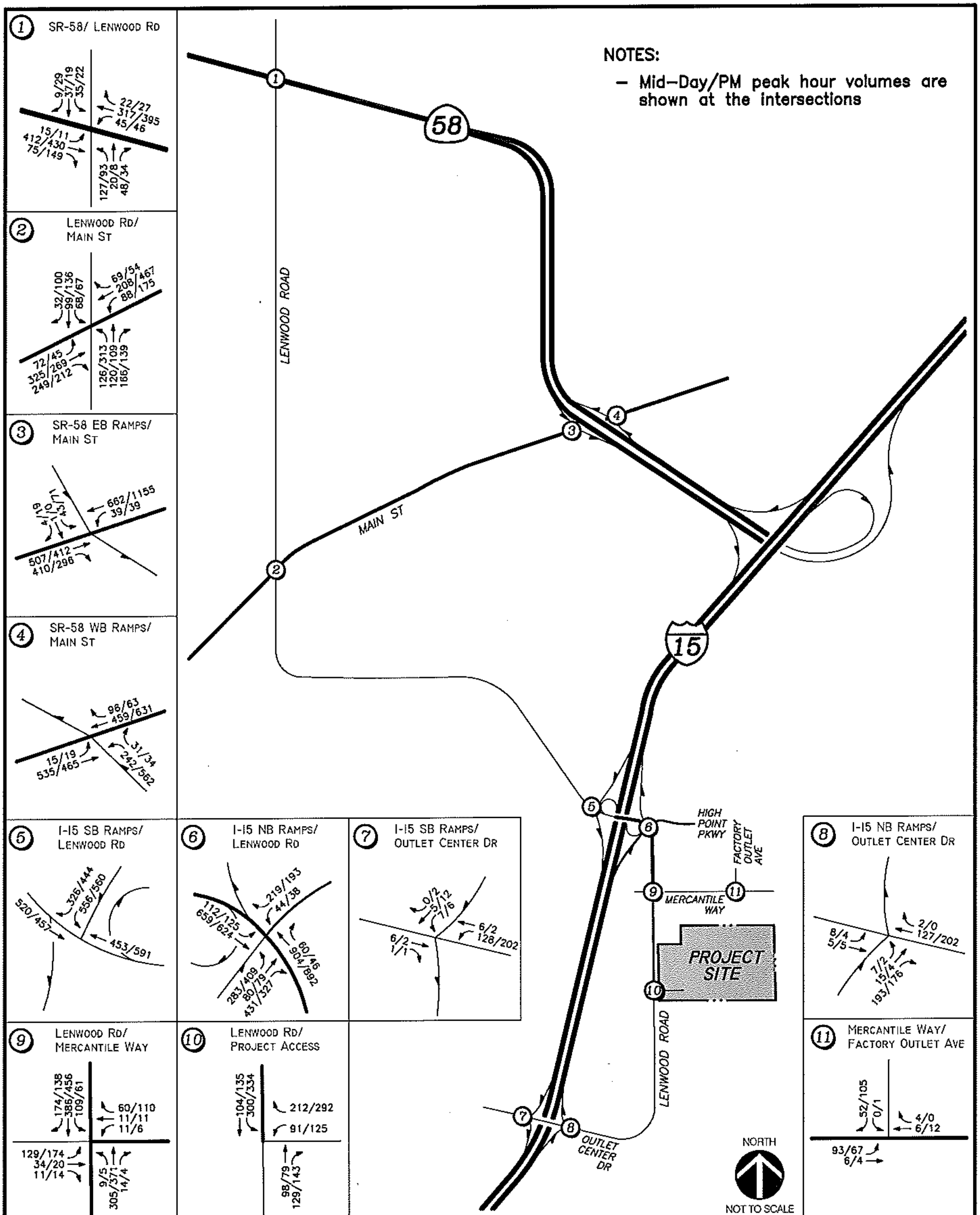
Figure 8-3b
Opening Year 2013 with Project Alternative A Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project



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N:\1876\FIGURES\LLG1876 FIGURE 8-4A.DWG

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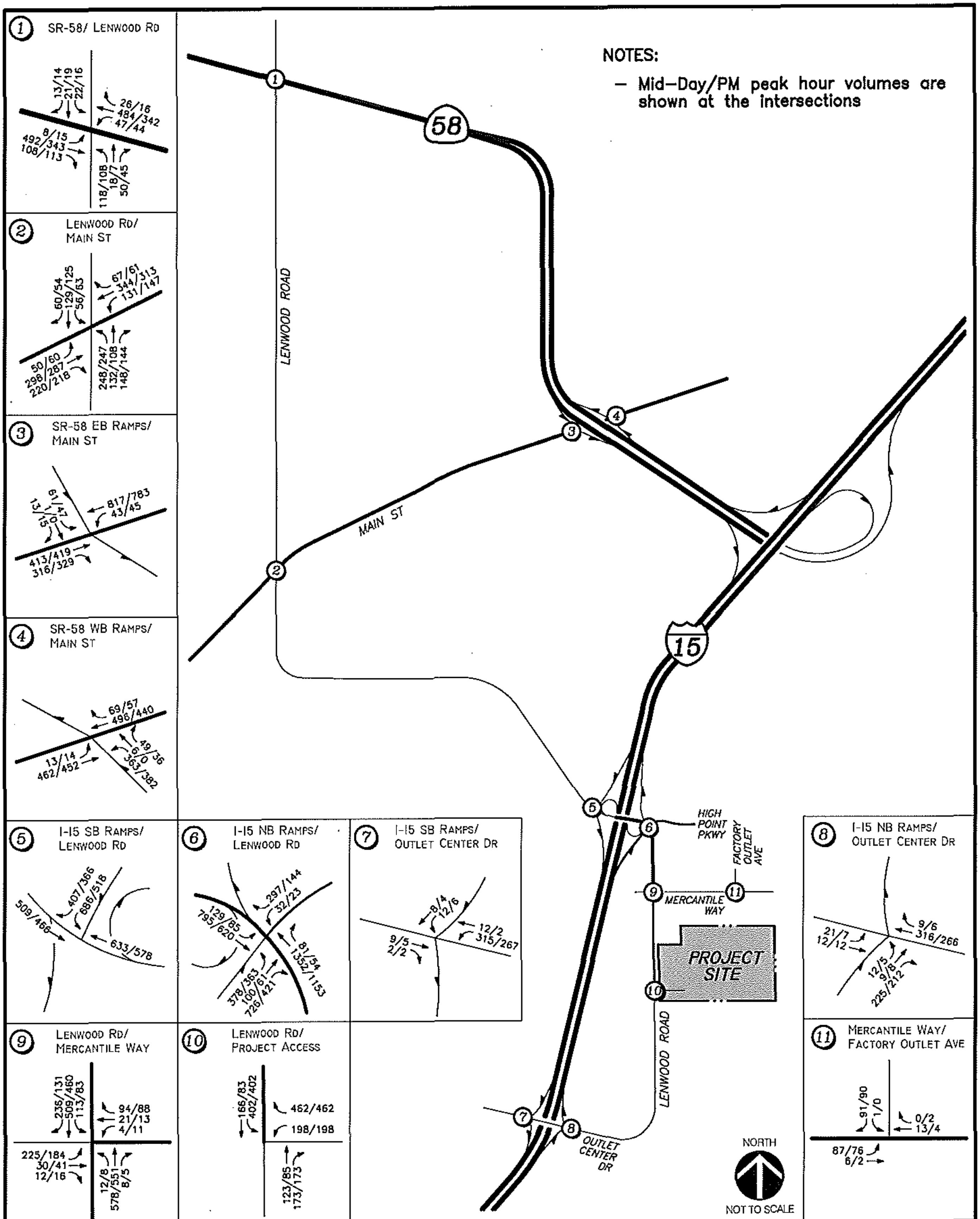
Figure 8-4a

Opening Year 2013 with Project Alternative B Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT



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engineers

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Figure 8-4b
Opening Year 2013 with Project Alternative B
Saturday Traffic Volumes
Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

9.0 Analysis of Opening Year 2013 Scenarios

9.1 Opening Year 2013

9.1.1 *Intersection Analysis*

Table 9–1 shows that under Opening Year 2013 conditions, all of the study area intersections are calculated to continue to operate at a LOS C or better during the Weekday and Saturday MD & PM peak hours.

Appendix H contains the Opening Year 2013 Weekday and Saturday intersection analysis worksheets.

9.1.2 *Roadway Segment Operations*

Table 9–2 shows that under Opening Year 2013 conditions, all of the study area roadway segments are calculated to operate at a LOS A during the Weekday.

9.1.3 *Freeway Segment Operations*

Table 9–3 summarizes the freeway segment operations I-15 under Opening Year 2013 conditions during the Weekday. As seen in *Table 9–3*, all segments of I-15 are calculated to continue to operate at LOS B during the MD & PM peak hours.

9.2 Opening Year 2013 with Project Alternative A

9.2.1 *Intersection Analysis*

Table 9–1 shows that with the addition of Project Alternative A conditions, all of the study area intersections are calculated to operate at a LOS D or better during the Weekday MD & PM peak hours except the Lenwood Road / Project Access intersection which operates at LOS F during the MD & PM peak hours.

Table 9–1 shows that with the addition of Project Alternative A conditions, all of the study area intersections are calculated to operate at a LOS D or better on Saturday during the MD & PM peak hours except the Lenwood Road / I-15 SB Ramps intersection which operates at LOS F during the PM peak hour and the Lenwood Road / Project Access intersection which operates at LOS F during the MD & PM peak hours.

Appendix I contains the Opening Year 2013 with Project Alternative A Weekday and Saturday intersection analysis worksheets.

9.2.2 *Roadway Segment Operations*

Table 9–2 shows that with the addition of Project Alternative A conditions, all of the study area roadway segments are calculated to operate at a LOS B or better during the Weekday.

9.2.3 *Freeway Segment Operations*

Table 9–3 summarizes the freeway segment operations I-15 under Opening Year 2013 with Project Alternative A conditions during the Weekday. As seen in *Table 9–3*, all segments of I-15 are calculated to continue to operate at LOS B during the MD & PM peak hours.

9.3 Opening Year 2013 with Project Alternative B

9.3.1 *Intersection Analysis*

Table 9–1 shows that with the addition of Project Alternative B conditions, all of the study area intersections are calculated to operate at a LOS D or better during the Weekday MD & PM peak hours except the Lenwood Road/ Project Access intersection which operates at LOS F during the PM peak hour.

Table 9–1 shows that with the addition of Project Alternative B conditions, all of the study area intersections are calculated to operate at a LOS D or better on Saturday during the MD & PM peak hours except the Lenwood Road/ Project Access intersection which operates at LOS F during the MD & PM peak hours.

Appendix J contains the Opening Year 2013 with Project Alternative B Weekday and Saturday intersection analysis worksheets.

9.3.2 *Roadway Segment Operations*

Table 9–2 shows that with the addition of Project Alternative B conditions, all of the study area roadway segments are calculated to operate at a LOS B or better during the Weekday.

9.3.3 *Freeway Segment Operations*

*Table 9–3*summarizes the freeway segment operations I-15 under Opening Year 2013 with Project Alternative B conditions during the Weekday. As seen in *Table 9–3*, all segments of I-15 are calculated to continue to operate at LOS B during the MD & PM peak hours.

TABLE 9–1
OPENING YEAR 2013 INTERSECTION OPERATIONS

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B		Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd/ SR-58	Signal	MD	12.8	B	12.9	B	12.9	B	12.5	B	13.4	B	13.2	B
		PM	11.4	B	11.9	B	11.7	B	11.1	B	12.0	B	11.3	B
2. Lenwood Rd/ Main Street	Signal	MD	30.8	C	31.1	C	31.0	C	35.6	D	36.7	D	36.4	D
		PM	40.3	D	41.8	D	41.4	D	33.7	C	34.1	D	34.1	D
3. Main St/ SR-58 EB Ramps	Signal	MD	3.4	A	4.0	A	3.9	A	3.9	A	4.7	A	4.5	A
		PM	3.8	A	4.4	A	4.3	A	3.4	A	4.5	A	4.0	A
4. Main St/ SR-58 WB Ramps	Signal	MD	11.3	B	11.3	B	11.3	B	14.8	B	14.8	B	14.8	B
		PM	18.0	B	17.9	B	17.9	B	14.7	B	14.7	B	14.7	B
5. Lenwood Rd/ I-15 SB Ramps	Signal	MD	12.0	B	13.1	B	12.7	B	12.5	B	13.6	B	13.2	B
		PM	12.5	B	13.1	B	12.9	B	12.0	B	14.2	B	12.5	B
6. Lenwood Rd/ I-15 NB Ramps	Signal	MD	16.3	B	15.7	B	15.7	B	19.0	B	22.1	C	20.8	C
		PM	16.8	B	16.0	B	16.2	B	15.8	B	21.8	B	15.8	B
7. Outlet Center Dr/ I-15 SB Ramps	OWSC [c]	MD	9.8	A	15.4	C	13.3	B	11.6	B	32.8	D	22.3	C
		PM	10.1	B	14.8	B	13.1	B	10.8	B	14.1	B	12.3	B
8. Outlet Center Dr/ I-15 NB Ramps	OWSC	MD	9.0	A	9.9	A	9.6	A	9.3	A	10.9	B	10.3	B
		PM	8.7	A	9.8	A	9.4	A	8.9	A	11.0	B	9.7	A
9. Lenwood Rd/ Mercantile Way	Signal	MD	30.8	C	29.1	C	28.3	C	32.0	C	33.6	C	31.8	C
		PM	27.5	C	29.3	C	28.6	C	31.9	C	40.3	D	31.7	C

TABLE 9–1
OPENING YEAR 2013 INTERSECTION OPERATIONS

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B		Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
10. Lenwood Rd/ Project Access	OWSC	MD	DNE	—	**>100.0**	**F**	27.8	D	DNE	—	**>100.0**	**F**	**>100.0**	**F**
		PM	DNE	—	**>100.0**	**F**	96.0	F	DNE	—	**>100.0**	**F**	**>100.0**	**F**
11. Factory Outlet Ave/ Mercantile Way	OWSC	MD	8.7	A	8.7	A	8.7	A	8.8	A	8.8	A	8.8	A
		PM	8.9	A	8.9	A	8.9	A	8.8	A	9.0	A	8.8	A

Footnotes:

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

General Notes:

MD = Mid-Day
DNE = Does not exist
Bold typeface and shading represent a potential project-related impact.

SIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS	UNSIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS
0.0 < 10.0	A	0.0 < 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
> 80.1	F	> 50.1	F

TABLE 9–2
OPENING YEAR 2013 ROADWAY SEGMENT OPERATIONS

Roadway Segment	LOS E Capacity [a]	Weekday										
		Opening Year 2013			Opening Year 2013 with Project Alt. A			Over Capacity?	Opening Year 2013 with Project Alt. B			Over Capacity?
		Volume [b]	LOS [c]	V/C [d]	Volume	LOS	V/C		Volume	LOS	V/C	
Lenwood Road												
I-15 NB Ramps to Mercantile Way	33,000	14,710	A	0.45	21,700	B	0.66	No	19,860	B	0.60	No
Mercantile Way to Project Access	21,000	2,720	A	0.13	9,860	A	0.47	No	8,020	A	0.38	No
Project Access to Outlet Center Drive	14,000	1,610	A	0.12	4,570	A	0.33	No	3,750	A	0.27	No
Outlet Center Drive												
Lenwood Road to I-15 NB Ramps	14,000	1,340	A	0.10	4,300	A	0.31	No	3,480	A	0.25	No

***Footnotes*:**

a. Capacity based on City of Barstow Circulation Element.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity ratio.

V/C Ratio	LOS
0.000 – 0.600	A
0.601 – 0.700	B
0.701 – 0.800	C
0.801 – 0.900	D
0.901 – 1.000	E
> 1.000	F

Table 9–3
Opening Year 2013 Freeway Segment Operations

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Opening Year 2013 Peak Hour Volume [b]		V/C [c]		LOS		Project Volumes		Opening Year 2013 with Project Peak Hour Volume		V/C [c]		LOS	
				MD	PM	MD	PM	MD	PM	MD	PM	MD	PM	MD	PM	MD	PM
Alternative A – Weekday																	
I-15																	
L Street to Lenwood Road	NB	3M	6,900	2,869	2,472	0.416	0.358	B	B	86	113	2,955	2,585	0.428	0.375	B	B
	SB	3M	6,900	3,356	2,874	0.486	0.417	B	B	118	131	3,474	3,005	0.503	0.436	B	B
Outlet Center Drive to Hodge Road	NB	3M	6,900	2,639	2,422	0.382	0.351	B	B	207	230	2,846	2,652	0.412	0.384	B	B
	SB	3M	6,900	3,224	2,672	0.467	0.387	B	B	145	204	3,369	2,876	0.488	0.417	B	B
Alternative B – Weekday																	
I-15																	
L Street to Lenwood Road	NB	3M	6,900	2,869	2,472	0.416	0.358	B	B	66	85	2,935	2,557	0.425	0.371	B	B
	SB	3M	6,900	3,356	2,874	0.486	0.417	B	B	89	99	3,445	2,973	0.499	0.431	B	B
Outlet Center Drive to Hodge Road	NB	3M	6,900	2,639	2,422	0.382	0.351	B	B	149	166	2,788	2,588	0.404	0.375	B	B
	SB	3M	6,900	3,224	2,672	0.467	0.387	B	B	104	147	3,328	2,819	0.482	0.409	B	B

Footnotes:

a. Capacity calculated at 2300 vehicles per hour (vph) per lane
b. Values calculated in the Existing Conditions table
c. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

General Notes:

MD = Mid-Day

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

10.0 Horizon Year 2035 Conditions

10.1 Horizon Year 2035 Traffic Volumes

The San Bernardino County General Plan Circulation Element was recently updated and adopted by the County Board of Supervisors in April 2007. The Circulation Element update is based on the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) travel demand model; the only regional model that includes Barstow and the surrounding region. This model includes the latest regional long-range forecast of socioeconomic data, as well as the most current future land use data for San Bernardino County projected for the Year 2035. The model also includes up-to-date roadway network data reflected in the current RTP, which was adopted in 2004.

The 2004 RTP Socioeconomic Forecast, adopted by the SCAG Regional Council in April 2004 is the approved growth forecast at the subregional level. According to these growth estimates, a rate of approximately 2.45 percent per year between 2005 and 2035 was calculated.

Regional transportation models are typically used to predict growth for freeways and major arterial roadways. However, a review of the County's regional model in this area found that it is not very specific to the project study area and it was determined that future forecast volumes on individual segments in the study area would not accurately represent traffic conditions on the project area roadway network. Based on the SCAG growth estimates, the Horizon Year 2035 traffic volumes were developed by applying a 2.5 percent per year for 26 years to the existing study area intersections and roadway and freeway segments. The growth includes the aforementioned cumulative projects.

Figure 10–1a shows the Horizon Year 2035 Weekday traffic volumes and ***Figure 10–1b*** shows the Horizon Year 2035 Saturday traffic volumes.

Figure 10–2a shows the Horizon Year 2035 with Project Alternative A Weekday traffic volumes and ***Figure 10–2b*** shows the Horizon Year 2035 with Project Alternative A Saturday traffic volumes. ***Figure 10–3a*** shows the Horizon Year 2035 with Project Alternative B Weekday traffic volumes and ***Figure 10–3b*** shows the Horizon Year 2035 with Project Alternative B Saturday traffic volumes.

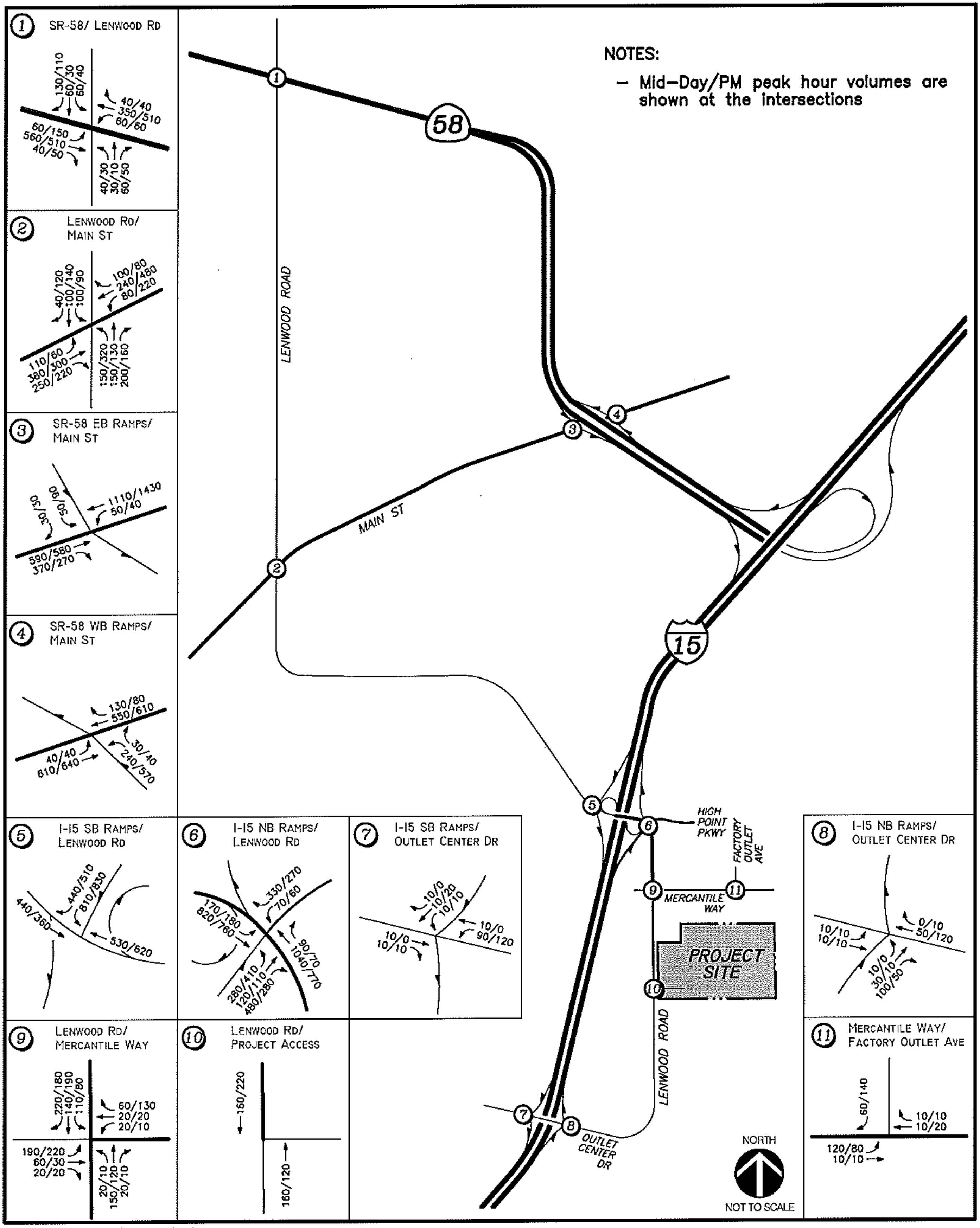

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Figure 10-1a

Horizon Year 2035 Weekday Traffic Volumes Mid-Day/PM Peak Hours

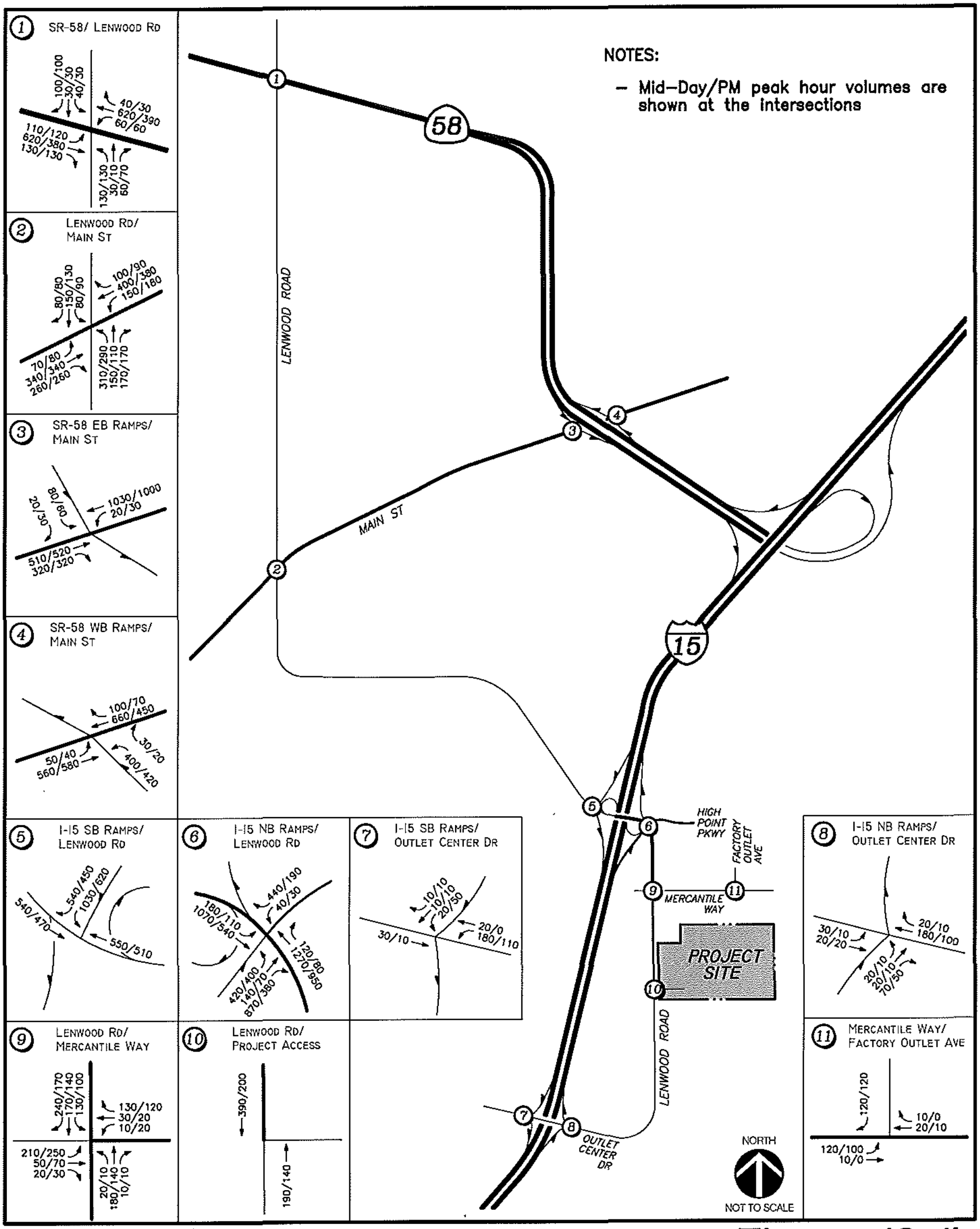

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Figure 10-1b

Horizon Year 2035 Saturday Traffic Volumes Mid-Day/PM Peak Hours

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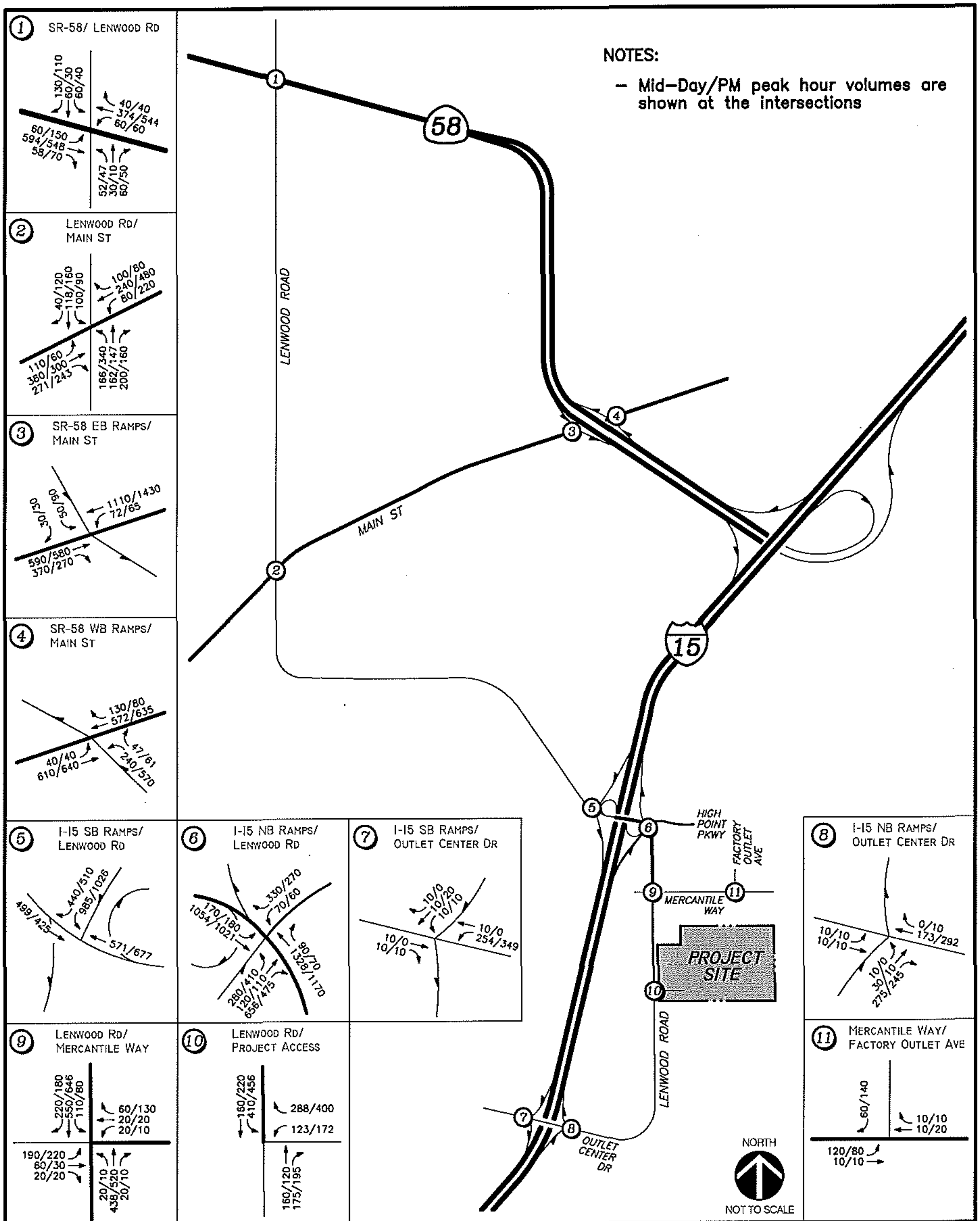

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Figure 10-2a

Horizon Year 2035 with Project Alternative A Weekday Traffic Volumes Mid-Day/PM Peak Hours

LOS COYOTES CASINO PROJECT

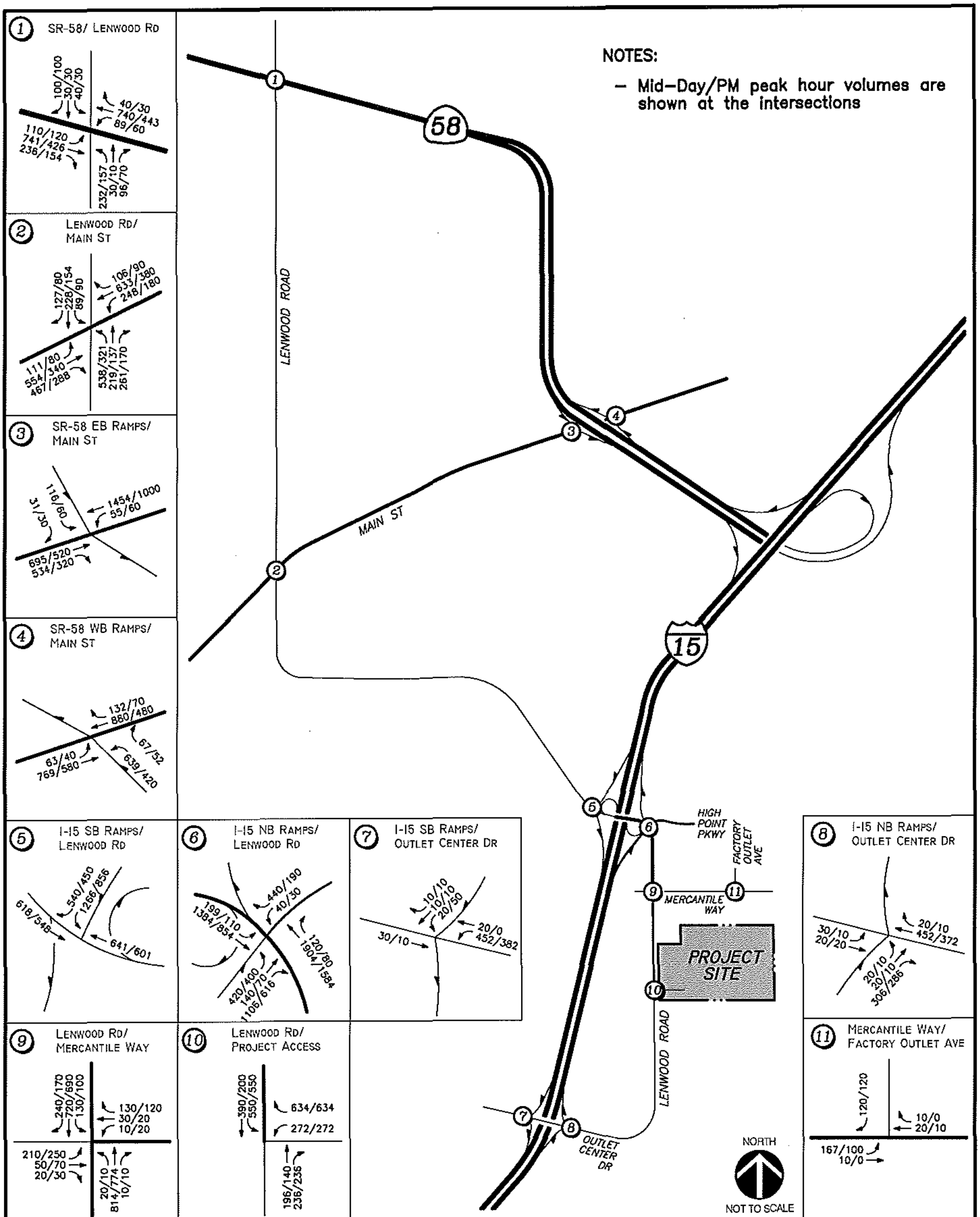

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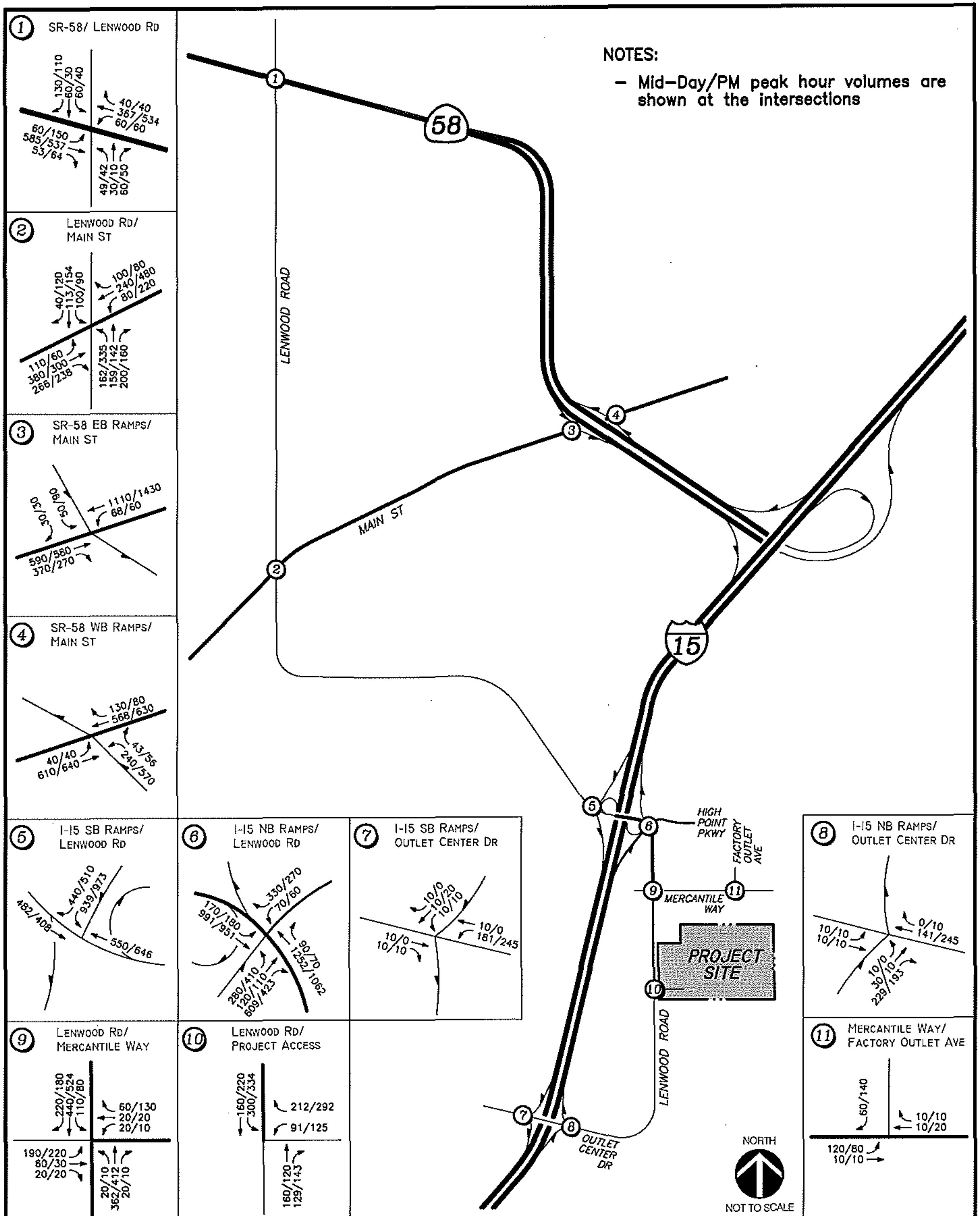
Figure 10-2b
Horizon Year 2035 with Project Alternative A Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project



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N:\1876\FIGURES\LLG1876 FIGURE 10-3A.DWG

Figure 10-3a

Horizon Year 2035 with Project Alternative B Weekday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

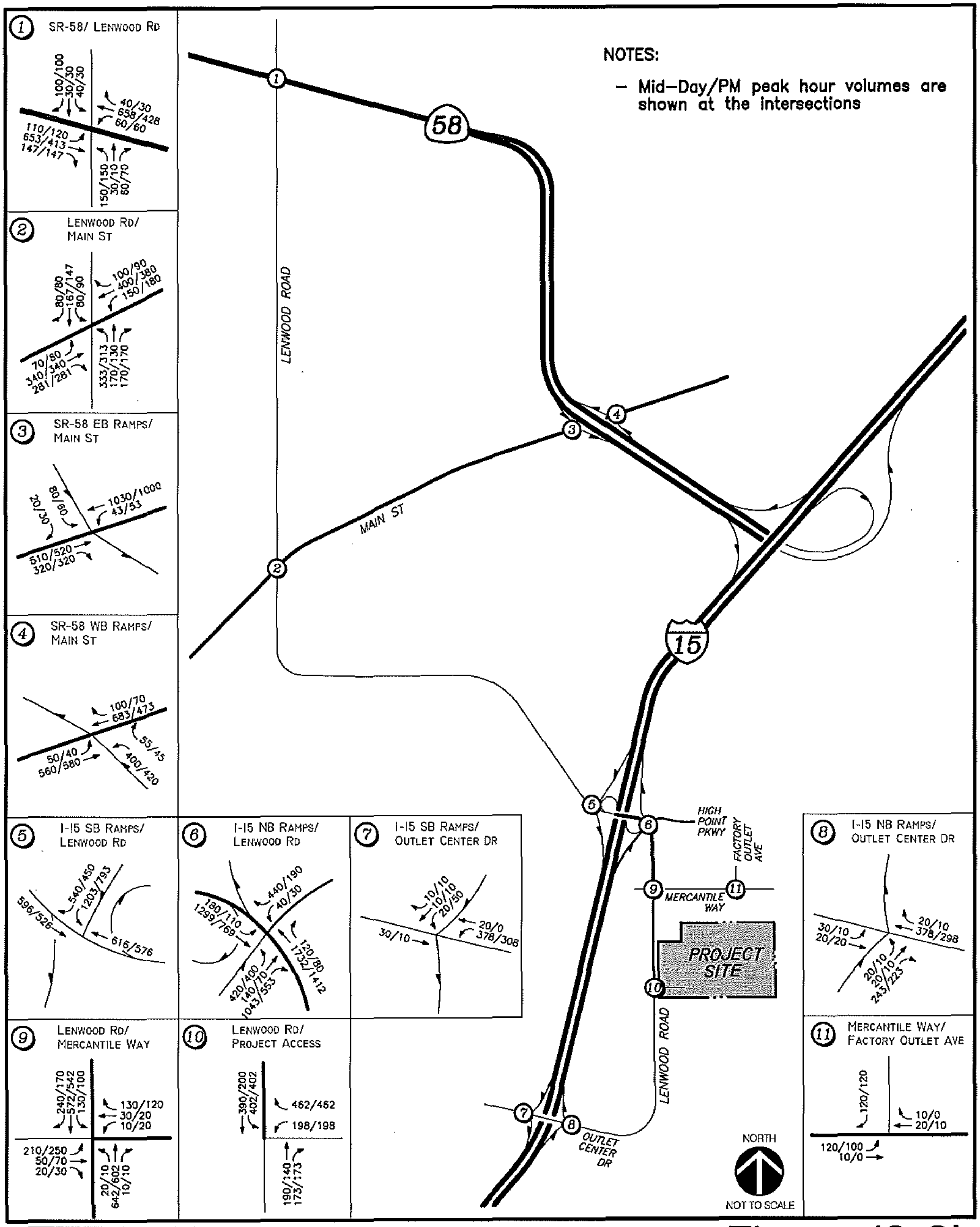

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Figure 10-3b

Horizon Year 2035 with Project Alternative B Saturday Traffic Volumes Mid-Day/PM Peak Hours

Los Coyotes Casino Project

11.0 Analysis of Horizon Year 2035 Scenarios

11.1 Horizon Year 2035

11.1.1 *Intersection Analysis*

Table 11–1 shows that under Horizon Year 2035 conditions, all of the study area intersections are calculated to operate at a LOS D or better during the Weekday and Saturday MD & PM peak hours.

Appendix K contains the Horizon Year 2035 Weekday and Saturday intersection analysis worksheets.

11.1.2 *Roadway Segment Operations*

Table 11–2 shows that under Horizon Year 2035 conditions, all of the study area roadway segments are calculated to operate at a LOS A or better during the weekday.

11.1.3 *Freeway Segment Operations*

Table 11–3 summarizes the freeway segment operations I-15 under Horizon Year 2035 conditions during the Weekday. As seen in *Table 11–3*, all segments of I-15 are calculated to continue to operate at LOS E or better during the MD & PM peak hours.

11.2 Horizon Year 2035 with Project Alternative A

11.2.1 *Intersection Analysis*

Table 11–1 shows that with the addition of Project Alternative A traffic, all of the study area intersections are calculated to operate at a LOS D or better during the Weekday MD & PM peak hours except the Lenwood Road / Project Access intersection which operates at LOS F during the MD & PM peak hours

Table 11–1 shows that with the addition of Project Alternative A traffic, all of the study area intersections are calculated to operate at a LOS D or better during the Saturday MD & PM peak hours except the Lenwood Road / Project Access intersection which operates at LOS F during the MD & PM peak hours

Appendix L contains the Horizon Year 2035 with Project Alternative A Weekday and Saturday intersection analysis worksheets.

11.2.2 *Roadway Segment Operations*

Table 11–2 shows that with the addition of Project Alternative A conditions, all of the study area roadway segments are calculated to operate at a LOS B or better during the Weekday.

11.2.3 *Freeway Segment Operations*

Table 11–3 summarizes the freeway segment operations I-15 under Horizon Year 2035 with Project Alternative A conditions during the Weekday. As seen in *Table 11–3*, all segments of I-15 are calculated to continue to operate at LOS E or better during the MD & PM peak hours.

11.3 Horizon Year 2035 with Project Alternative B

11.3.1 *Intersection Analysis*

Table 11–1 shows that with the addition of Project Alternative B conditions, all of the study area intersections are calculated to operate at a LOS D or better during the Weekday MD & PM peak hours except Lenwood Road / Project Access which operates at LOS F during the MD & PM peak hours.

Table 11–1 shows that with the addition of Project Alternative B conditions, all of the study area intersections are calculated to operate at a LOS D better during the Saturday MD & PM peak hours except Lenwood Road / Project Access which operates at LOS F during the MD & PM peak hours.

Appendix M contains the Horizon Year 2035 with Project Alternative B Weekday and Saturday intersection analysis worksheets.

11.3.2 *Roadway Segment Operations*

Table 11–2 shows that with the addition of Project Alternative B conditions, all of the study area roadway segments are calculated to operate at a LOS B or better during the Weekday.

11.3.3 *Freeway Segment Operations*

Table 11–3 summarizes the freeway segment operations I-15 under Horizon Year 2035 with Project Alternative B conditions during the Weekday. As seen in *Table 11–3*, all segments of I-15 are calculated to continue to operate at LOS E or better during the MD & PM peak hours.

TABLE 11–1
HORIZON YEAR 2035 INTERSECTION OPERATIONS

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B		Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd/ SR-58	Signal	MD	14.6	B	14.6	B	14.6	B	14.9	B	15.7	B	15.4	B
		PM	14.4	B	14.4	B	14.4	B	14.9	B	15.1	B	15.0	B
2. Lenwood Rd/ Main Street	Signal	MD	30.6	C	30.8	C	30.7	C	36.4	D	37.4	D	37.1	D
		PM	38.1	D	39.0	D	38.8	D	36.2	D	37.2	D	36.9	D
3. Main St/ SR-58 EB Ramps	Signal	MD	3.7	A	4.2	A	4.1	A	3.5	A	4.2	A	4.1	A
		PM	4.1	A	4.6	A	4.5	A	3.5	A	4.2	A	4.1	A
4. Main St/ SR-58 WB Ramps	Signal	MD	11.6	B	11.6	B	11.6	B	14.5	B	14.5	B	14.5	B
		PM	17.2	B	17.2	B	17.2	B	15.2	B	15.2	B	15.2	B
5. Lenwood Rd/ I-15 SB Ramps	Signal	MD	12.5	B	12.5	B	13.5	B	14.1	B	21.0	C	17.4	B
		PM	13.0	B	14.8	B	14.2	B	12.1	B	13.4	B	12.9	B
6. Lenwood Rd/ I-15 NB Ramps	Signal	MD	23.9	C	23.9	C	23.9	C	29.4	C	36.4	D	32.9	C
		PM	23.5	C	23.5	C	23.5	C	21.3	C	21.7	C	21.5	C
7. Outlet Center Dr/ I-15 SB Ramps	OWSC[c]	MD	9.8	A	11.8	B	11.2	B	11.8	B	25.3	D	19.1	C
		PM	11.1	B	16.3	B	14.5	B	10.5	B	20.1	C	16.0	C
8. Outlet Center Dr/ I-15 NB Ramps	OWSC	MD	9.3	A	10.3	B	9.9	A	9.8	A	11.5	B	10.8	B
		PM	8.9	A	9.6	A	9.3	A	9.0	A	10.3	B	9.8	A
9. Lenwood Rd/ Mercantile Way	Signal	MD	37.4	D	37.6	D	38.0	D	38.3	D	39.6	D	37.1	D
		PM	37.6	D	38.1	D	38.8	D	37.9	D	38.1	D	38.4	D

TABLE 11–1
HORIZON YEAR 2035 INTERSECTION OPERATIONS

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B		Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
10. Lenwood Rd/ Project Access	OWSC	MD	DNE	—	**>100.0**	**F**	**>100.0**	**F**	DNE	—	**>100.0**	**F**	**>100.0**	**F**
		PM	DNE	—	**>100.0**	**F**	**>100.0**	**F**	DNE	—	**>100.0**	**F**	**>100.0**	**F**
11. Factory Outlet Ave/ Mercantile Way	OWSC	MD	8.6	A	8.6	A	8.6	A	8.9	A	8.9	A	8.9	A
		PM	9.0	A	9.0	A	9.0	A	8.8	A	8.8	A	8.8	A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. OWSC –One-Way Stop Controlled intersection.

General Notes:
MD = Mid-Day
DNE = Does not exist
Bold typeface and shading represent a potential project-related impact.

SIGNALIZED DELAY/LOS THRESHOLDS		UNSIGNALIZED DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 < 10.0	A	0.0 < 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
> 80.1	F	> 50.1	F

Table 11–2
Horizon Year 2035 Roadway Segment Operations

Roadway Segment	LOS E Capacity [a]	Weekday										
		Horizon Year 2035			Horizon Year 2035 with Project Alt. A			Over Capacity?	Horizon Year 2035 with Project Alt. B			Over Capacity?
		Volume [b]	LOS [c]	V/C [d]	Volume	LOS	V/C		Volume	LOS	V/C	
Lenwood Road												
I-15 NB Ramps to Mercantile Way	33,000	17,880	A	0.54	24,870	B	0.75	No	23,030	B	0.70	No
Mercantile Way to Project Access	21,000	5,730	A	0.27	12,870	A	0.61	No	11,030	A	0.53	No
Project Access to Outlet Center Drive	14,000	3,500	A	0.25	6,460	A	0.46	No	5,640	A	0.40	No
Outlet Center Drive												
Lenwood Road to I-15 NB Ramps	14,000	2,870	A	0.21	5,830	A	0.42	No	5,010	A	0.36	No

Footnotes:

a. Capacity based on City of Barstow Circulation Element.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity ratio.

V/C Ratio	LOS
0.000 – 0.600	A
0.601 – 0.700	B
0.701 – 0.800	C
0.801 – 0.900	D
0.901 – 1.000	E
> 1.000	F

TABLE 11-3
HORIZON YEAR 2035 FREEWAY SEGMENT OPERATIONS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Horizon Year 2035 Peak Hour Volume [b]		V/C [c]		LOS		Project Volumes		Horizon Year 2035 with Project Peak Hour Volume		V/C [c]		LOS	
				MD	PM	MD	PM	MD	PM	MD	PM	MD	PM	MD	PM	MD	PM
Alternative A – Weekday																	
I-15																	
L Street to Lenwood Road	NB	3M	6,900	5,946	4,377	0.862	0.634	D	C	86	113	6,032	4,490	0.874	0.651	D	C
	SB	3M	6,900	6,755	5,946	0.979	0.862	E	D	118	131	6,873	6,077	0.996	0.881	E	D
Outlet Center Drive to Hodge Road	NB	3M	6,900	5,440	4,023	0.788	0.583	C	B	207	230	5,647	4,253	0.818	0.616	D	B
	SB	3M	6,900	6,199	5,440	0.898	0.788	D	C	145	204	6,344	5,644	0.919	0.818	D	D
Alternative B – Weekday																	
I-15																	
L Street to Lenwood Road	NB	3M	6,900	5,946	4,377	0.862	0.634	D	C	66	85	6,012	4,462	0.871	0.647	D	C
	SB	3M	6,900	6,755	5,946	0.979	0.862	E	D	89	99	6,844	6,045	0.992	0.876	E	D
Outlet Center Drive to Hodge Road	NB	3M	6,900	5,440	4,023	0.788	0.583	C	B	149	166	5,589	4,189	0.810	0.607	D	B
	SB	3M	6,900	6,199	5,440	0.898	0.788	D	C	104	147	6,303	5,587	0.913	0.810	D	D

Footnotes:

a. Capacity calculated at 2300 vehicles per hour (vph) per lane
b. Values calculated in the Existing Conditions table
c. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

General Notes:

MD = Mid-Day

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

12.0 SITE ACCESS DISCUSSION

Access to the Los Coyotes Casino project site is proposed via one driveway located along Lenwood Road approximately 300 feet south of the existing Hampton Inn driveway. Based on a review of forecasted traffic volumes at the access point, the following geometry is recommended (for both alternatives) to facilitate adequate operations at the driveway.

1. Lenwood Road/ Project Access intersection

Ensure corner sight distance standards are met to the satisfaction of the City Engineer. Install a traffic signal when signal warrants are met and provide the following lane geometry:

- Northbound: 1 thru lane and 1 dedicated right-turn lane
- Southbound: 2 dedicated left-turn lanes and 1 thru lane
- Westbound: 1 dedicated left-turn lane and 2 dedicated right-turn lanes

The proposed access is approximately 300 feet south of the Hampton Inn driveway and 300 feet north of the Holiday Inn Express driveway. Based on general standards of practice, it is recommended that intersections be spaced at a minimum of 400 feet due to potential queuing issues. The intersection operates at an acceptable level of service and will likely operate efficiently the majority of the time. However, during peak hours there is the potential for southbound left-turns entering the project site to spill over into the southbound thru lane. This potential queuing spillback would not result in street segment impacts on Lenwood Road calculated using the V/C method; rather, it could affect the ability of northbound vehicles to access existing business' driveways to the west.

In order to minimize this potential conflict, the southbound left-turn pockets should be sized appropriately to accommodate peak demand to the site. Additionally, once operational, signal timing at the driveway (e.g., southbound left turn phase length) should be developed to minimize southbound left-turn queuing into the site on Lenwood Road.

An alternative means of minimizing conflict at the adjacent driveways is to consider relocating the project access across from the existing Hampton Inn driveway. However, this may have unintended and negative consequences for on-site pedestrian circulation as it would bisect the parking area, forcing pedestrians who parked in the non-contiguous southern lot to cross the main on-site roadway to reach the casino. This would result in possible pedestrian/automobile conflicts, which is undesirable.

2. Lenwood Road segment

- Construct Lenwood Road from the north project boundary to the south project boundary to its ultimate half-section width, per City standards.

It is recommended that signage be placed along I-15 to direct northbound project traffic to use the freeway on/off ramps at Outlet Center Drive.

13.0 Project Impacts and Mitigation Measures

At any intersection that is not projected to meet the City's LOS standard (LOS D), City and CMP guidelines require that improvements be identified to restore satisfactory operations. The following is a description of the identified adverse impacts for the proposed project with corresponding recommendations for mitigation measures at the impacted locations.

13.1 Project Impacts

13.1.1 *Opening Year 2013*

1. Lenwood Road/ Project Access Intersection (Alternatives A & B/ Weekday & Saturday)

13.1.2 *Horizon Year 2035*

1. Lenwood Road/ Project Access Intersection (Alternatives A & B/ Weekday & Saturday)

13.2 Mitigation Measures

13.2.1 *Opening Year 2013*

1. Lenwood Road/ Project Access Intersection

Ensure corner sight distance standards are met to the satisfaction of the City Engineer. Install a traffic signal when signal warrants are met and provide the following lane geometry:

- Northbound: 1 thru lane and 1 dedicated right-turn lane
- Southbound: 2 dedicated left-turn lanes and 1 thru lane
- Westbound: 1 dedicated left-turn lane and 2 dedicated right-turn lanes

13.2.2 *Horizon Year 2035*

1. Lenwood Road/ Project Access Intersection

The mitigation measure detailed above would also mitigate this horizon year impact.

Table 13–1 shows the post-mitigation levels of service for the impacted intersections. ***Appendix N*** contains the post-mitigation intersection analysis worksheets.

TABLE 13–1
OPENING YEAR 2013 INTERSECTION OPERATIONS WITH MITIGATION

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B		Opening Year 2013		Opening Year 2013 with Project Alt. A		Opening Year 2013 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd/ Project Access														
Without Mitigation	OWSC[c]	MD	DNE	—	>100.0	F	27.8	D	DNE	—	>100.0	F	>100.0	F
		PM	DNE	—	>100.0	F	96.0	F	DNE	—	>100.0	F	>100.0	F
With Mitigation	**Signal**	**MD**	—	—	**25.3**	**C**	**23.9**	**C**	—	—	**28.1**	**C**	**25.0**	**C**
		PM	—	—	**25.8**	**C**	**24.0**	**C**	—	—	**28.6**	**C**	**25.1**	**C**

Foototes:

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

General Notes:
MD = Mid-Day
DNE = Does not exist

SIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS	UNSIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS
0.0 < 10.0	A	0.0 < 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
> 80.1	F	> 50.1	F

TABLE 13–2
HORIZON YEAR 2035 INTERSECTION OPERATIONS WITH MITIGATION

Intersection	Traffic Control	Peak Hour	Weekday						Saturday					
			Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B		Horizon Year 2035		Horizon Year 2035 with Project Alt. A		Horizon Year 2035 with Project Alt. B	
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd / Project Access														
Without Mitigation	OWSC[c]	MD	DNE	—	>100.0	F	>100.0	F	DNE	—	>100.0	F	>100.0	F
		PM	DNE	—	>100.0	F	>100.0	F	DNE	—	>100.0	F	>100.0	F
With Mitigation	**Signal**	**MD**	—	—	**24.5**	**C**	**23.3**	**C**	—	—	**26.1**	**C**	**23.8**	**C**
		PM	—	—	**24.7**	**C**	**23.1**	**C**	—	—	**26.9**	**C**	**24.4**	**C**

Footnotes:

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

General Notes:
MD = Mid-Day
DNE = Does not exist

SIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS	UNSIGNALIZED DELAY/LOS THRESHOLDS Delay	LOS
0.0 < 10.0	A	0.0 < 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
> 80.1	F	> 50.1	F

TRAFFIC IMPACT STUDY

FOR THE LOS COYOTES RESERVATION SITE

(Alternative C)

BARSTOW CASINOS PROJECT

LOS COYOTES RESERVATION ALTERNATIVE

TRAFFIC IMPACT ANALYSIS

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I. Introduction and Summary

A. Purpose of Report and Study Objectives

The purpose of this traffic impact analysis is to evaluate the development of the Barstow Casinos Project Los Coyotes Reservation Alternative. The Barstow Casinos Project consists of four alternatives. The Los Coyotes Reservation is Alternative C for the Barstow Casinos Project. This traffic report presents the traffic impact study methodology, analysis, findings, recommendations, and supporting data.

The Bureau of Indian Affairs is the Federal Agency that is charged with reviewing and approving tribal applications pursuant to 25 CFR 151 to take land into Federal trust status. For the purpose of the Environmental Impact Statement, the Bureau of Indian Affairs serves as the Lead Agency for compliance with the National Environmental Policy Act. The Bureau of Indian Affairs invited several federal, state, and local agencies to act as cooperating agencies for purposes of the National Environmental Policy Act. These agencies included the Environmental Protection Agency Region 9, the National Indian Gaming Commission, the California Department of Transportation, the County of San Bernardino, and the City of Barstow.

Cooperating agencies for the Environmental Impact Statement are the Tribes, the Environmental Protection Agency, and the City of Barstow. The Environmental Protection Agency will also rank the Environmental Impact Statement and provide notice of the public comment period for the Environmental Impact Statement.

This report analyzes traffic impacts for the anticipated opening date with full occupancy of the development in Year 2009, at which time it will be generating traffic at its full potential, and for the current traffic forecast year, which is the Year 2030.

Study objectives include (1) documentation of Existing traffic conditions in the vicinity of the site; (2) evaluation of Opening Year (2009) traffic conditions with the proposed project; (3) analysis of Year 2030 traffic conditions; and (4) determination of on-site and off-site improvements and system management actions needed to achieve County of San Diego level of service requirements.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

B. **Executive Summary**

1. Site Location and Study Area

The project site is located north of Camino San Ignacio Road and east of SR-79 in the County of San Diego. Figure 1 illustrates the traffic analysis study area.

The study area includes the following intersections and roadway segments:

Intersections:

SR-79 (NS) at:
Stage Road (EW)
Camino San Ignacio Road (EW)

San Felipe Road (EW)
SR-76 (EW)

Roadway Segments:

Camino San Ignacio Road:
East of SR-79

2. Development Description

The project site is proposed to be developed with 25,000 square feet of casino area. The project site will have access to Camino San Ignacio Road.

3. Principal Findings

a. Required Level of Service: C. The County of San Diego threshold capacities are based on Level of Service D. Traffic volumes that exceed the threshold capacity will generate Levels of Service E or F on County roads. The California Department of Transportation will not seek any mitigation if the Level of Service is C or better after considering project impacts. The California Department of Transportation will, however, recommend that the appropriate mitigation on a State highway facility be a condition of project approval if there is a noted operational and/or safety concern. Therefore, any intersection operating at Level of Service D or F will be considered deficient.

b. Existing Level of Service:

For Existing traffic conditions, the study area roadway segment currently operates within an acceptable Level of Service (see Table 1).

For Existing traffic conditions, the study area intersections currently operate within acceptable Levels of Service (see Table 2).

c. Opening Year (2009) Level of Service Without Project:

For Opening Year (2009) Without Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service (see Table 4).

For Opening Year (2009) Without Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service (see Table 5).

d. Opening Year (2009) Level of Service With Project:

For Opening Year (2009) With Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service (see Table 6).

For Opening Year (2009) With Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service (see Table 7).

For Opening Year (2009) With Project traffic conditions, traffic signals are not projected to be warranted at the following study area intersections (see Appendix D):

SR-79 (NS) at:
- Stage Road (EW)
- Camino San Ignacio Road (EW)
- San Felipe Road (EW)
- SR-76 (EW)

e. Year 2030 Level of Service Without Project:

For Year 2030 Without Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service (see Table 8).

For Year 2030 Without Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service (see Table 9).

f. Year 2030 Level of Service With Project:

For Year 2030 With Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service (see Table 10).

For Year 2030 With Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service (see Table 11).

For Year 2030 With Project traffic conditions, traffic signals are not projected to be warranted at the following study area intersections (see Appendix D):

SR-79 (NS) at:
- Stage Road (EW)
- Camino San Ignacio Road (EW)
- San Felipe Road (EW)
- SR-76 (EW)

4. Conclusions

The project is projected to generate a total of approximately 986 weekday daily vehicle trips, 99 of which will occur during the mid-day peak hour and 124 of which will occur during the evening peak hour. In addition, the proposed project is projected to generate 172 vehicle trips during the Saturday peak hour.

A roadway segment analysis summary has been provided in Table 11. Table 12 shows a summary of the intersection delay and level of service. As shown in Tables 11 and 12, the study area roadway segment and intersections are projected to operate within acceptable Levels of Service without improvements. Therefore, no mitigation measures/improvements are projected to be necessary.

5. Recommendations

Site-specific circulation and access recommendations are depicted on Figure 23.

Sufficient on-site parking shall be provided to meet the appropriate jurisdictions parking code requirements.

Sight distance at each project access should be reviewed with respect to the appropriate jurisdictions sight distance standards at the time of preparation of final grading, landscaping, and street improvement plans.

On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site. All markings or signs internal to the project shall comply with provisions of the appropriate jurisdictions guidelines.

As is the case for any roadway design, the appropriate jurisdiction should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

II. Proposed Development

A. Location

The project site is located north of Camino San Ignacio Road and east of the SR-79 in the County of San Diego. Figure 1 illustrates the project location map.

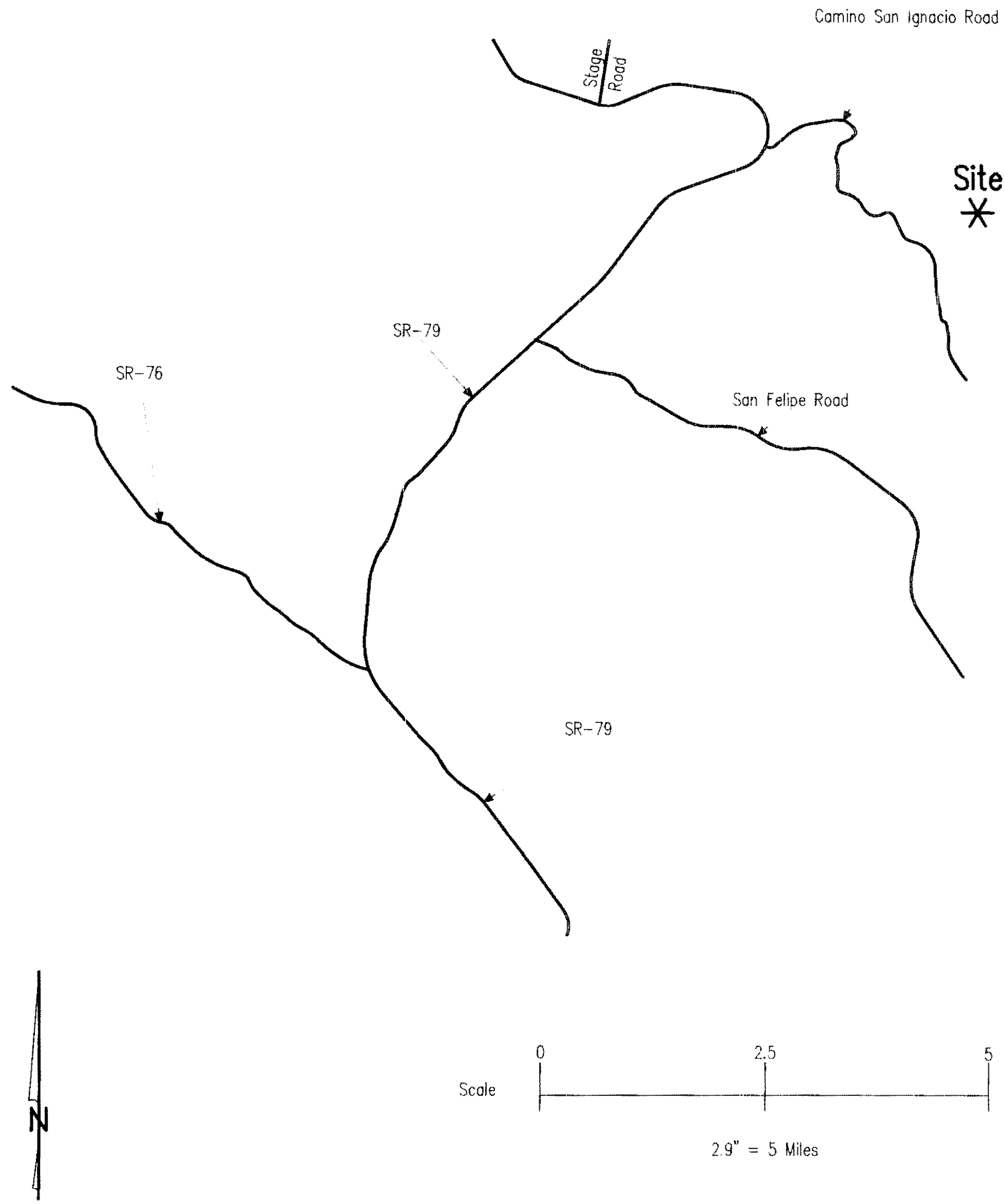
B. Land Use and Intensity

The project site is proposed to be developed with 25,000 square feet of casino area. The project site will have access to Camino San Ignacio Road.

C. Site Plan

Figure 2 illustrates the project site plan.

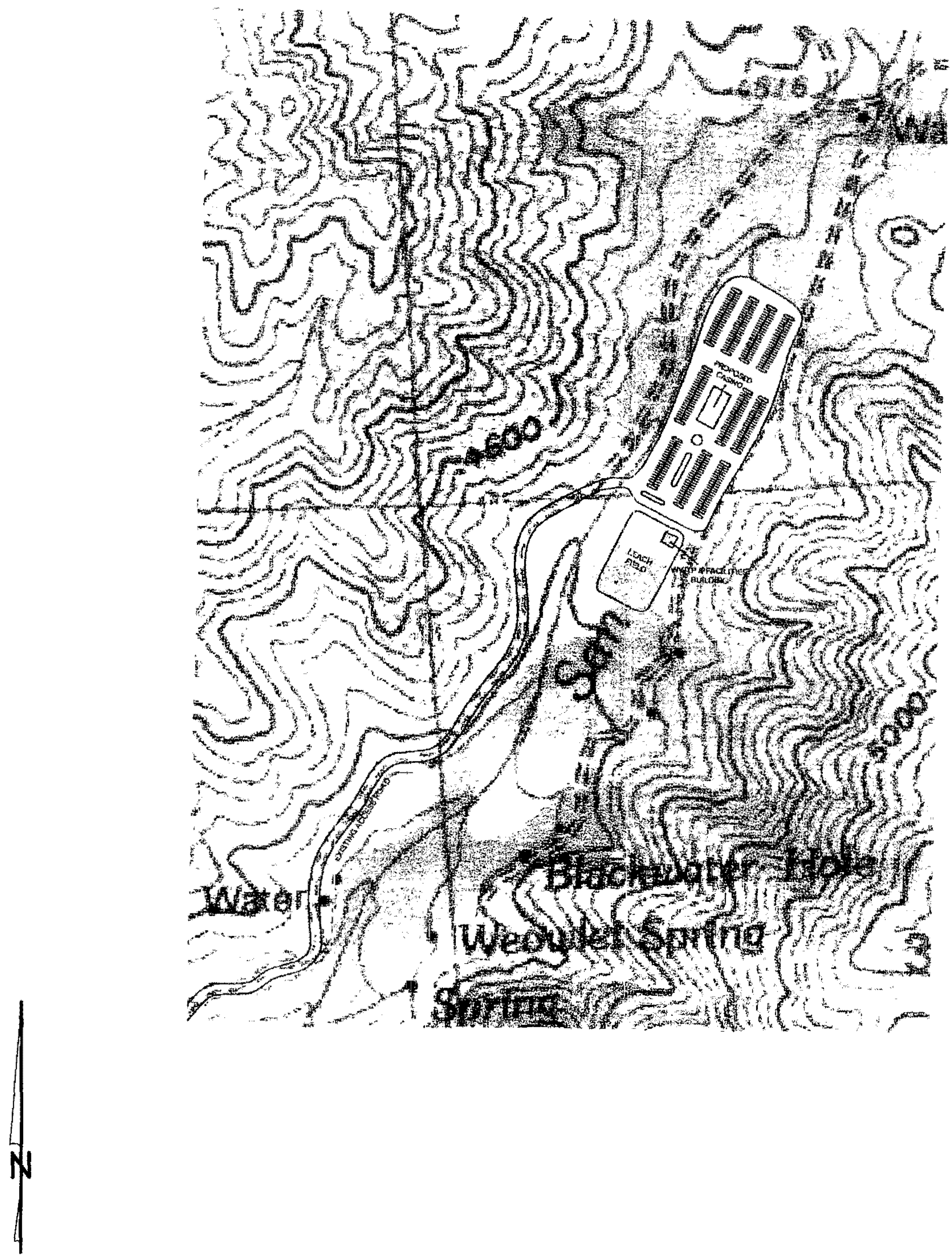
Figure 1
Project Location Map



Kunzman Associates

3552/San Diego/1

Figure 2
Site Plan



Kunzman Associates

3552/San Diego/2

III. Area Conditions

A. Study Area

1. Area of Significant Traffic Impact

The study area includes the following intersections and roadway segments:

Intersections:

SR-79 (NS) at:
Stage Road (EW)
Camino San Ignacio Road (EW)
San Felipe Road (EW)
SR-76 (EW)

Roadway Segments:

Camino San Ignacio Road:
East of SR-79

B. Study Area Land Use

1. Existing Land Uses

The project site is currently vacant and is not generating significant traffic.

2. Approved Future Development

To assess the Opening Year (2009) and Year 2030 traffic conditions, project traffic is combined with existing traffic and areawide growth. An areawide growth rate has been utilized to account for areawide growth on study area roadways. Opening Year (2009) traffic volumes have been calculated based on a "conservative" 2 percent annual growth rate of existing traffic volumes over a three year period. Year 2030 traffic volumes have been calculated based on a "conservative" 2 percent annual growth rate of existing traffic volumes over a twenty-four year period. The areawide growth rate has been obtained from the Traffic Volumes on California State Highways from the California Department of Transportation, as follows:

Location: SR-79, south of San Felipe Road
1995 Volume: 2,800 vehicles per day
2005 Volume: 3,350 vehicles per day
Approximate Annual Growth Rate: 1.81%, say 2.0%

Areawide growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project.

C. Surrounding Street System

Roadways that will be utilized by the development include SR-76, SR-79, San Felipe Road, Camino San Ignacio Road, and Stage Road.

SR-76: This north-south roadway is two lane undivided. It currently carries approximately 1,900 vehicles per day in the study area.

SR-79: This north-south and east-west roadway is two lane undivided to two lane divided. It currently carries approximately 1,600 to 3,100 vehicles per day in the study area.

San Felipe Road: This east-west roadway is two lane undivided. It currently carries approximately 900 vehicles per day in the study area.

Camino San Ignacio Road: This north-south and east-west roadway is two lane undivided. It currently carries approximately 500 vehicles per day in the study area.

Stage Road: This north-south roadway is two lane undivided. It currently carries less than 50 vehicles per day in the study area.

D. Site Accessibility

1. Existing Conditions

Currently, Camino San Ignacio Road exists and is a westbound cross street stop.

2. Area Roadway System

Figure 3 identifies the existing roadway conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

3. Roadway Segment Analysis

Figure 4 depicts the Existing average daily traffic volumes and volume to capacity ratios. The Existing average daily traffic volumes were obtained from the 2005 Traffic Volumes on California State Highways from the California Department of Transportation and factored from peak hour traffic counts (see Appendix B) made for Kunzman Associates in September 2006 using the following formula for each intersection leg:

PM Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume.

Existing volume to capacity ratios and levels of service have been calculated for the study area roadway and are shown in Table 1. Roadway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period, and is defined below:

Roadway Type	Design Capacity
2 Lanes Undivided	10,900

For link volume to capacity ratios, the following relationship to Levels of Service have been used:

Level of Service A = Volume to Capacity Ratio 0.000 to 0.600
Level of Service B = Volume to Capacity Ratio 0.601 to 0.700
Level of Service C = Volume to Capacity Ratio 0.701 to 0.800
Level of Service D = Volume to Capacity Ratio 0.801 to 0.900
Level of Service E = Volume to Capacity Ratio 0.901 to 1.000
Level of Service F = Volume to Capacity Ratio 1.001 and up

For Existing traffic conditions, the study area roadway segment currently operates within an acceptable volume to capacity ratio (see Table 1).

4. Intersection Operation Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix C). To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection. The Level of Service descriptions are described below:

LEVEL OF SERVICE DESCRIPTION[1]

Level of Service	Description	Average Total Delay Per Vehicle (Seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

[1] Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2000.

The Existing delay and Level of Service for intersections in the vicinity of the project are shown in Table 2. Existing delay is based upon manual weekday mid-day and evening peak hour turning movement counts made for Kunzman Associates in September 2006 (see Figure 5). Existing delay is based upon manual Saturday mid-day and evening peak hour turning movement counts made for Kunzman Associates in September 2006 (see Figure 6). Weekday and Saturday mid-day analyses have been completed pursuant to discussions with City of Barstow staff since Barstow peak hours differ from other jurisdictions. In order to have a consistent analysis for all alternatives for the Barstow Casinos Project, the weekday and Saturday mid-day analyses have been completed. Traffic count worksheets are provided in Appendix B.

For Existing traffic conditions, the study area intersections currently operate within an acceptable Levels of Service during the peak hours (see Table 2). Existing delay worksheets are provided in Appendix C.

5. Transit Service

The study area is not currently served by a transit agency.

Table 1

Existing Roadway Operations

Roadway	Segment	Number of Lanes[1]	Maximum Capacity	ADT[2]	V/C[3]	Within Capacity	Over Capacity	LOS[4]
Camino San Ignacio Road	South of SR-79	2U	10,900	500	0.05	X		A

[1] 2U = Two Lanes Undivided Roadway

[2] ADT = Average Daily Traffic.

[3] V/C = Volume to Capacity Ratio.

[4] LOS = Level of Service, which is based on maximum capacity (LOS D).

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600

Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700

Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800

Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900

Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000

Level of Service F = Volume to Capacity Ratio of 1.00 and up

Table 2

Existing Intersection Delay and Level of Service

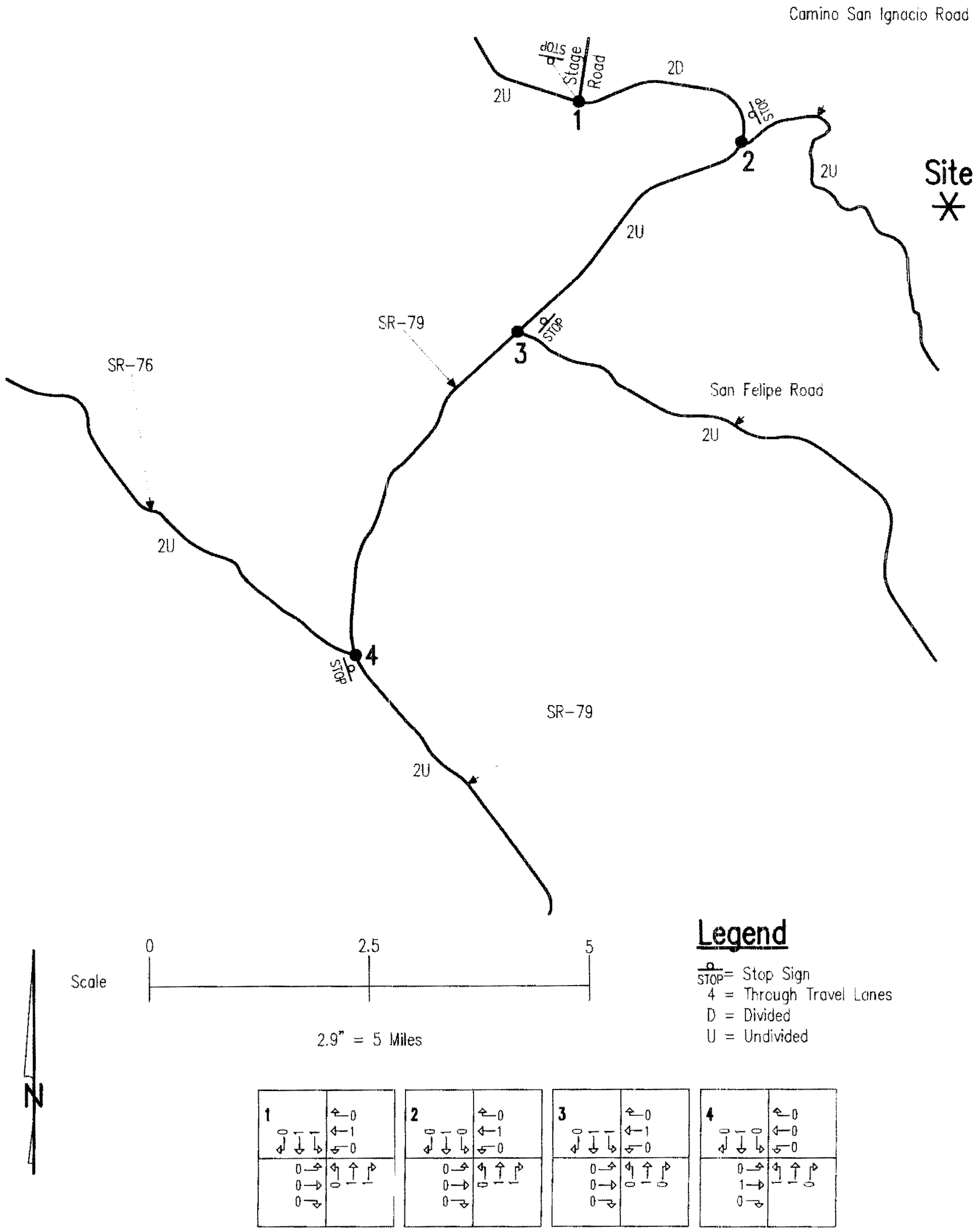
Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]			
		Northbound			Southbound			Eastbound			Westbound			Weekday		Saturday	
		L	T	R	L	T	R	L	T	R	L	T	R	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																	
Stage Road (EW)	CSS	0	1	1	1	1	0	0	0	0	0	1	0	8.8-A	8.8-A	9.7-A	9.5-A
Camino San Ignacio Road (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	9.0-A	8.8-A	9.5-A	9.0-A
San Felipe Road (EW)	CSS	0	1	0	1	1	0	0	0	0	0	1	0	9.7-A	9.4-A	10.1-B	9.6-A
SR-76 (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	9.7-A	9.7-A	11.2-B	10.5-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right

[2] Delay and level of service has been calculated using the following analysis software: Traffix, Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross Street Stop

Figure 3
Existing Through Travel Lanes and Intersection Controls



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/3

Figure 4
Existing Average Daily Traffic Volumes

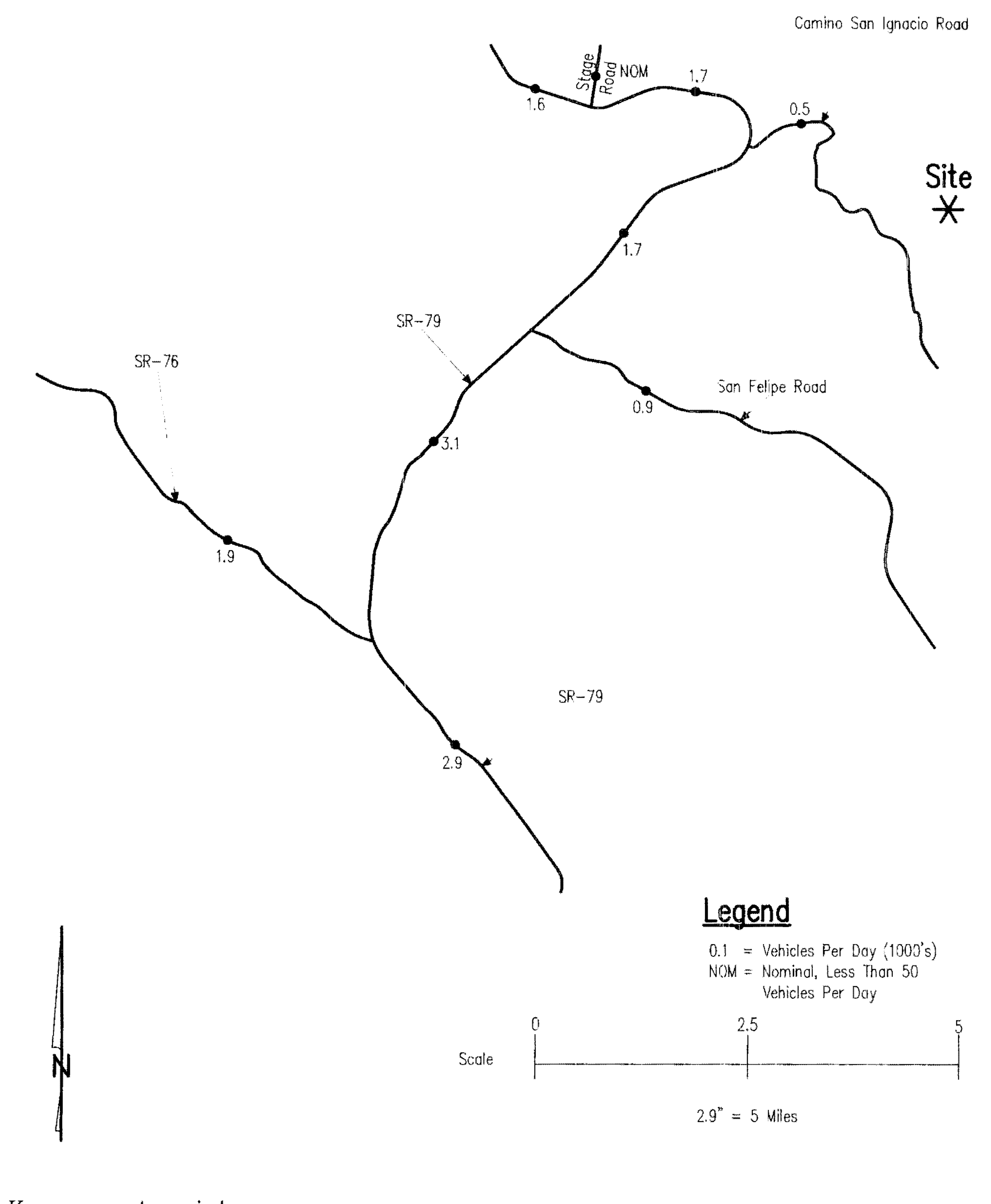
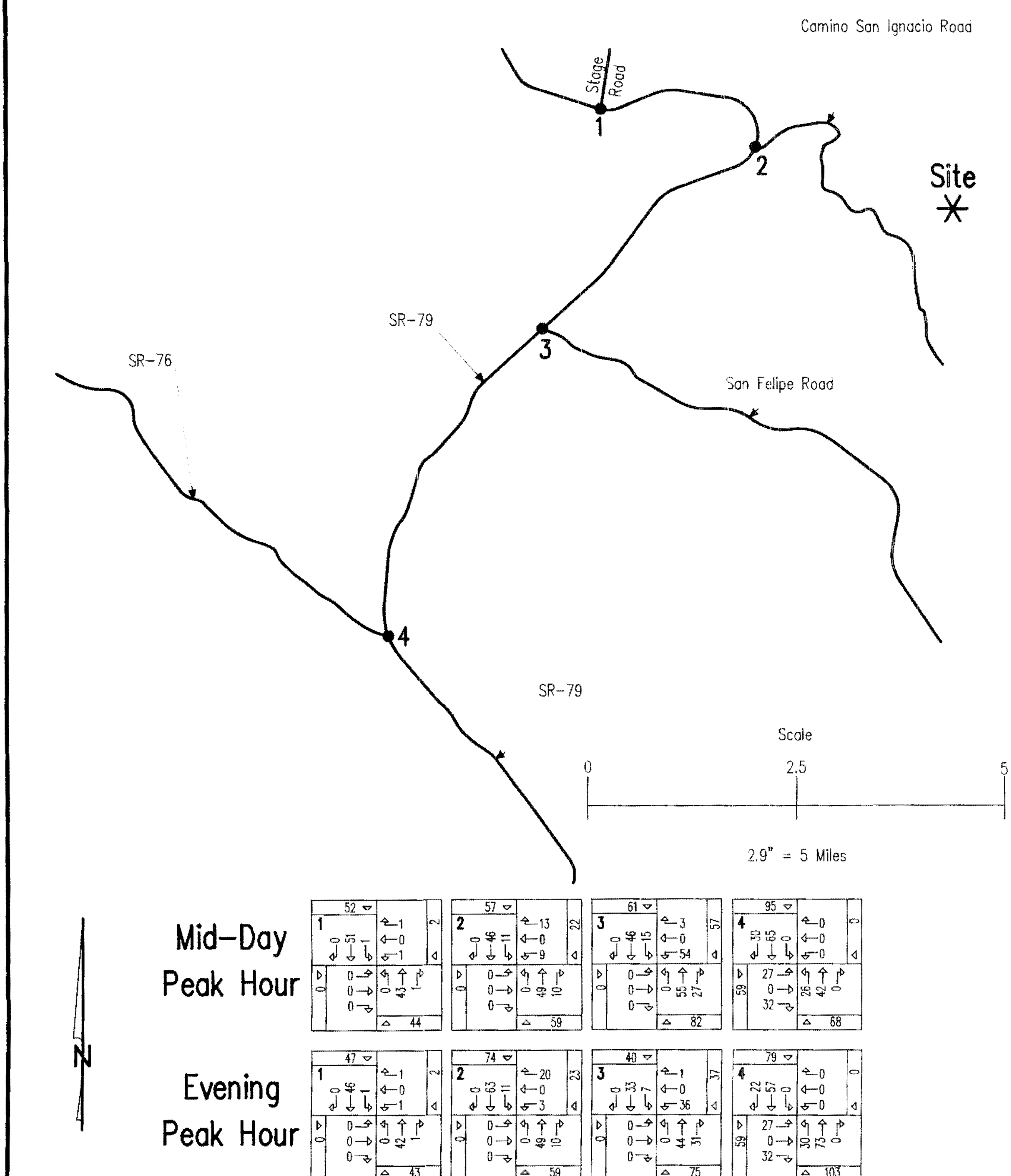
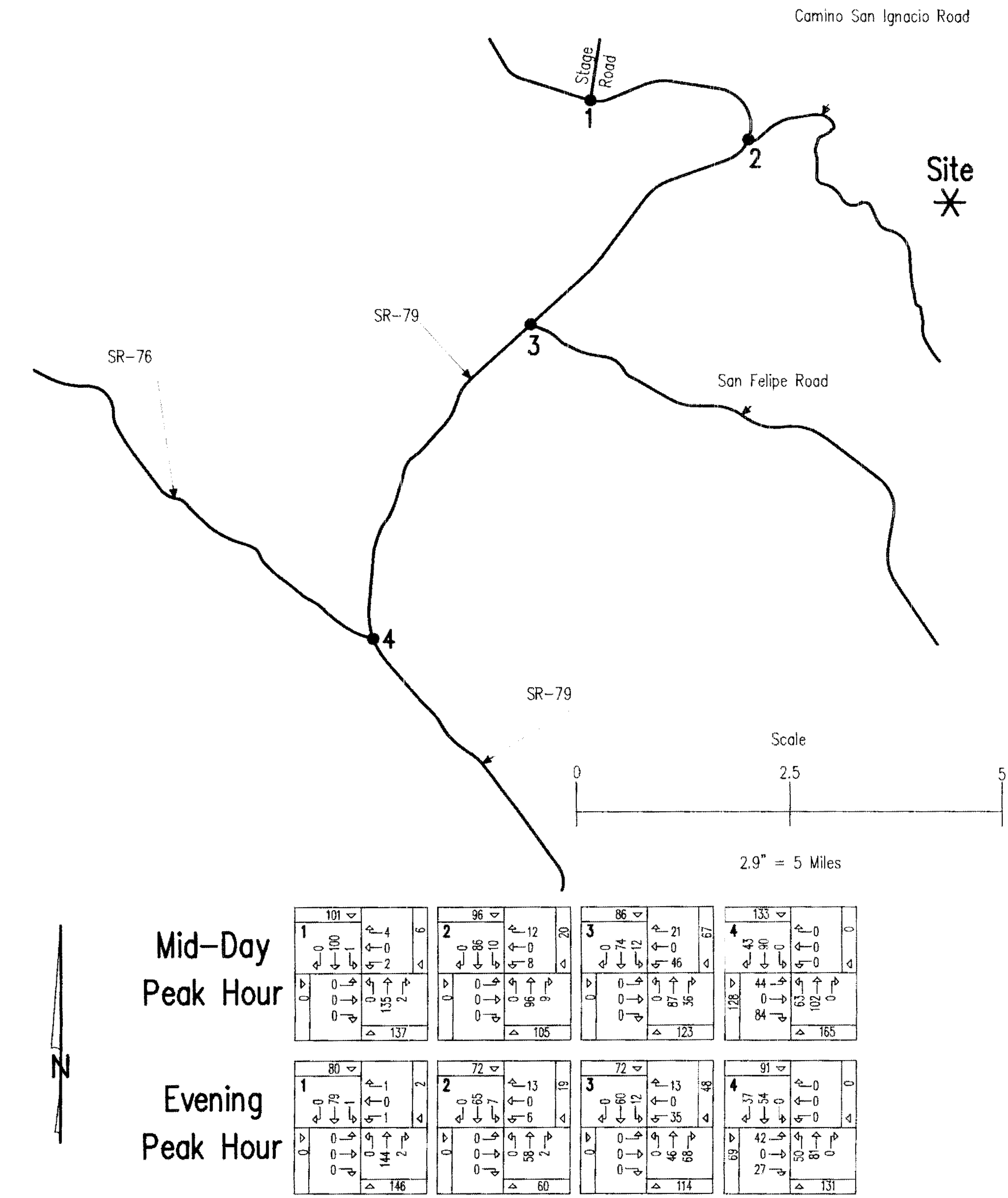


Figure 5
Existing Weekday Mid-Day/Evening
Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 6
Existing Saturday Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

IV. Project Traffic

The project site is proposed to be developed with 25,000 square feet of casino area. The project site will have access to Camino San Ignacio Road.

A. Site Traffic

1. Trip Generation

The traffic generated by the project is determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and our life styles remain similar to what we know today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, mid-day peak hour inbound and outbound traffic, evening peak hour inbound and outbound, and Saturday inbound and outbound traffic for the proposed land uses. By multiplying the traffic generation rates by the land use quantities, the traffic volumes are determined. Table 3 exhibits the traffic generation rates and shows the project peak hour volumes and project daily traffic volumes. The traffic generation rates are from the Shingle Springs Rancheria Interchange Transportation/Circulation Report dated April 2002 (see Appendix E).

Although there is significant information available regarding trip generation for casinos, most of this information is for more traditional casinos such as those found in Reno, Las Vegas, or Atlantic City. The best reference from which to determine trip generation, The Institute of Transportation Engineers, Trip Generation, does include trip generation information for casinos; however, they are based on only a few locations, and casinos significantly different in nature than the proposed project.

Trip generation information for Indian gaming style casinos are not readily available due to their unique trip generation characteristics compared to those of more traditional casinos. These differences are due to the type of gaming, isolated locations, etc. Although, trip generation characteristics for non-Indian gaming casinos were not used directly to establish trip generation for the proposed project, information from these sources were utilized to verify trip generation assumptions.

Per the Shingle Springs Rancheria Interchange Transportation/ Circulation Report dated April 2002, the approach used for establishing trip generation rates for the casino was to investigate trip generation characteristics at other casinos, included information within traffic studies for other casinos, and the results of surveys conducted at two northern California Indian gaming casinos by David Evans and Associates, Inc. (see Appendix E).

Therefore, the trip generation rates and inbound/outbound directional splits found for the two casinos surveyed by David Evans and Associates, Inc., and the three additional casinos surveyed by Fehr and Peers have been used to establish the trip generation rates for the project. The final trip rate for each peak hour scenario was established separately using available information and methodologies. Inbound/ outbound directional splits were established for each peak hour by averaging the directional splits at the surveyed casinos for each respective peak hour. The weighted average of the average daily traffic and peak hour trip rates were established for the five surveyed casinos and utilized for the project trip generation. The weighted average was used rather than a straight average to give more weight to the larger casinos.

The project is projected to generate a total of approximately 986 weekday daily vehicle trips, 99 of which will occur during the mid-day peak hour and 124 of which will occur during the evening peak hour. In addition, the proposed project is projected to generate 172 vehicle trips during the Saturday peak hour (see Table 3).

2. <u>Trip Distribution</u>

Figure 7 contains the proposed project directional distribution. To determine the traffic distribution for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

3. <u>Trip Assignment</u>

Based on the identified traffic generation and distribution, project average daily traffic volumes have been calculated and shown on Figure 8. Project weekday mid-day and evening peak hour intersection turning movement volumes expected from the project are shown on Figure 9. Project Saturday mid-day and evening peak hour intersection turning movement volumes expected from the project are shown on Figure 10.

B. Method of Projection

To assess the Opening Year (2009) and Year 2030 traffic conditions, project traffic is combined with existing traffic and areawide growth. An areawide growth rate has been utilized to account for areawide growth on study area roadways. Opening Year (2009) traffic volumes have been calculated based on a "conservative" 2 percent annual growth rate of existing traffic volumes over a three year period. Year 2030 traffic volumes have been calculated based on a "conservative" 2 percent annual growth rate of existing traffic volumes over a twenty-four year period. The areawide growth rate has been obtained from the Traffic Volumes on California State Highways from the California Department of Transportation, as follows:

Location: SR-79, south of San Felipe Road
1995 Volume: 2,800 vehicles per day
2005 Volume: 3,350 vehicles per day
Approximate Annual Growth Rate: 1.81%, say 2.0%

Areawide growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project.

Table 3

Project Traffic Generation[1]

Land Use	Quantity	Units[3]	Weekday Mid-Day Peak-Hour[2] Inbound	Weekday Mid-Day Peak-Hour[2] Outbound	Weekday Mid-Day Peak-Hour[2] Total	Weekday Evening Peak-Hour Inbound	Weekday Evening Peak-Hour Outbound	Weekday Evening Peak-Hour Total	Weekday Daily	Saturday Peak-Hour Inbound	Saturday Peak-Hour Outbound	Saturday Peak-Hour Total
Trip Generation Rates												
Casino	25.000	TSF	2.34	1.61	3.95	2.62	2.33	4.95	39.43	3.17	3.73	6.90
Trips Generated												
Casino	25.000	TSF	59	40	99	66	58	124	986	79	93	172

[1] Source: Shingle Springs Rancheria Interchange Transportation/Circulation, April 2002

[2] Mid-day rates for weekday are based on an average of morning and evening weekday rates

[3] TSF = Thousand Square Feet

Figure 7
Project Traffic Distribution

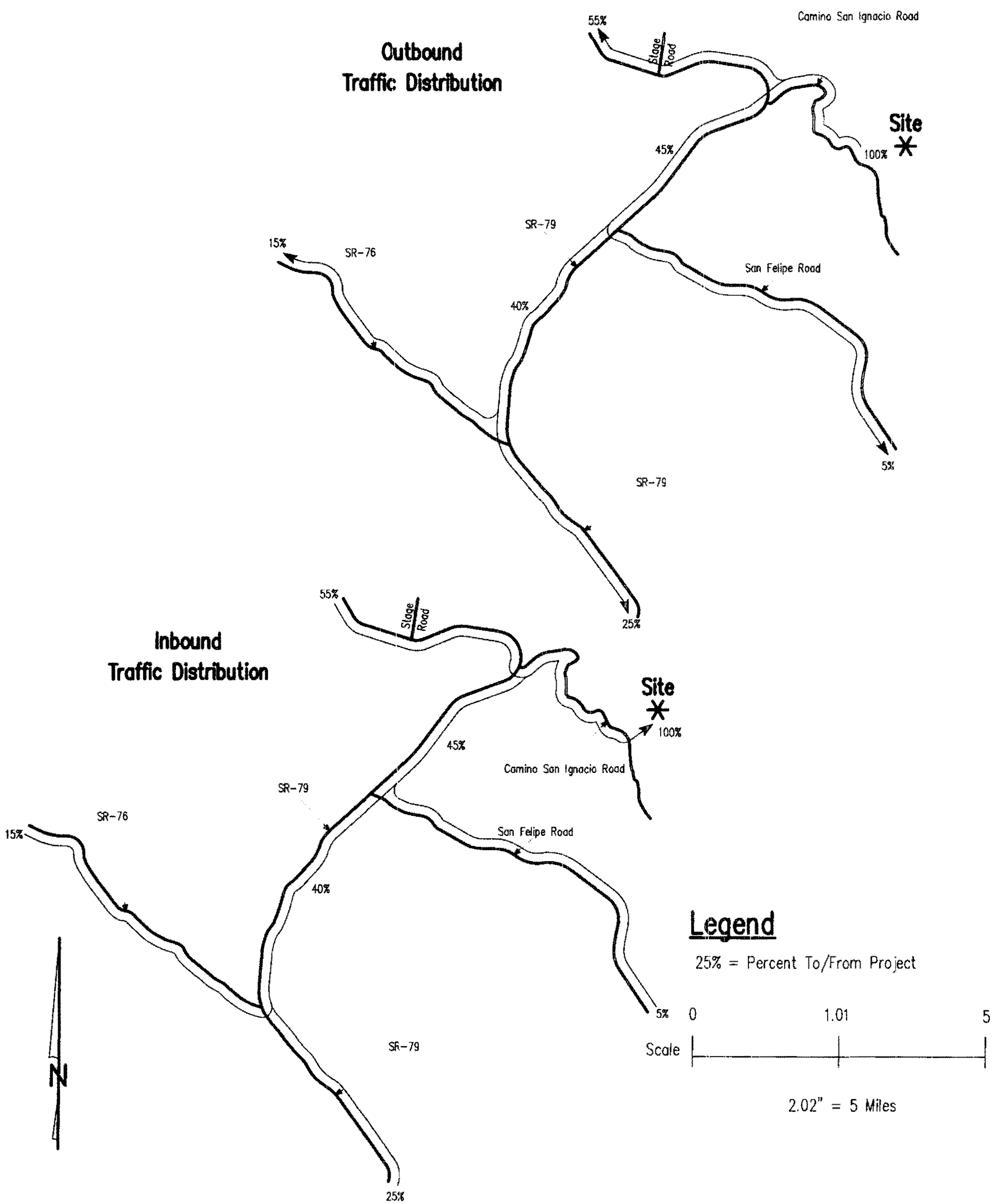


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Figure 8
Project Average Daily Traffic Volumes

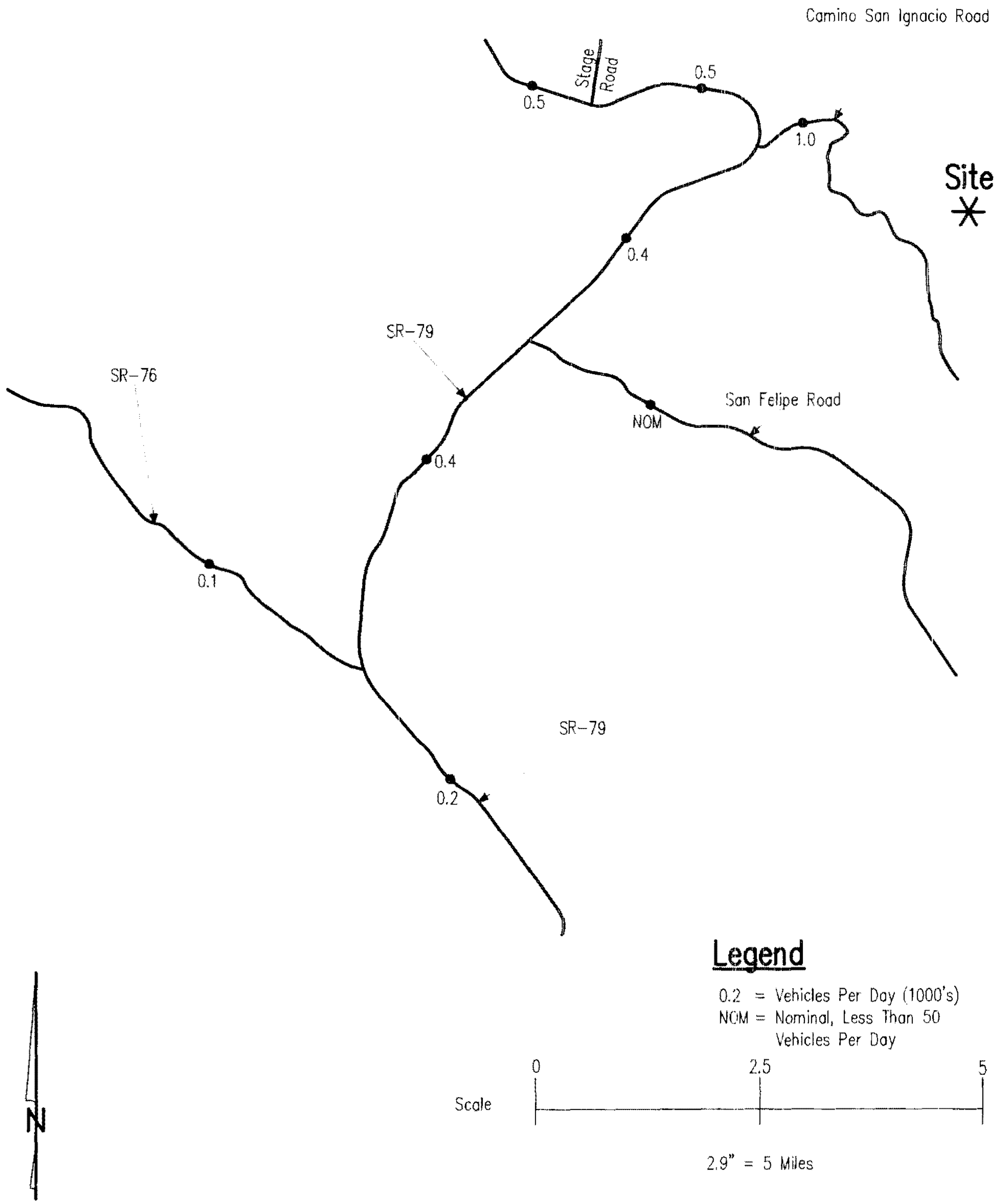

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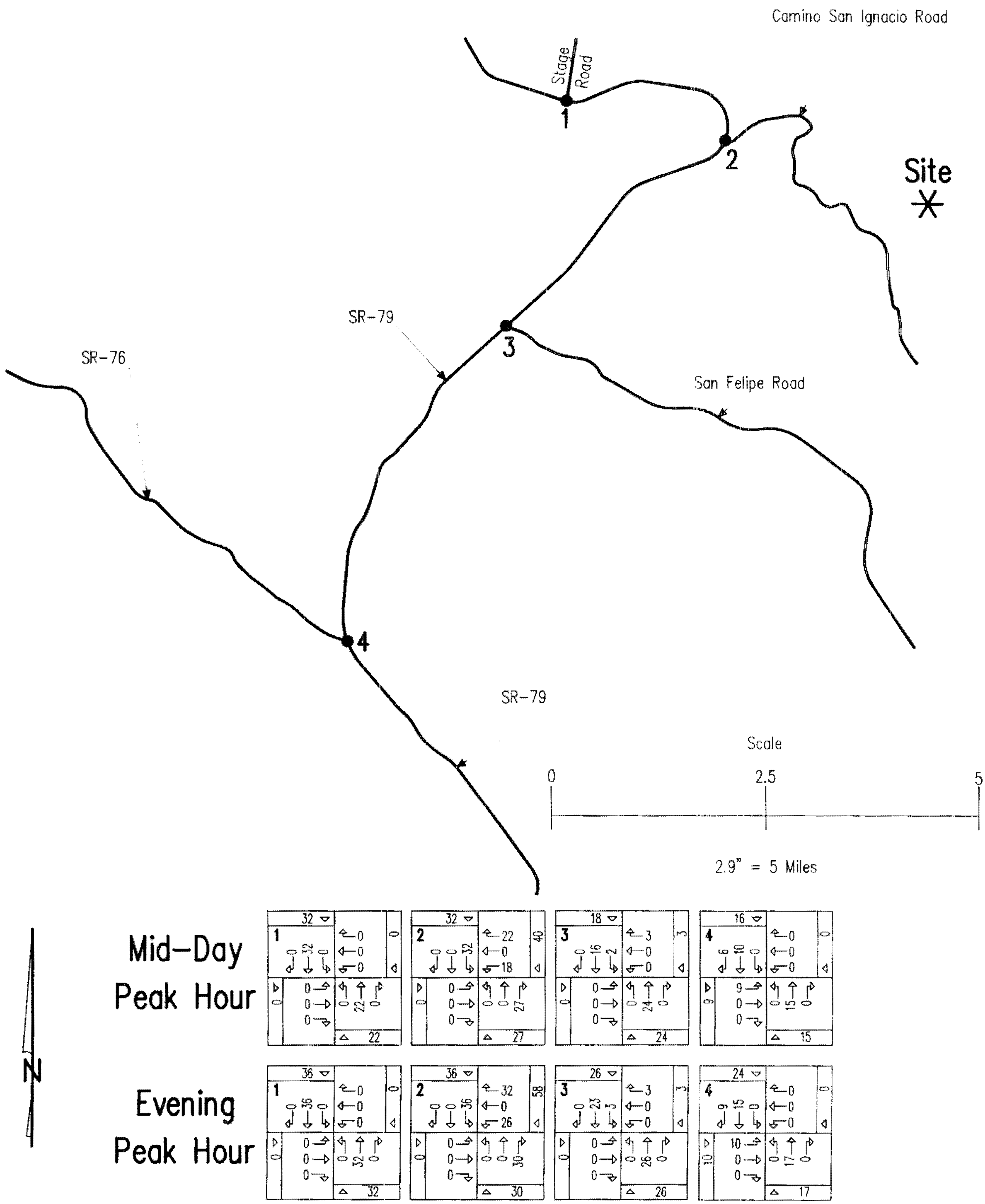
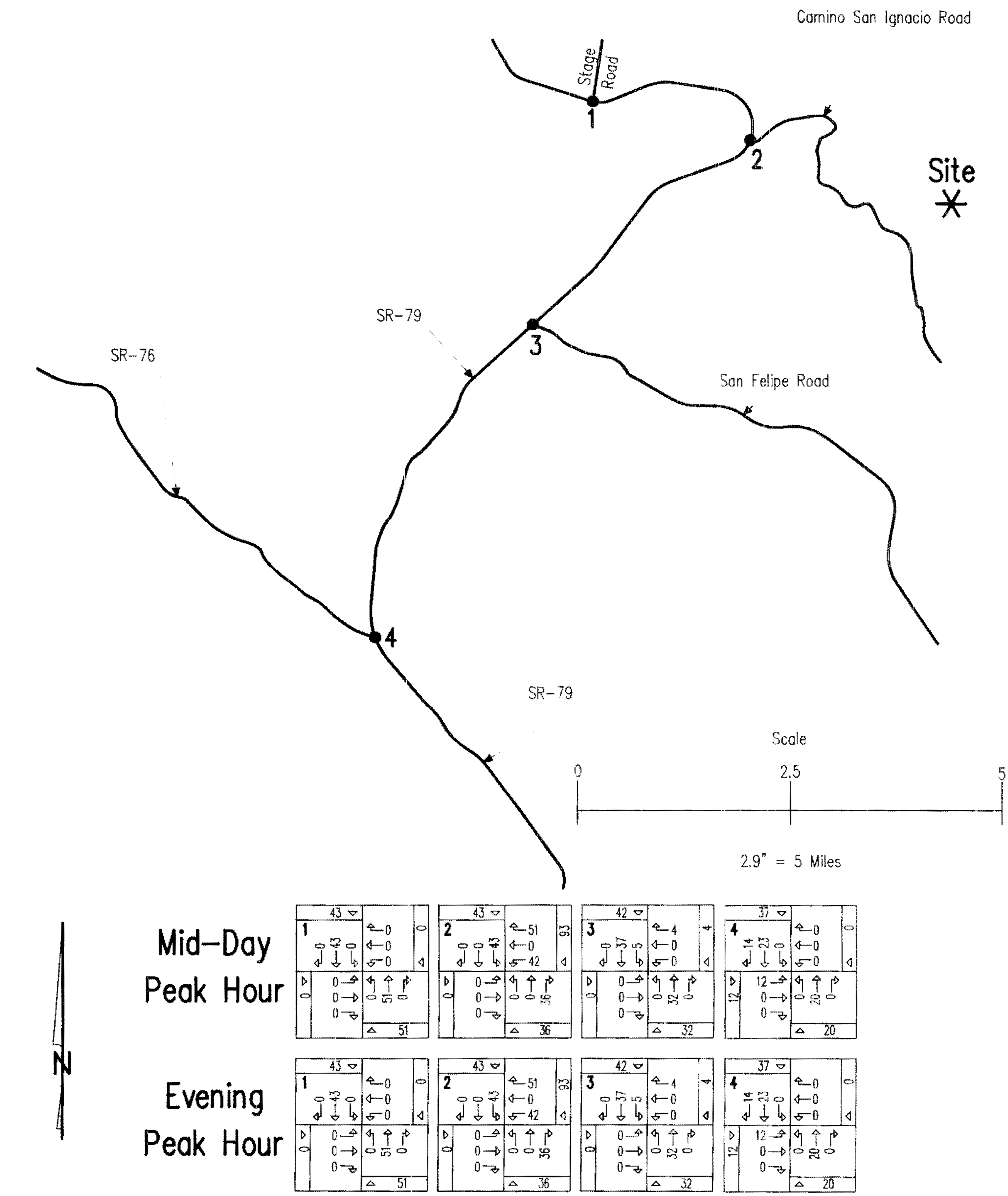
Figure 9
Project Weekday Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 10
Project Saturday Mid-Day/Evening
Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

V. Opening Year (2009) Traffic Analysis

A. Total Traffic, Opening Year (2009)

Figure 11 shows the average daily traffic volumes that can be expected for Opening Year (2009) Without Project traffic conditions. Figure 12 shows the average daily traffic volumes that can be expected for Opening Year (2009) With Project traffic conditions.

To assess the Opening Year (2009), project traffic is combined with existing traffic and areawide growth. Areawide growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project.

B. Opening Year (2009) Without Project

1. Roadway Segment Analysis

Opening Year (2009) Without Project volume to capacity ratio and level of service has been calculated for the study area roadway segment and is shown in Table 4 without improvements. For Opening Year (2009) Without Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service, without improvements.

2. Intersection Operation Analysis

The Opening Year (2009) Without Project delay and Level of Service for the study area roadway network are shown in Table 5. Table 5 shows delay values based on the geometrics at the study area intersections, without improvements. Opening Year (2009) Without Project weekday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 13. Opening Year (2009) Without Project Saturday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 14.

For Opening Year (2009) Without Project traffic conditions, the study area intersections are projected to operate within an acceptable Levels of Service during the peak hours, without improvements (see Table 5).

C. Opening Year (2009) With Project

1. Roadway Segment Analysis

Opening Year (2009) With Project volume to capacity ratio and level of service have been calculated for the study area roadway segment and is shown in Table 6 without improvements. For Opening Year (2009) With Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service, without improvements. Therefore, no mitigation measures/improvements are projected to be necessary.

2. Intersection Operation Analysis

The Opening Year (2009) With Project delay and Level of Service for the study area roadway network are shown in Table 7. Table 7 shows delay values based on the geometrics at the study area intersections, without improvements. Opening Year (2009) With Project weekday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 15. Opening Year (2009) With Project Saturday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 16.

For Opening Year (2009) With Project traffic conditions, the study area intersections are projected to operate within an acceptable Levels of Service during the peak hours, without improvements (see Table7). Therefore, no mitigation measures/improvements are projected to be necessary.

3. Traffic Signal Warrant Analysis

For Opening Year (2009) With Project traffic conditions, traffic signals are not projected to be warranted at the following study area intersections (see Appendix D):

SR-79 (NS) at:
- Stage Road (EW)
- Camino San Ignacio Road (EW)
- San Felipe Road (EW)
- SR-76 (EW)

The intersections have been evaluated for traffic signals using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the Manual of Uniform Traffic Control Devises 2003 California Supplement, dated May 20, 2004.

Table 4

Opening Year (2009) Without Project Roadway Operations

Roadway	Segment	Number of Lanes[1]	Maximum Capacity	ADT[2]	V/C[3]	Within Capacity	Over Capacity	LOS[4]
Camino San Ignacio Road	South of SR-79	2U	10,900	500	0.05	X		A

[1] 2U = Two Lanes Undivided Roadway

[2] ADT = Average Daily Traffic.

[3] V/C = Volume to Capacity Ratio.

[4] LOS = Level of Service, which is based on maximum capacity (LOS D).

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600

Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700

Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800

Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900

Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000

Level of Service F = Volume to Capacity Ratio of 1.00 and up

Table 5

Opening Year (2009) Without Project Intersection Delay and Level of Service

Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]			
		Northbound			Southbound			Eastbound			Westbound			Weekday		Saturday	
		L	T	R	L	T	R	L	T	R	L	T	R	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																	
Stage Road (EW)	CSS	0	1	1	1	1	0	0	0	0	0	1	0	8.8-A	8.8-A	9.8-A	9.6-A
Camino San Ignacio Road (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	9.0-A	8.8-A	9.6-A	9.0-A
San Felipe Road (EW)	CSS	0	1	0	1	1	0	0	0	0	0	1	0	9.8-A	9.5-A	10.2-B	9.7-A
SR-76 (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	9.8-A	9.8-A	11.5-B	10.7-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right

[2] Delay and level of service has been calculated using the following analysis software: Traffix Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross Street Stop

Table 6

Opening Year (2009) With Project Roadway Operations

Roadway	Segment	Number of Lanes[1]	Maximum Capacity	ADT[2]	V/C[3]	Within Capacity	Over Capacity	LOS[4]
Camino San Ignacio Road	South of SR-79	2U	10,900	1,500	0.14	X		A

[1] 2U = Two Lanes Undivided Roadway

[2] ADT = Average Daily Traffic.

[3] V/C = Volume to Capacity Ratio.

[4] LOS = Level of Service, which is based on maximum capacity (LOS D)

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600

Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700

Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800

Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900

Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000

Level of Service F = Volume to Capacity Ratio of 1.00 and up

Table 7

Opening Year (2009) With Project Intersection Delay and Level of Service

Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]			
		Northbound			Southbound			Eastbound			Westbound			Weekday		Saturday	
		L	T	R	L	T	R	L	T	R	L	T	R	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																	
Stage Road (EW)	CSS	0	1	1	1	1	0	0	0	0	0	1	0	9.0-A	9.2-A	10.4-B	10.2-B
Camino San Ignacio Road (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	9.6-A	9.8-A	11.7-B	10.6-B
San Felipe Road (EW)	CSS	0	1	0	1	1	0	0	0	0	0	1	0	10.2-B	9.9-A	10.9-B	10.3-B
SR-76 (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	10.2-B	10.3-B	12.7-B	11.5-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right

[2] Delay and level of service has been calculated using the following analysis software: Traffix, Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross Street Stop

Figure 11
Opening Year (2009) Without Project Average Daily Traffic Volumes

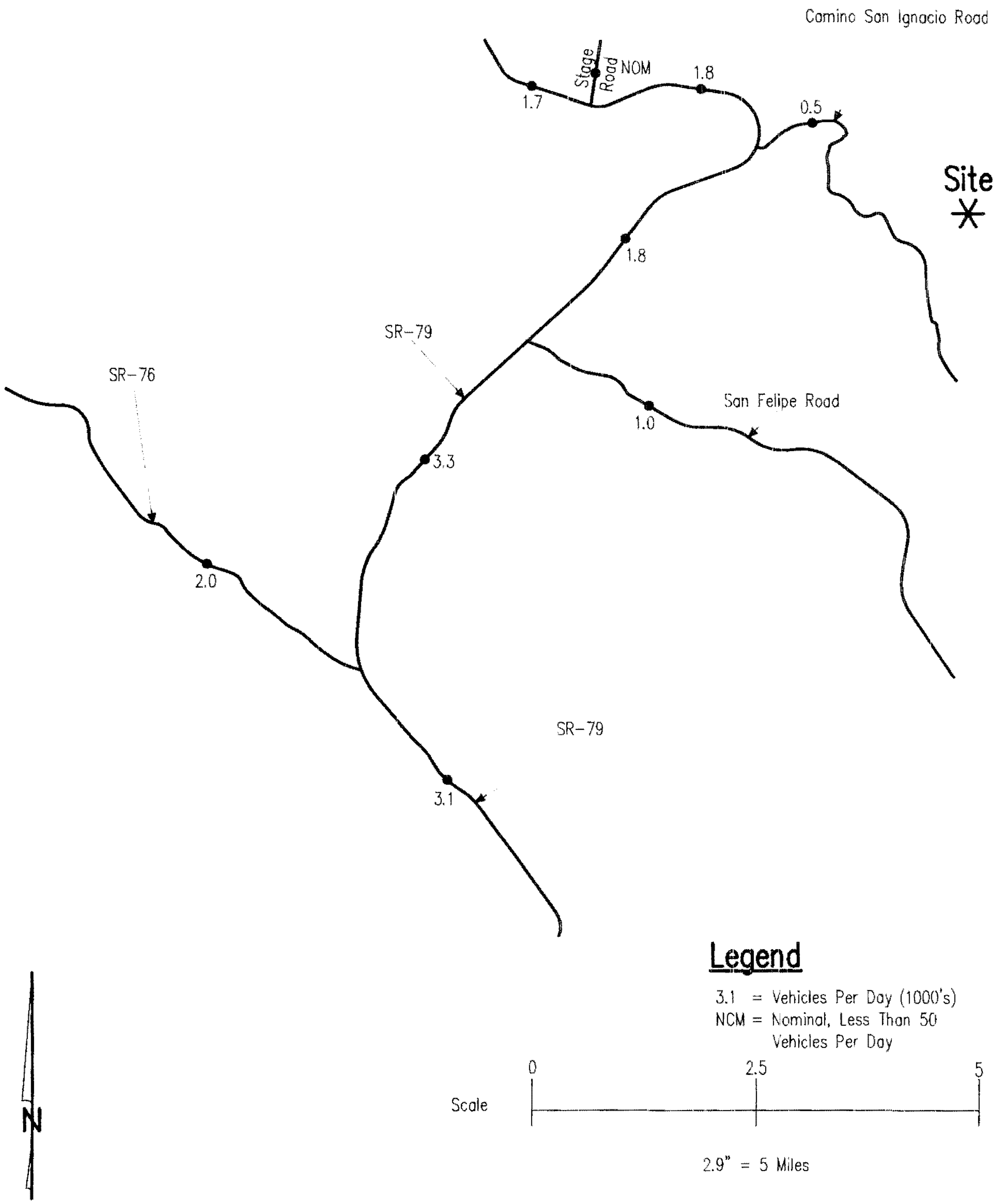


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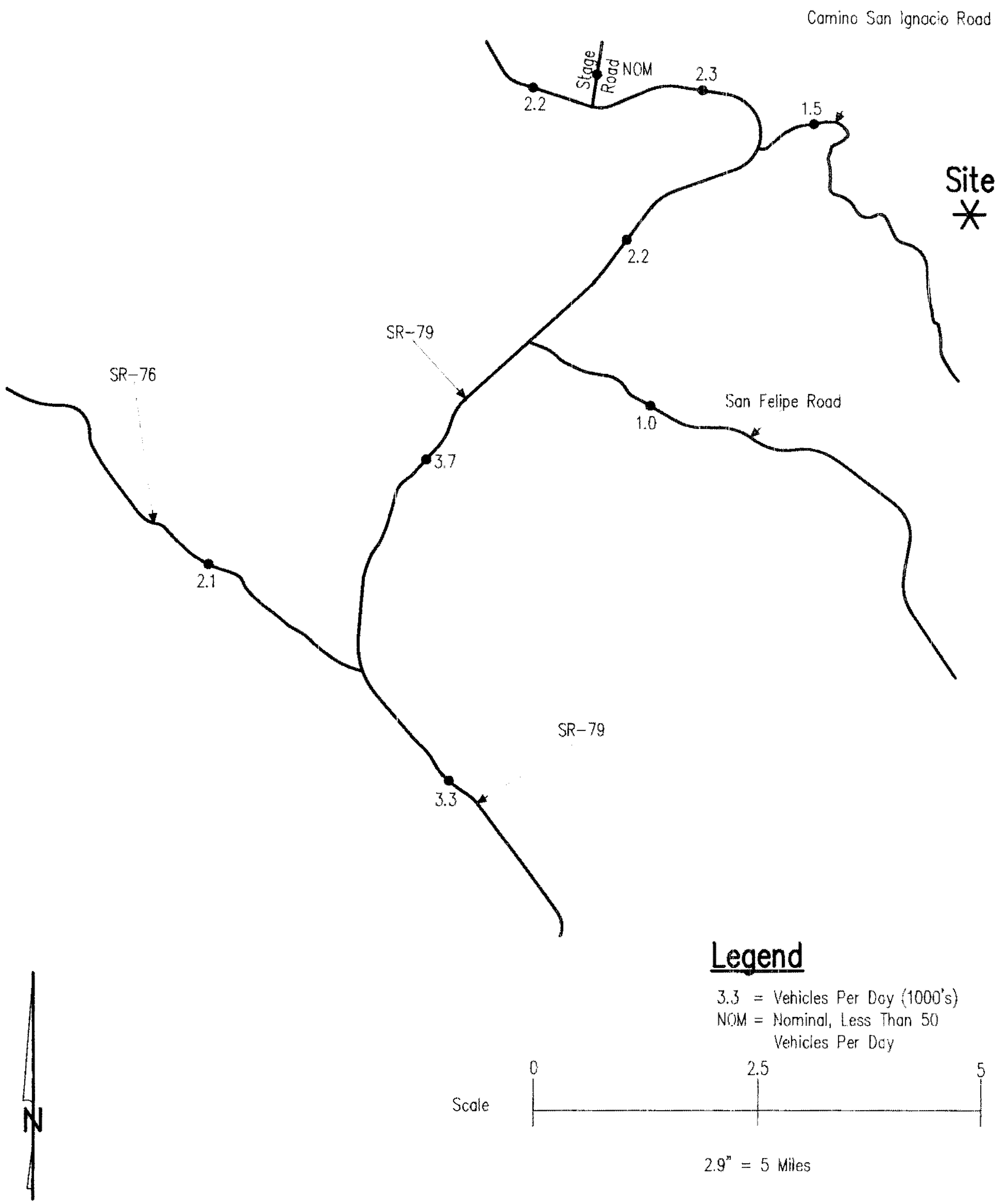
Figure 12
Opening Year (2009) With Project Average Daily Traffic Volumes



Kunzman Associates

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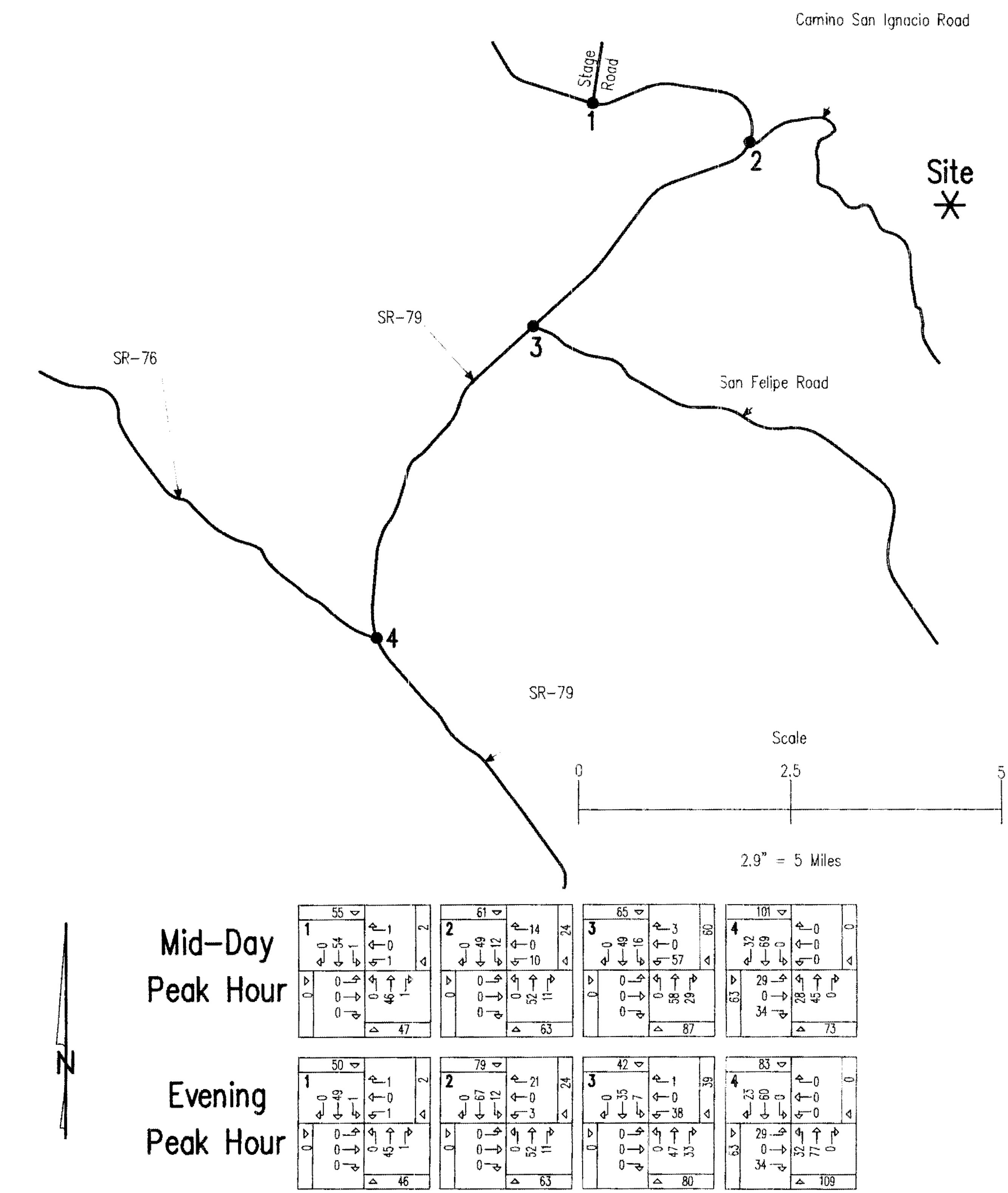
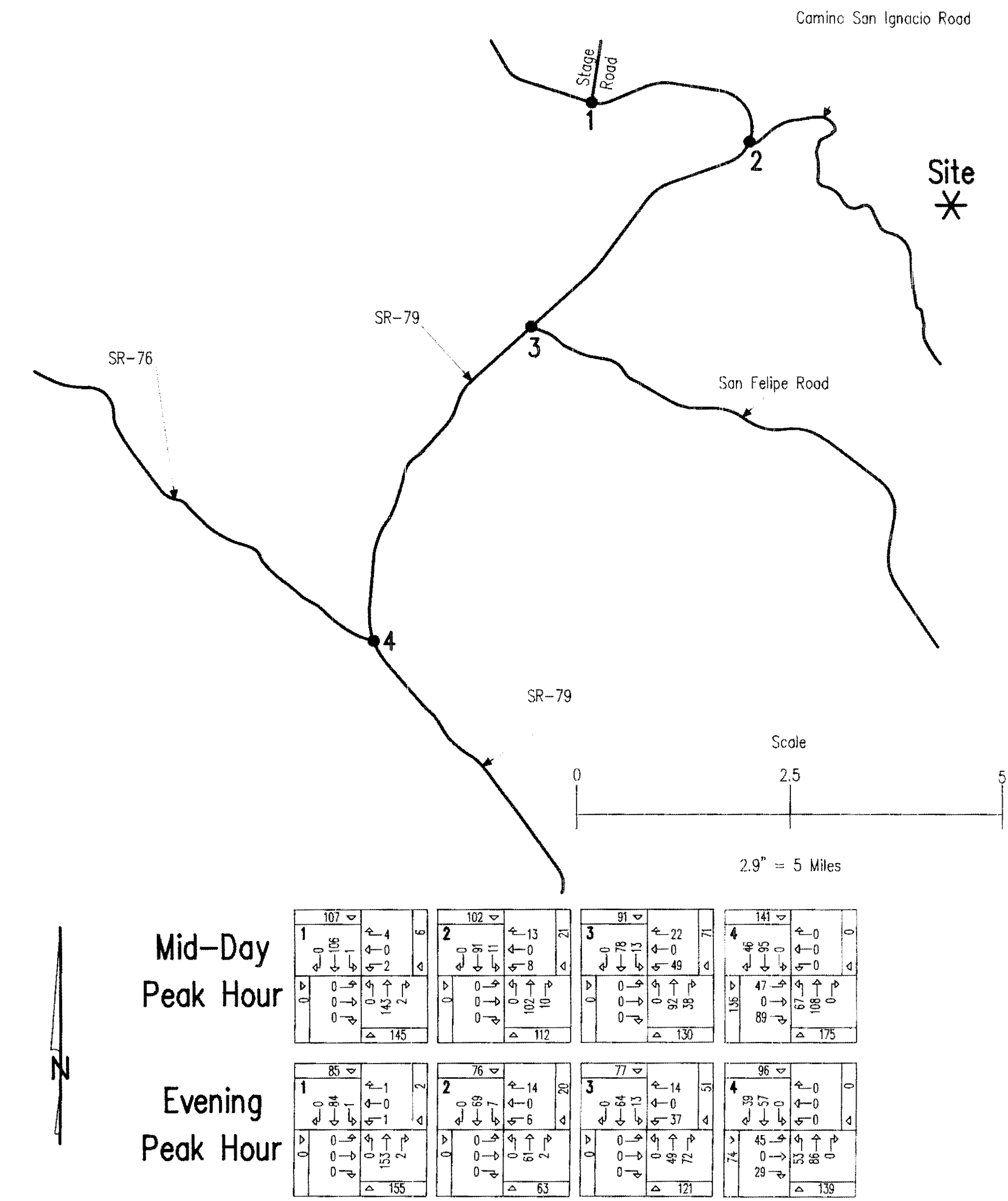
Figure 13
Opening Year (2009) Without Project Weekday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



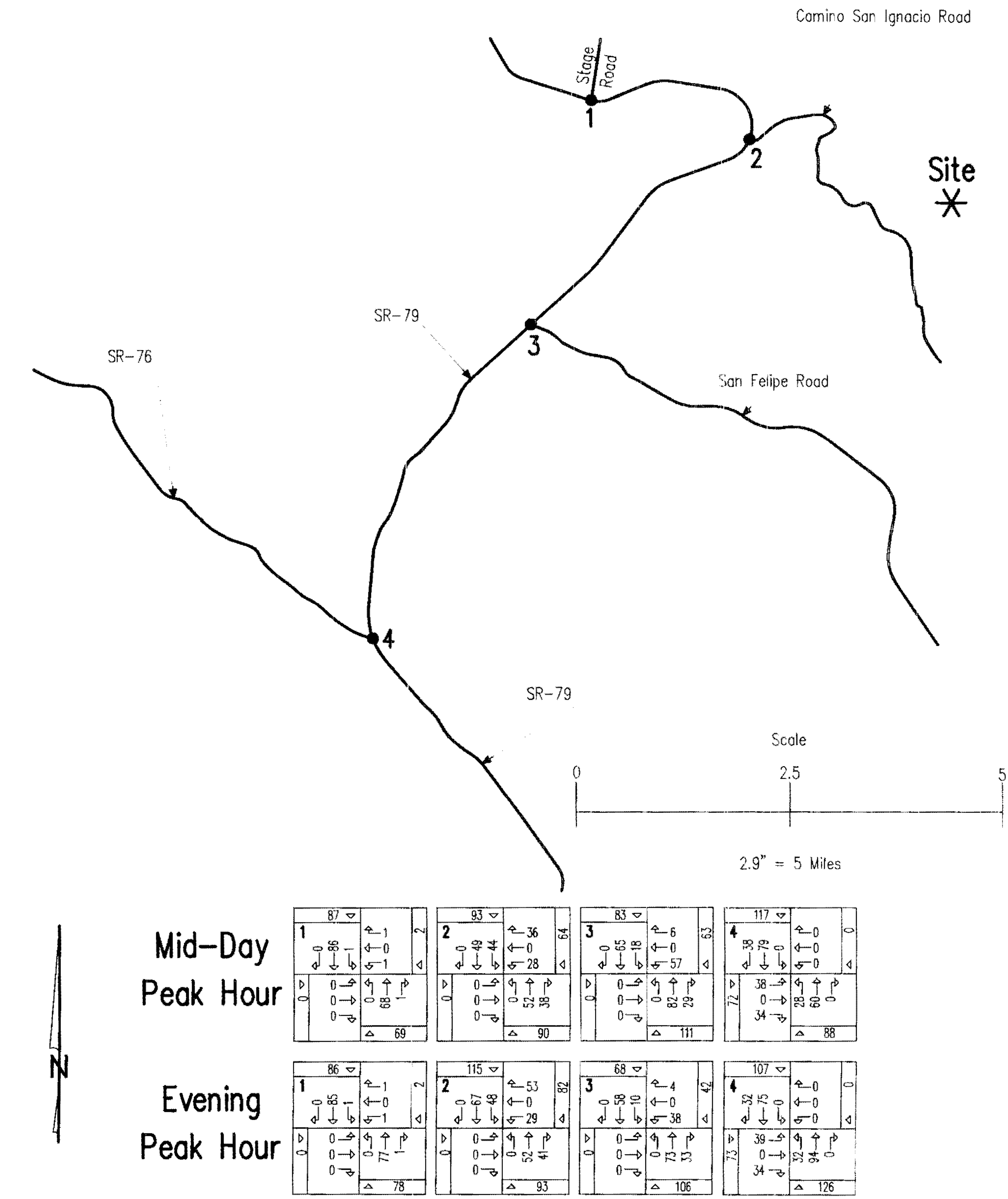
Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 14
Opening Year (2009) Without Project Saturday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



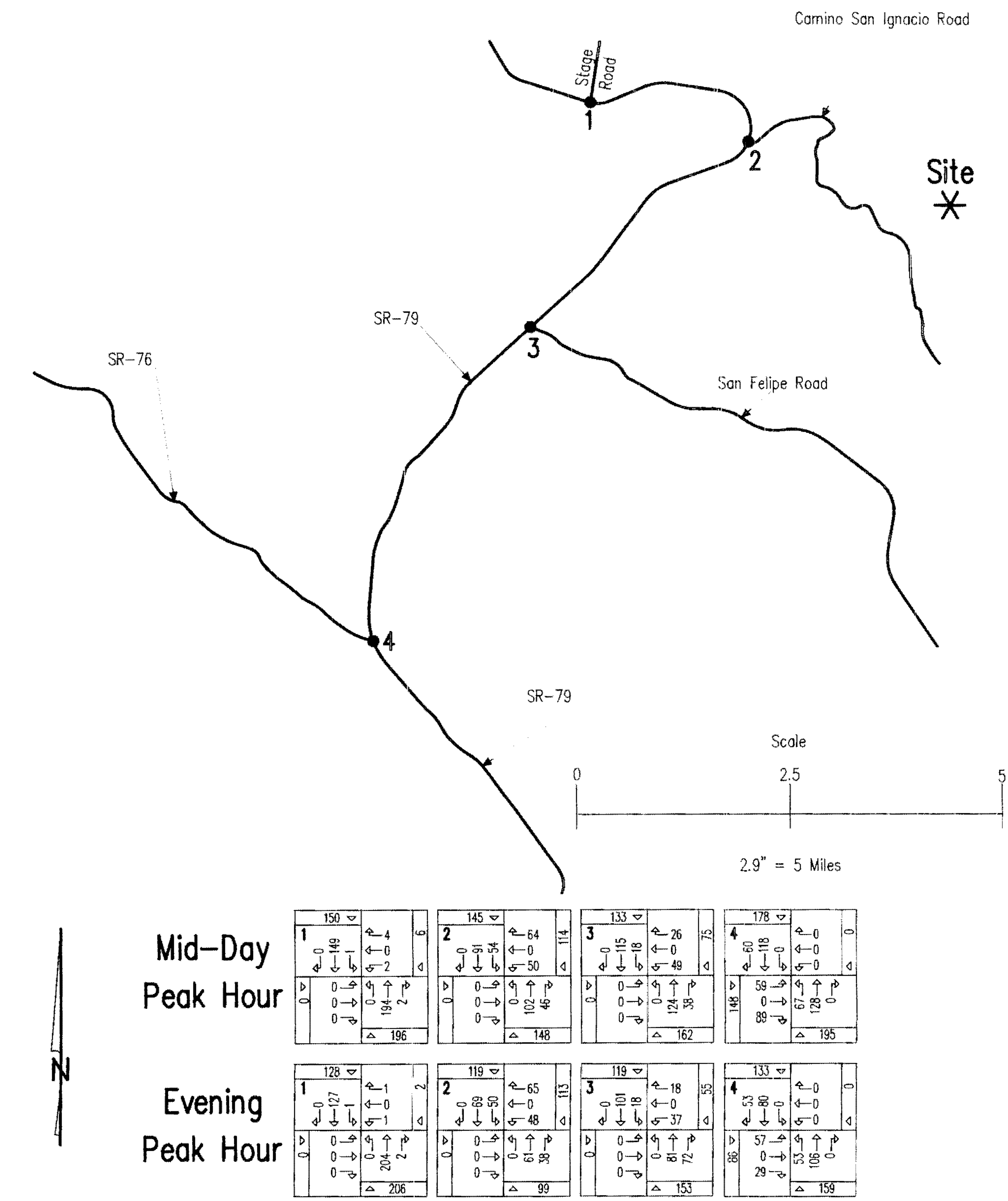
Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 15
Opening Year (2009) With Project Weekday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 16
Opening Year (2009) With Project Saturday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

VI. Year 2030 Traffic Analysis

A. Total Traffic, Year 2030

Figure 17 shows the average daily traffic volumes that can be expected for Year 2030 Without Project traffic conditions. Figure 18 shows the average daily traffic volumes that can be expected for Year 2030 With Project traffic.

To assess Year 2030 traffic conditions, project traffic is combined with existing traffic and areawide growth. Areawide growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project.

B. Year 2030 Without Project

1. Roadway Segment Analysis

Year 2030 Without Project volume to capacity ratio and level of service have been calculated for the study area roadway segment and is shown in Table 8 without improvements. For Year 2030 Without Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service, without improvements.

2. Intersection Operation Analysis

The Year 2030 Without Project delay and Level of Service for the study area roadway network are shown in Table 9. Table 9 shows delay values based on the geometrics at the study area intersections, without improvements. Year 2030 Without Project weekday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 19. Year 2030 Without Project Saturday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 20.

For Year 2030 Without Project traffic conditions, the study area intersections are projected to operate within an acceptable Levels of Service during the peak hours, without improvements (see Table 9).

C. Year 2030 With Project

1. Roadway Segment Analysis

Year 2030 With Project volume to capacity ratio and level of service have been calculated for the study area roadway segment and is shown in Table 10 without improvements. For Year 2030 With Project traffic conditions, the study area roadway segment is projected to operate within an acceptable Level of Service, without improvements. Therefore, no mitigation measures/improvements are projected to be necessary.

2. Intersection Operation Analysis

The Year 2030 With Project delay and Level of Service for the study area roadway network are shown in Table 11. Table11 shows delay values based on the geometrics at the study area intersections, without improvements. Year 2030 With Project weekday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 21. Year 2030 With Project Saturday mid-day and evening peak hour intersection turning movement volumes are shown on Figure 22.

For Year 2030 With Project traffic conditions, the study area intersections are projected to operate within an acceptable Levels of Service during the peak hours, without improvements (see Table 11). Therefore, no mitigation measures/improvements are projected to be necessary.

3. Traffic Signal Warrant Analysis

For Year 2030 With Project traffic conditions, traffic signals are not projected to be warranted at the following study area intersections (see Appendix D):

SR-79 (NS) at:
- Stage Road (EW)
- Camino San Ignacio Road (EW)
- San Felipe Road (EW)
- SR-76 (EW)

The intersections have been evaluated for traffic signals using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the Manual of Uniform Traffic Control Devises 2003 California Supplement, dated May 20, 2004.

Table 8

Year 2030 Without Project Roadway Operations

Roadway	Segment	Number of Lanes[1]	Maximum Capacity	ADT[2]	V/C[3]	Within Capacity	Over Capacity	LOS[4]
Camino San Ignacio Road	South of SR-79	2U	10,900	800	0.07	X		A

[1] 2U = Two Lanes Undivided Roadway

[2] ADT = Average Daily Traffic.

[3] V/C = Volume to Capacity Ratio.

[4] LOS = Level of Service, which is based on maximum capacity (LOS D).

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600
Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700
Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800
Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900
Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000
Level of Service F = Volume to Capacity Ratio of 1.00 and up

Table 9

Year 2030 Without Project Intersection Delay and Level of Service

Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]			
		Northbound			Southbound			Eastbound			Westbound			Weekday		Saturday	
		L	T	R	L	T	R	L	T	R	L	T	R	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																	
Stage Road (EW)	CSS	0	1	1	1	1	0	0	0	0	0	1	0	9.0-A	9.1-A	10.7-B	10.5-B
Camino San Ignacio Road (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	9.4-A	9.1-A	10.5-B	9.4-A
San Felipe Road (EW)	CSS	0	1	0	1	1	0	0	0	0	0	1	0	10.9-B	10.2-B	11.8-B	10.7-B
SR-76 (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	10.9-B	10.9-B	16.5-C	13.1-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left, T = Through; R = Right

[2] Delay and level of service has been calculated using the following analysis software Traffix, Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown

[3] CSS = Cross Street Stop

Table 10

Year 2030 With Project Roadway Operations

Roadway	Segment	Number of Lanes[1]	Maximum Capacity	ADT[2]	V/C[3]	Within Capacity	Over Capacity	LOS[4]
Camino San Ignacio Road	South of SR-79	2U	10,900	1,800	0.17	X		A

[1] 2U = Two Lanes Undivided Roadway

[2] ADT = Average Daily Traffic.

[3] V/C = Volume to Capacity Ratio.

[4] LOS = Level of Service, which is based on maximum capacity (LOS D).

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600

Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700

Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800

Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900

Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000

Level of Service F = Volume to Capacity Ratio of 1.00 and up

Table 11

Year 2030 With Project Intersection Delay and Level of Service

Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]			
		Northbound			Southbound			Eastbound			Westbound			Weekday		Saturday	
		L	T	R	L	T	R	L	T	R	L	T	R	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																	
Stage Road (EW)	CSS	0	1	1	1	1	0	0	0	0	0	1	0	9.3-A	9.5-A	11.5-B	11.1-B
Camino San Ignacio Road (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	10.2-B	10.3-B	13.5-B	11.4-B
San Felipe Road (EW)	CSS	0	1	0	1	1	0	0	0	0	0	1	0	11.4-B	10.7-B	12.9-B	11.5-B
SR-76 (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	11.5-B	11.6-B	19.8-C	14.6-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right

[2] Delay and level of service has been calculated using the following analysis software. Traffix Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross Street Stop

Figure 17
Year 2030 Without Project Average Daily Traffic Volumes

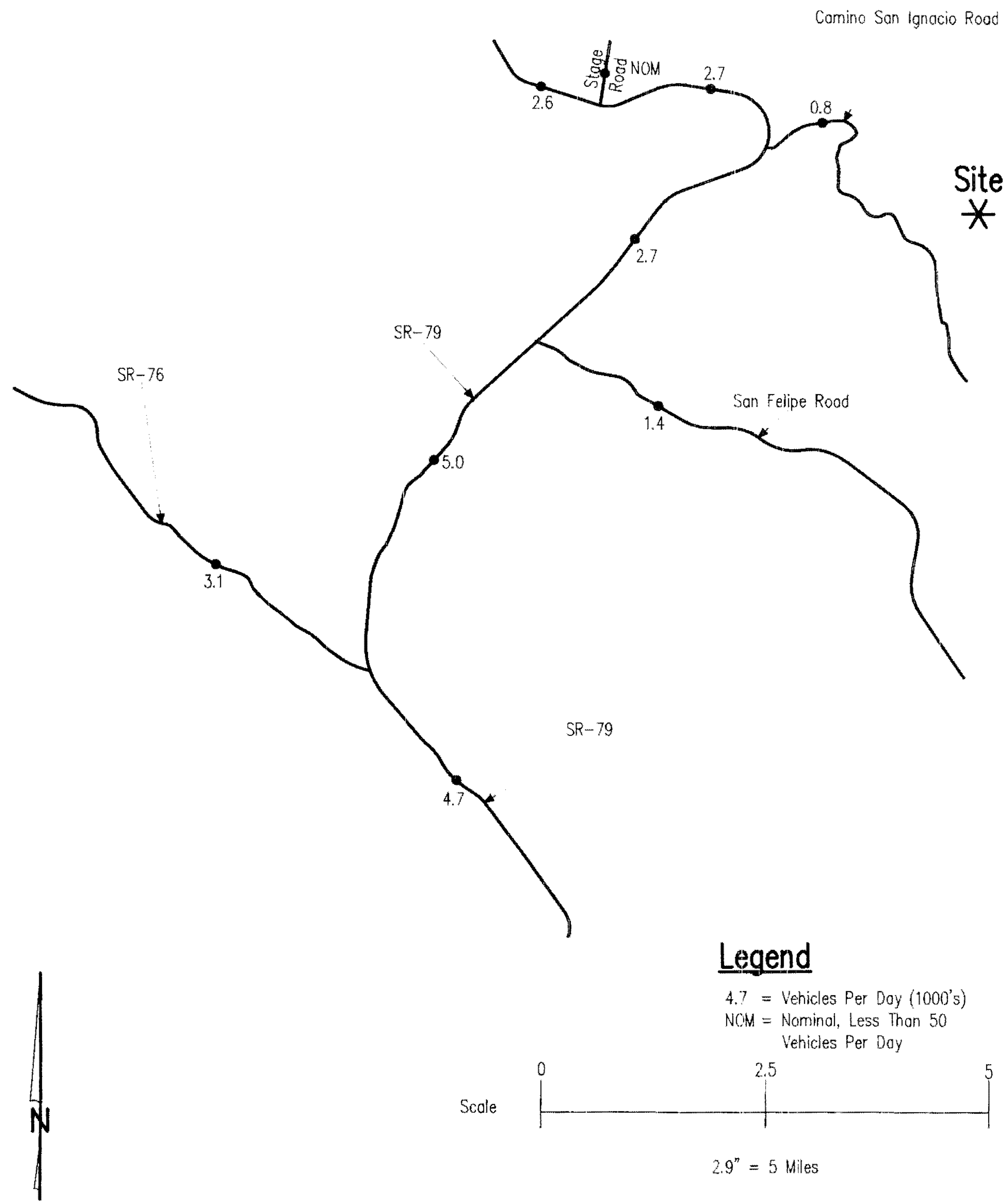


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Figure 18
Year 2030 With Project Average Daily Traffic Volumes

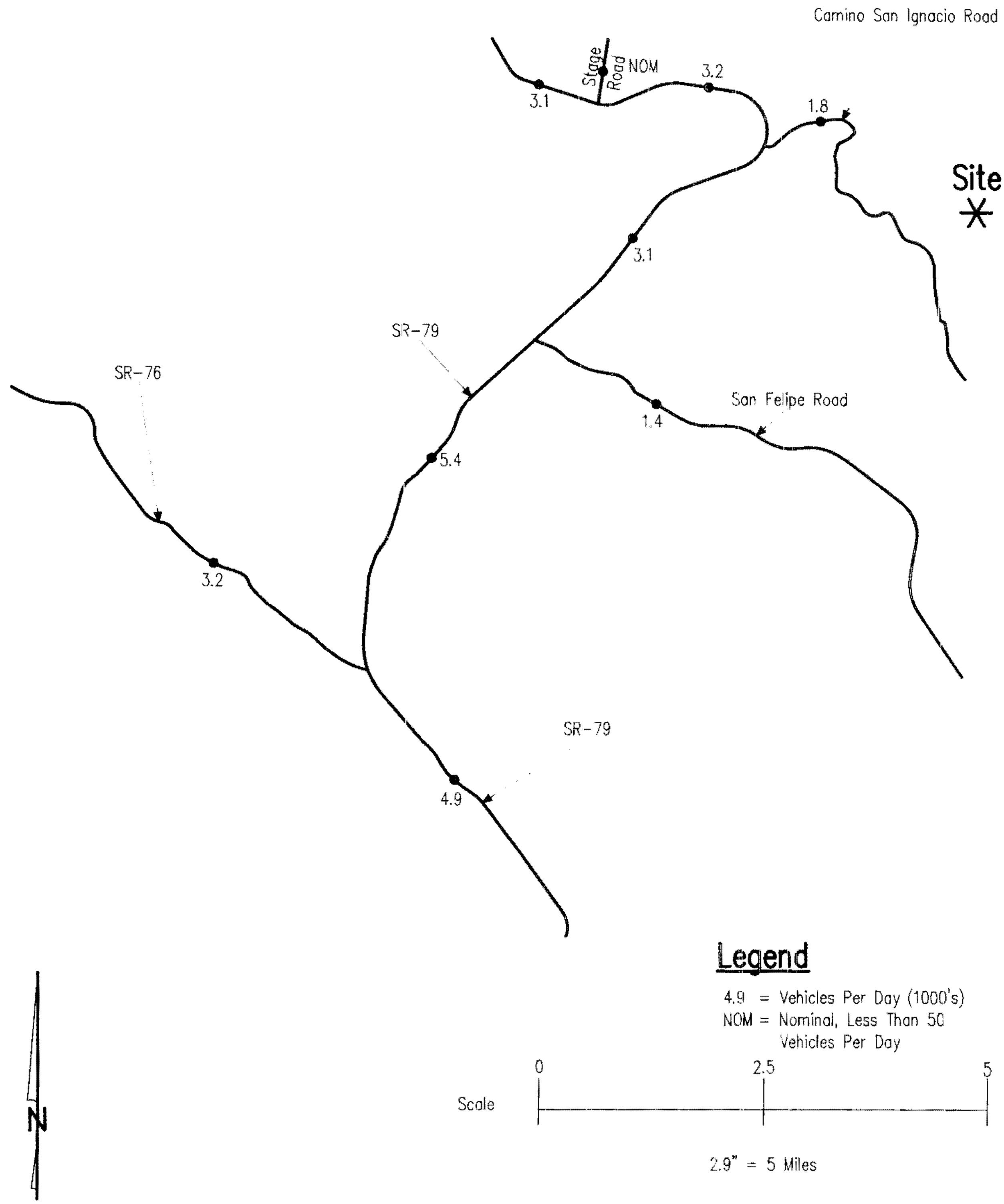

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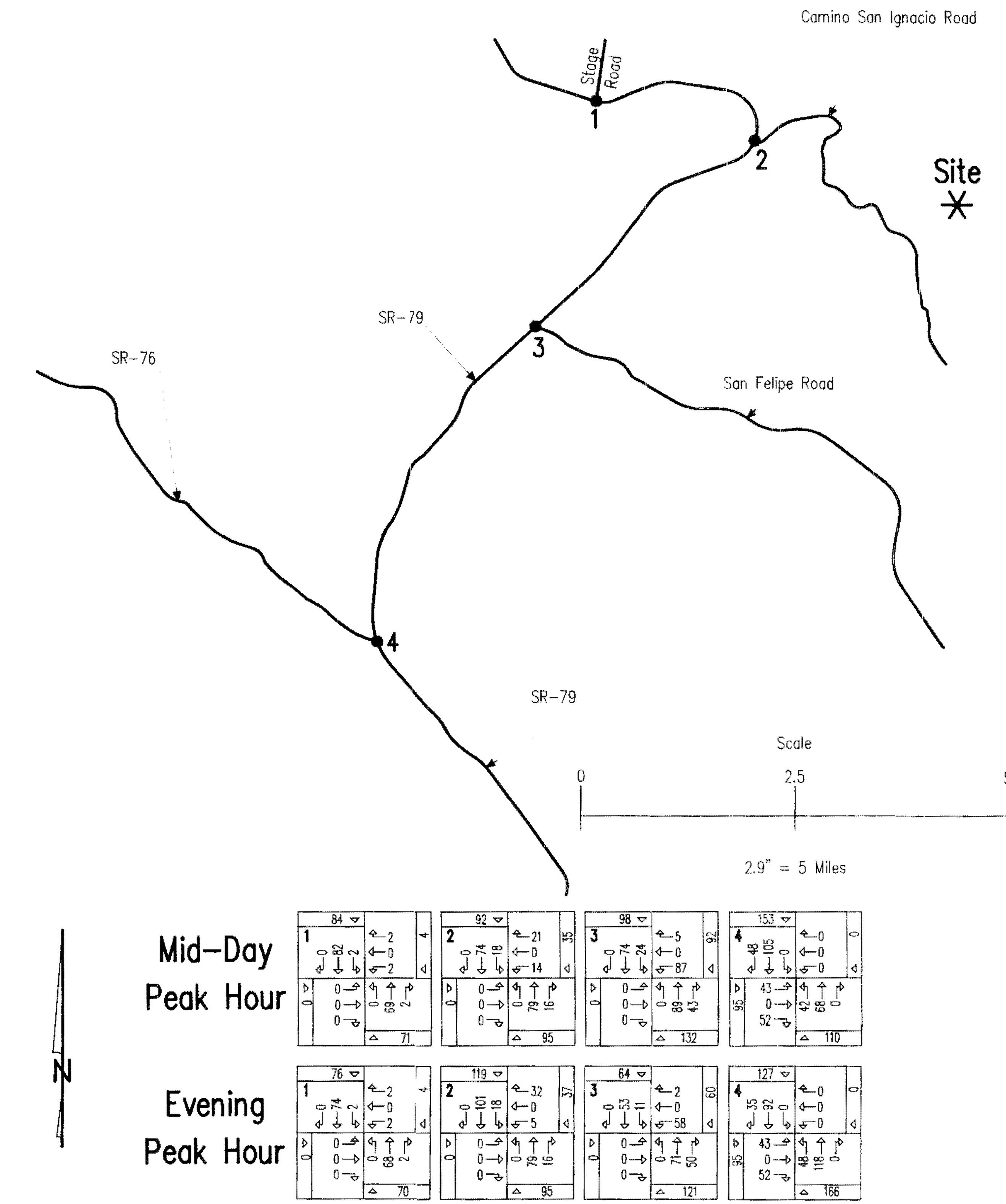
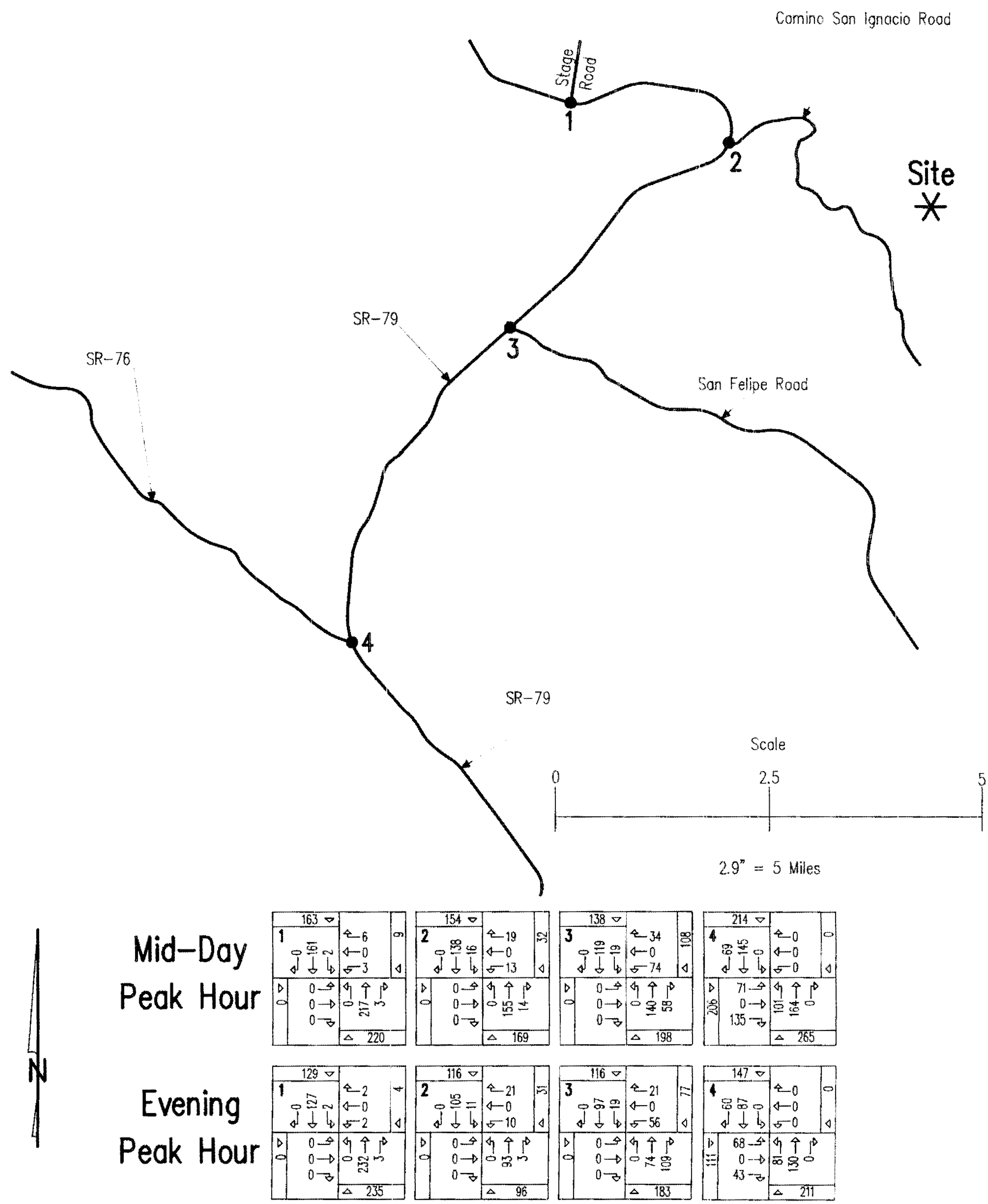
Figure 19
Year 2030 Without Project Weekday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



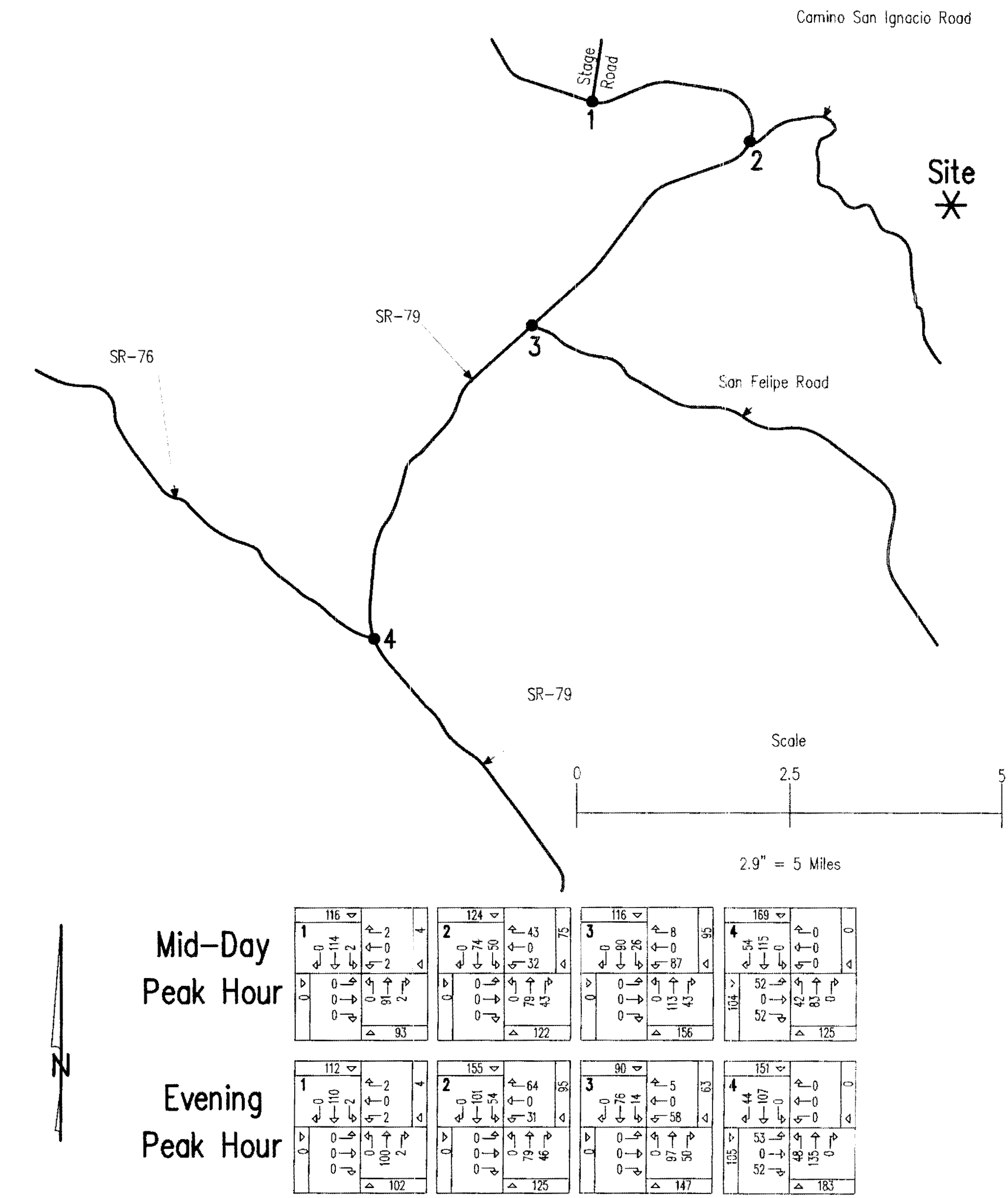
Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 20
Year 2030 Without Project Saturday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



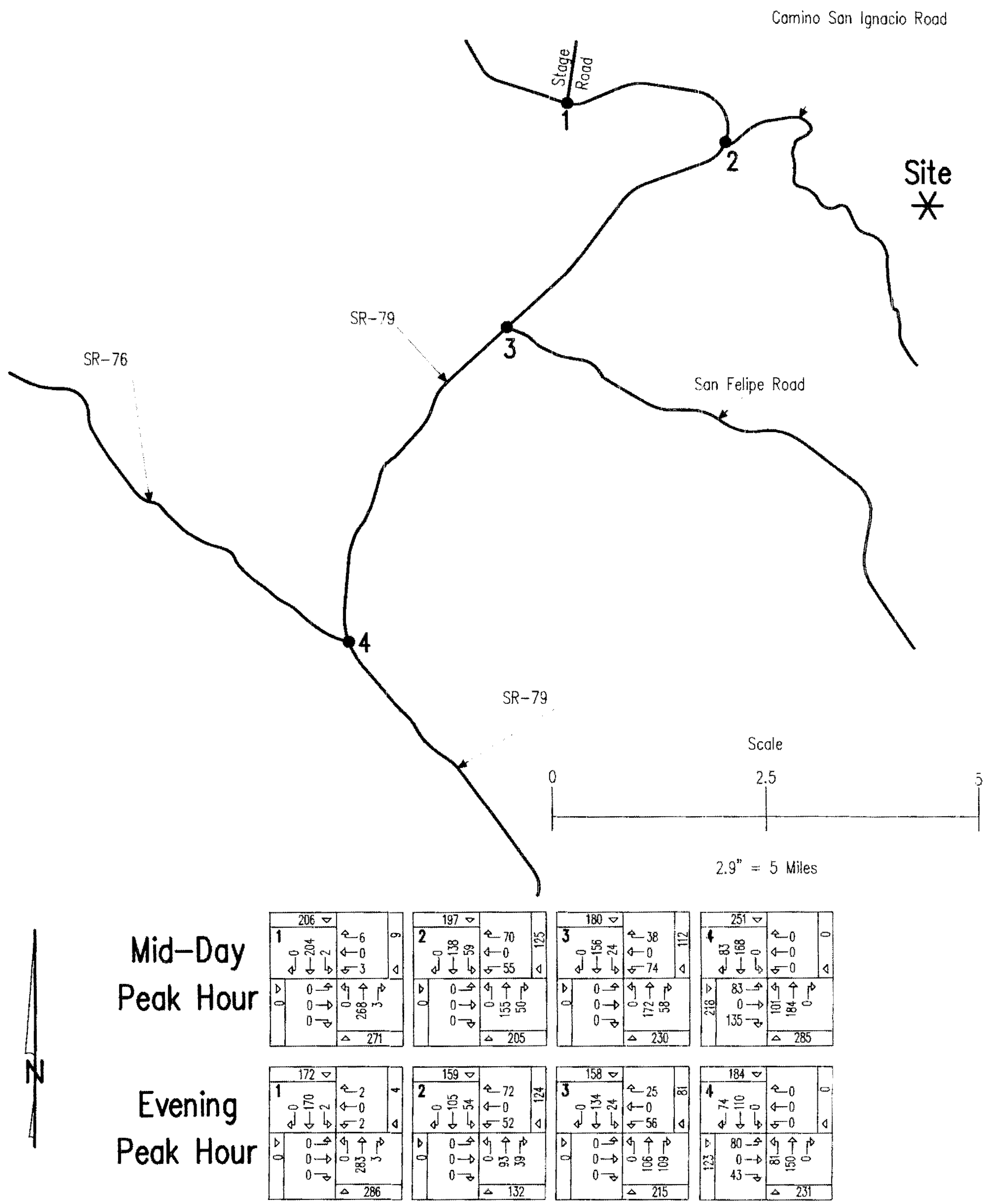
Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 21
Year 2030 With Project Weekday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

Figure 22
Year 2030 With Project Saturday
Mid-Day/Evening Peak Hour Intersection Turning Movement Volumes



Kunzman Associates Intersection reference numbers are in upper left corner of turning movement boxes. 3552/San Diego/bbas

VII. Recommendations

A. Site Access

The proposed project will have access to Camino San Ignacio Road.

B. Roadway Segment and Level of Service Summary

A roadway segment analysis summary has been provided in Table 11. Table 12 shows a summary of the intersection delay and level of service. As shown in Tables 11 and 12, the study area roadway segment and intersections are projected to operate at within acceptable Levels of Service without improvements. Therefore, no mitigation measures/improvements are projected to be necessary.

C. Circulation Recommendations

Site-specific circulation and access recommendations are depicted on Figure 23.

Sufficient on-site parking shall be provided to meet the appropriate jurisdictions parking code requirements.

Sight distance at each project access should be reviewed with respect to the appropriate jurisdictions sight distance standards at the time of preparation of final grading, landscaping, and street improvement plans.

On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site. All markings or signs internal to the project shall comply with provisions of the appropriate jurisdictions guidelines.

As is the case for any roadway design, the appropriate jurisdiction should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Table 12

Roadway Operations Summary

Roadway	Segment	Existing		Opening Year (2009) Without Project		Opening Year (2009) With Project		Year 2030 Without Project		Year 2030 With Project	
		V/C[1]	LOS[2]	V/C[1]	LOS[2]	V/C[1]	LOS[2]	V/C[1]	LOS[2]	V/C[1]	LOS[2]
Camino San Ignacio Road	South of SR-79	0.05	A	0.05	A	0.14	A	0.07	A	0.17	A

[1] V/C = Volume to Capacity Ratio.

[2] LOS = Level of Service, which is based on maximum capacity (LOS D)

Level of Service A = Volume to Capacity Ratio of 0.000 - 0.600

Level of Service B = Volume to Capacity Ratio of 0.600 - 0.700

Level of Service C = Volume to Capacity Ratio of 0.701 - 0.800

Level of Service D = Volume to Capacity Ratio of 0.801 - 0.900

Level of Service E = Volume to Capacity Ratio of 0.901 - 1.000

Level of Service F = Volume to Capacity Ratio of 1.00 and up

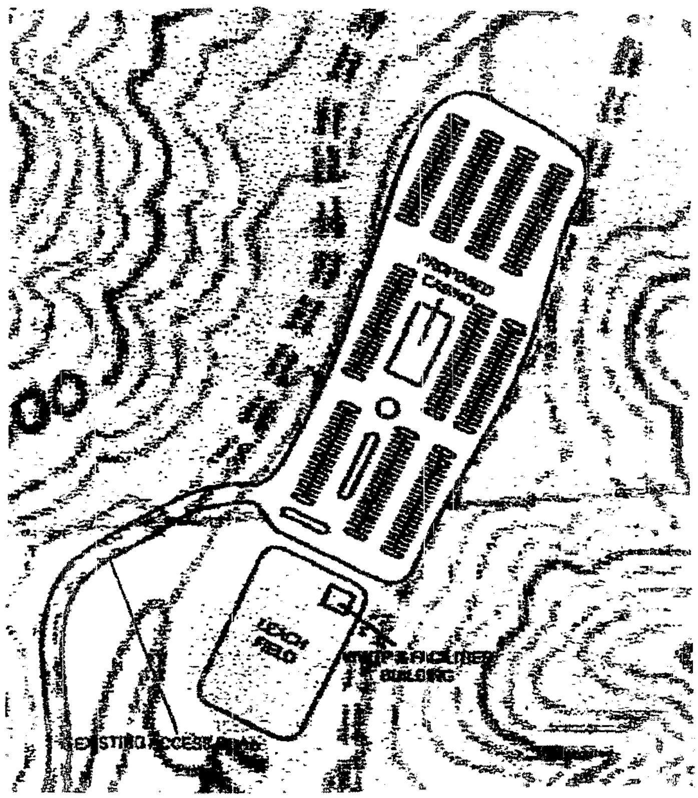
Table 13

Intersection Delay and Level of Service Summary

Intersection	Existing				Opening Year (2009) Without Project				Opening Year (2009) With Project				Year 2030 Without Project				Year 2030 With Project			
	Peak Hour Delay-LOS[1]				Peak Hour Delay-LOS[1]				Peak Hour Delay-LOS[1]				Peak Hour Delay-LOS[1]				Peak Hour Delay-LOS[1]			
	Weekday		Saturday		Weekday		Saturday		Weekday		Saturday		Weekday		Saturday		Weekday		Saturday	
	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening
SR-79 (NS) at:																				
Stage Road (EW)	8.8-A	8.8-A	9.7-A	9.5-A	8.8-A	8.8-A	9.8-A	9.6-A	9.0-A	9.2-A	10.4-B	10.2-B	9.0-A	9.1-A	10.7-B	10.5-B	9.3-A	9.5-A	11.5-B	11.1-B
Camino San Ignacio Road (EW)	9.0-A	8.8-A	9.5-A	9.0-A	9.0-A	8.8-A	9.6-A	9.0-A	9.6-A	9.8-A	11.7-B	10.6-B	9.4-A	9.1-A	10.5-B	9.4-A	10.2-B	10.3-B	13.5-B	11.4-B
San Felipe Road (EW)	9.7-A	9.4-A	10.1-B	9.6-A	9.8-A	9.5-A	10.2-B	9.7-A	10.2-B	9.9-A	10.9-B	10.3-B	10.9-B	10.2-B	11.8-B	10.7-B	11.4-B	10.7-B	12.9-B	11.5-B
SR-76 (EW)	9.7-A	9.7-A	11.2-B	10.5-B	9.8-A	9.8-A	11.5-B	10.7-B	10.2-B	10.3-B	12.7-B	11.5-B	10.9-B	10.9-B	16.5-C	13.1-B	11.5-B	11.6-B	19.8-C	14.6-B

[1] Delay and level of service has been calculated using the following analysis software: Traffix, Version 7.8.0115 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

Figure 23
Circulation Recommendations



Sufficient on-site parking shall be provided to meet the appropriate jurisdictions parking code requirements.
Sight distance at each project access should be reviewed with respect to the appropriate jurisdictions sight distance standards at the time of preparation of final grading, landscaping, and street improvement plans.
On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site. All markings or signs internal to the project shall comply with provisions of the appropriate jurisdictions guidelines.
As is the case for any roadway design, the appropriate jurisdiction should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

N

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Reference List

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2000 Highway Capacity Manual, Transportation Research Board, National Research Council, Washington, D.C. 2000.

Shingle Springs Rancheria Interchange Transportation/Circulation, April 2002.

Circulation Element San Diego County General Plan (see Appendix F), Adopted December 5, 1967, Amended July 27, 1994 GPA 94-CE2.

Proposed GP2020 Circulation Element Road Standards for County of San Diego (see Appendix G), April 12, 2006.

California Department of Transportation Guide for the Preparation of Traffic Impact Studies (see Appendix H), December 2002.

Manual of Uniform Traffic Control Devises 2003 California Supplement, May 20, 2004.

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