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Traffic Report

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PROPOSED COMMERCIAL DEVELOPMENT EAGLE RIDGE MARKET ERWIN LAKE, CA

**PREPARED FOR:
STEENO DESIGN STUDIO**

**PREPARED BY:
HALL & FOREMAN, INC.
14297 CAJON STREET, #101
VICTORVILLE, CA 92392**

**UPDATED
REPORT
June 27, 2014**

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June 27, 2014

Job No. VV.130048.0000

Mr. Tom Steeno
Steen Design Studio
11774 Hesperia Rd, Suite 1B
Hesperia, CA, 92345

**RE: TRAFFIC STUDY – EAGLE RIDGE MARKET- STATE HWY 38 and STATE LANE-
ERWIN LAKE, CALIFORNIA**

Dear Mr. Steeno;

Hall & Foreman Inc. is pleased to submit this Updated Traffic Study in the unincorporated community of Erwin Lake for the proposed Eagle Ridge commercial development at the southeast corner of Highway 38 and State Lane. The project is comprised of a Gas Station with Convenience Market and a Residence for the caretaker.

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

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

Respectfully submitted,

Hall & Foreman Inc.


Robert A. Kilpatrick, P.E., T.E.
Vice President/Associate



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1. INTRODUCTION

This report identifies the traffic impacts and presents recommendations for access and traffic mitigation for the proposed project located at the southeast corner of Highway 38 and State Lane in the unincorporated community of Erwin Lake, which is southeasterly of the unincorporated community of Big Bear City. The proposed project consists of a Convenient Store with a gas station and a Residence for the caretaker. The site will be accessible from a right turn in only driveway, and a dual entry driveway to be constructed on State Lane east of Highway 38. *Figure 1* illustrates the vicinity map and project location and *Figure 2* illustrates the proposed project site plan.

The project is located in the unincorporated community of Erwin Lake in San Bernardino County. The project is bound by State Lane to the north, Highway 38 to the west, residential homes to the east and south of the project site. Access to the project site is proposed off of State Lane. No direct access is proposed to be from Highway 38.

To address traffic impacts due to the proposed project, a study area encompassing the streets in the area was developed. The study area specifically includes the intersection of Highway 38 and State Lane. Highway 38 provides local and regional access to the study area.

In addition to addressing traffic impacts due specifically to development of the project, this study addresses impacts due to development correlating with the development of the project and cumulative projects up to the year 2035 within the study area. The examination of potential development correlating with the development of the project is known as background traffic. Traffic due to other projects and an estimated straight line growth in the area is added to existing traffic to create a base for analyzing project traffic impacts.

In addition, this report addresses traffic conditions for the future Year 2035 forecast year. Identified as future traffic, the traffic generation of the adjoining projects which is incorporated into the area growth is included. The purpose of the future year analysis is to assure that traffic improvements for the intersection are not needed to accommodate the anticipated future traffic.



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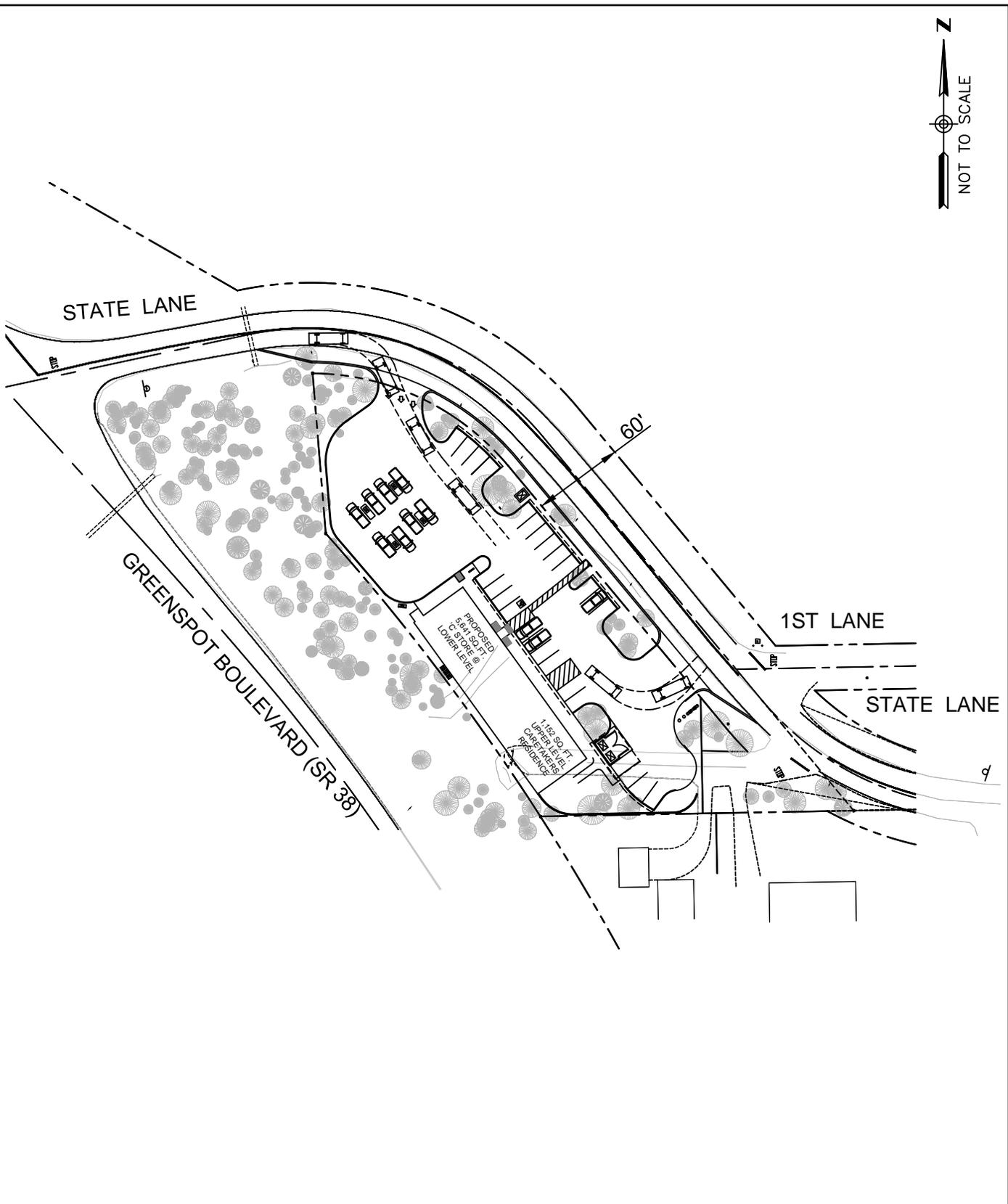
VICINITY MAP

EAGLE RIDGE MARKET
ERWIN LAKE, CALIFORNIA

FIGURE

1

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SITE PLAN

EAGLE RIDGE MARKET
ERWIN LAKE, CALIFORNIA

FIGURE
2

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2. EXISTING CONDITIONS

Existing Street System

The project site currently is vacant and undeveloped. Land uses around the site consist of single family residential developments to the east and south of the project site. Streets in and near the vicinity of the project are mostly paved residential streets with some undeveloped dirt roads. The existing developed roads range in pavement widths of 20 to 50 feet and are in good to fair condition.

The following roadways provide regional access to the project within the study area:

Greenspot Boulevard/Highway 38 provides local and regional access in the project area. Highway 38 (SR 38) traverses north to south and provides access from the Big Bear Lake area to Redlands/Yucaipa and the Interstate I-10 Freeway. This roadway is primarily a two-lane highway (one lane in each direction). The intersection of Highway 38 and State Lane is currently two-way-stop-controlled.

State Lane will provide the primary access to the project site. State Lane is primarily a two-lane paved road (one lane in each direction) fronting the project site east of Highway 38. Currently, State Lane does not consist of a curb and gutter along the property.

First Lane is a 25 foot wide local unpaved road. First Lane functions similar to an alley providing access to residential property east of the project.

The project proposes to construct the driveways on State Lane east of Highway 38, as shown on the Site Plan, *Figure 2*. Two existing intersections within the study area has been identified that may potentially be impacted by the project. The intersections are;

- Highway 38 and State Lane
- State Lane and First Lane

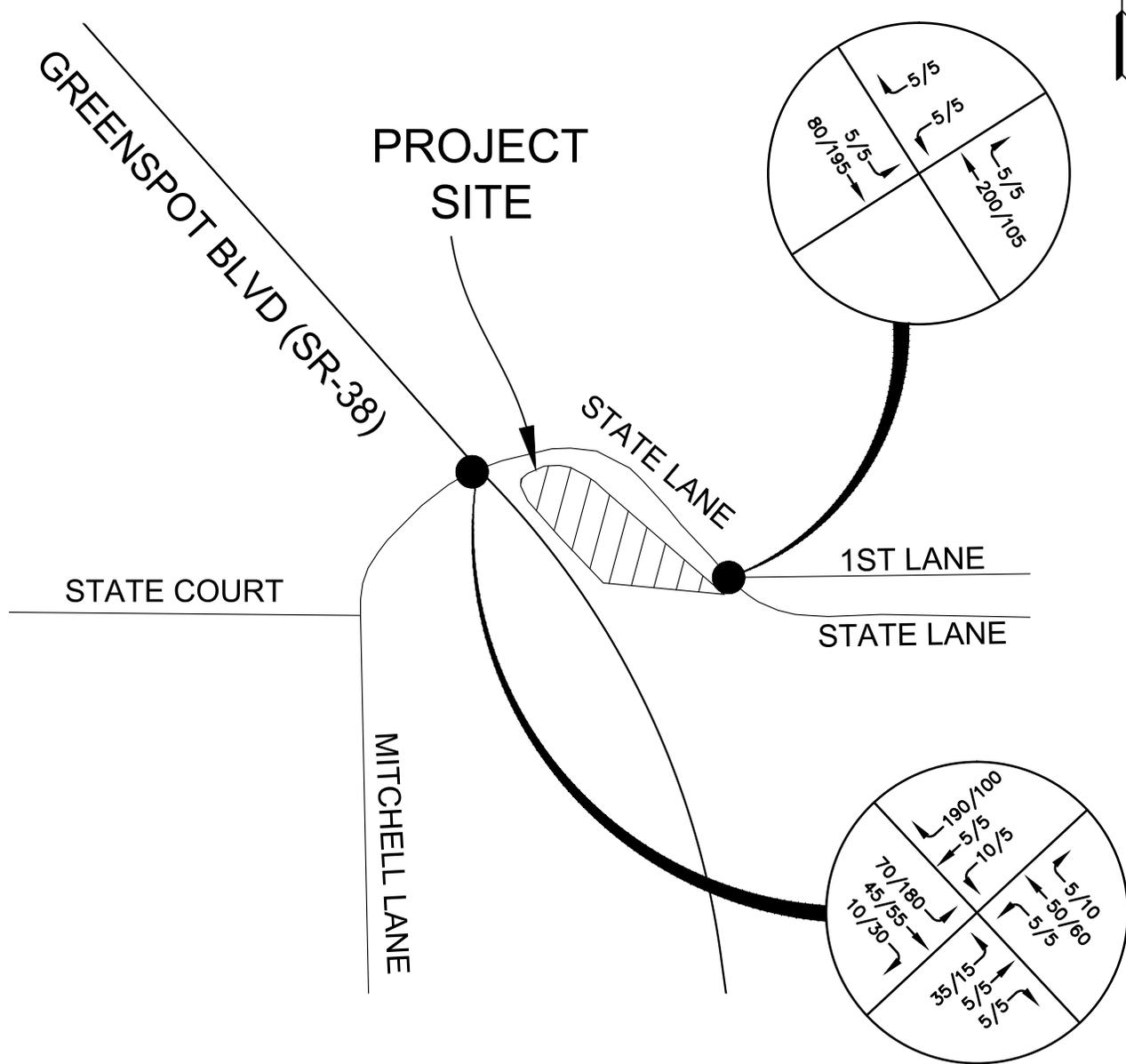
Currently both of these intersections are Two Way Stop Controlled (TWSC).

Existing Traffic Volumes

Newport Traffic Studies staff conducted Weekday AM (7:00-9:00 AM) and Weekday PM (4:00-6:00 PM) peak hour turning movement counts and 24 hour intersection volume count, at the intersection of Highway 38 and State Lane, identified for detailed analysis. These counts were conducted in December of 2012.

A subsequent Winter Weekend Friday (4:00-7:00 PM) and Sunday (3:00-6:00 PM) peak period turning movement counts, at the intersection of Highway 38 and State Lane, were conducted on December 13, 2013 and December 15, 2013 respectively. This count was conducted while the local ski resorts were in operation.

The resulting volumes are presented in the appendix of this report. *Figure 3* illustrates the weekday AM and PM existing peak hour traffic volumes. Turning movement volumes for First lane were not recorded since volumes were so low turning movement volumes were estimated to be conservative. *Figure 4* illustrates the winter Friday and Sunday existing peak hour traffic volumes.



LEGEND

- - STUDY INTERSECTION
- XX/XX - WEEKDAY AM/PM PEAK HOUR VOLUMES

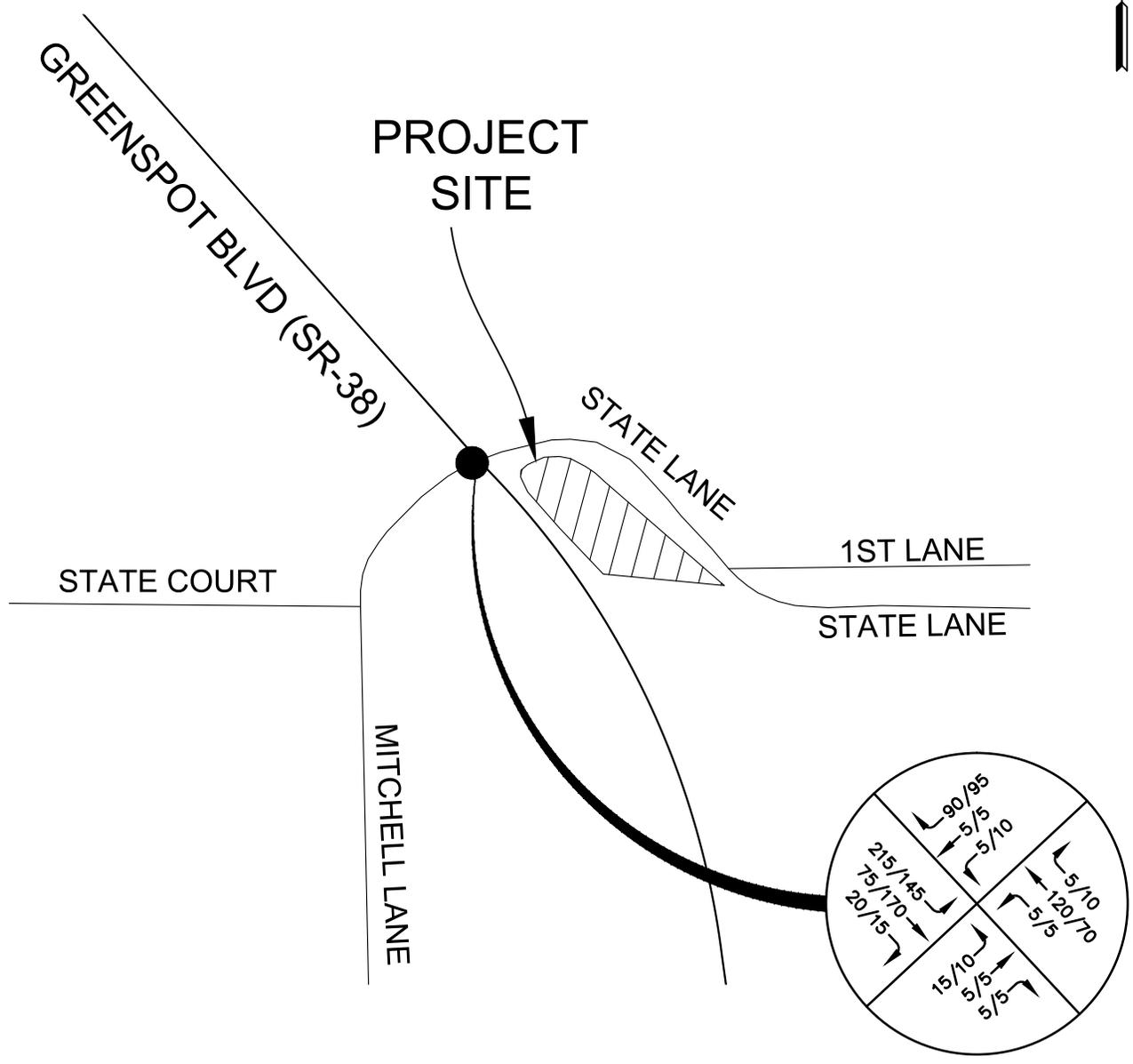
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**WEEKDAY AM AND PM
 EXISTING TRAFFIC VOLUMES**

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

**FIGURE
 3**

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LEGEND

- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PEAK HOUR VOLUMES

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**WINTER FRIDAY AND SUNDAY
 EXISTING TRAFFIC VOLUMES**

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

**FIGURE
 4**

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Existing Traffic Analysis

An intersection capacity analysis was conducted for the study intersection to determine a present level-of-service (LOS). Based on the existing intersection geometrics as illustrated in *Figure 5* and the Weekday AM, Weekday PM, Winter Friday PM, and Winter Sunday PM peak hour traffic volumes. The capacity analysis for the un-signalized intersection was conducted utilizing HCS 2010, which is an un-signalized intersection capacity analysis program, developed by McTrans. This program was developed in accordance with the 2010 Highway Capacity Manual. The analysis determines a level-of-service (LOS), which quantitatively describes the operating characteristics of un-signalized intersections. The LOS ranges from “A” (the best) through “F” (system breakdown). The LOS for the intersection represents the LOS for the critical movement. This is typically the stop controlled left turn from the minor street.

Table 1: Intersection Capacity Analysis - Existing Condition
Eagle Ridge Market Traffic Study

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Highway 38 and State Lane (3)	13.6	B	15.4	C	18	C	14.8	B
State Lane and First Lane Project Driveway (3)	10	A	9.7	A	-	-	-	-

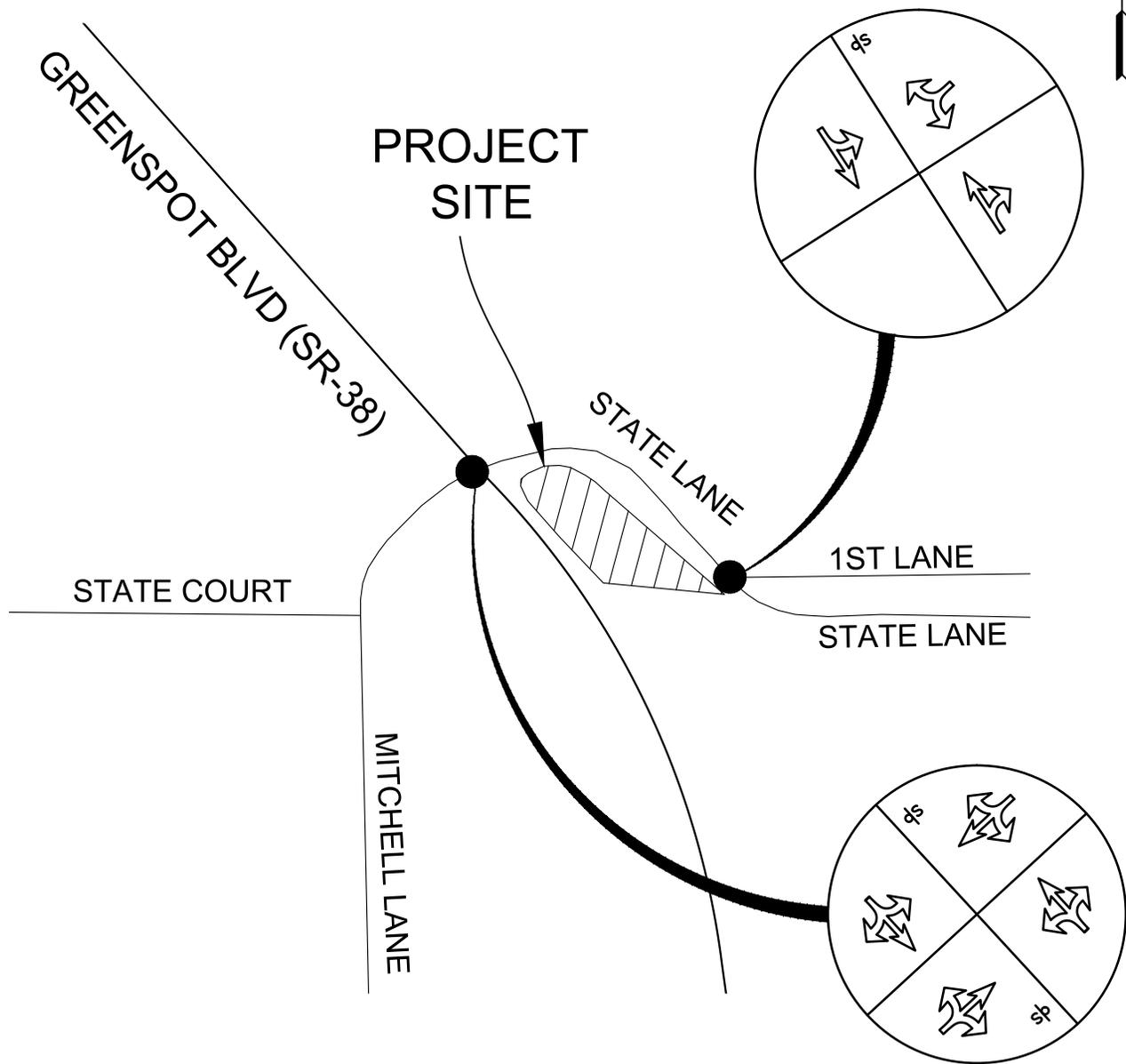
(1) LOS – HCM Level of Service

(2) Delay –In Seconds

(3) Un-Signalized Intersection

Source: **Hall & Foreman Inc**

As provided in *Table 1* under existing traffic conditions, the un-signalized intersections of Highway 38 and State Lane, and State Lane and First Lane/Project Driveway are operating at LOS “C” or better.



- LEGEND**
- - STUDY INTERSECTIONS
 - - EXISTING GEOMETRIC
 - sp - UNSIGNALIZED

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**EXISTING INTERSECTION
 GEOMETRICS**

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

**FIGURE
 5**

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3. BACKGROUND TRAFFIC

Area Growth

To analyze the project impacts, the inclusion of traffic generated by other projects within the study area is necessary. Other area projects at the intersections were taken into consideration. The County of San Bernardino has identified one project which would impact the study intersection as presented in Exhibit A in the Appendix of this report. This growth with other area project traffic volumes is known as background traffic.

Typically, regional and local growth is expected over the years at rates ranging from 1% to 2% compounded annually. Based on the existing traffic volumes, a straight line growth at a 2% increase compounded annually was utilized. This growth is known as background traffic. The analysis of background traffic allows a comparison of traffic impacts with and without the project applying the growth to the existing turn movement volumes. *Figure 6* illustrates weekday AM and PM year 2014 background traffic volumes. *Figure 7* illustrates the winter Friday and Sunday year 2014 background traffic volumes.

Background Traffic Analysis

To determine the impacts of the project to the study intersection, existing plus the anticipated background traffic project peak hour volumes were calculated. The analysis was conducted with the existing intersection geometrics.

Table 2: Intersection Capacity Analysis - Existing Plus Background Condition
Eagle Ridge Market Traffic Study

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Highway 38 and State Lane (3)	14.4	B	16.3	C	19.5	C	15.8	C
State Lane and First Lane Project Driveway (3)	10.1	B	9.8	A	-	-	-	-

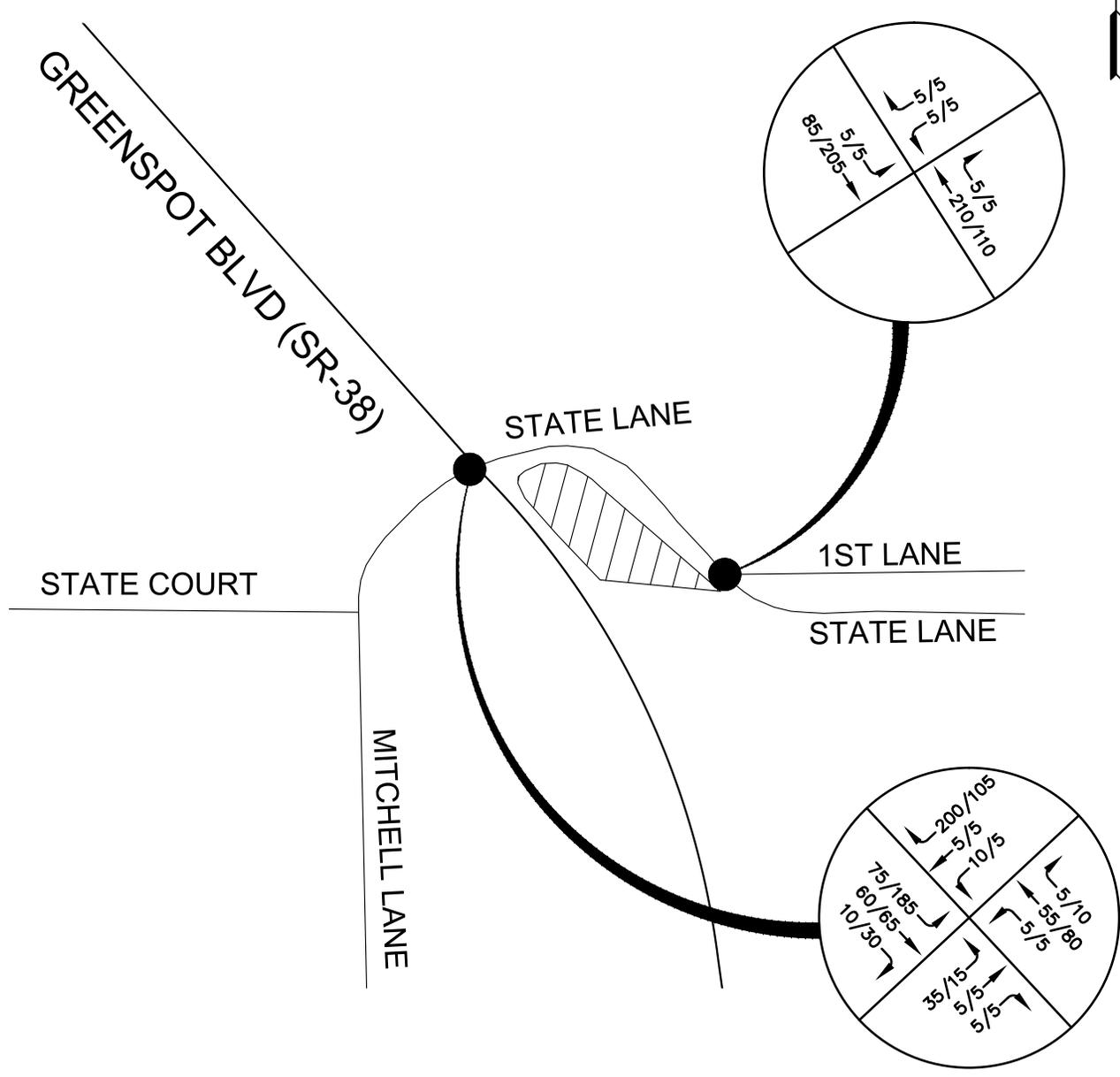
(1) LOS – HCM Level of Service

(2) Delay –In Seconds

(3) Un-Signalized Intersection

Source: **Hall & Foreman Inc.**

As provided in *Table 2* under existing plus background traffic conditions, the un-signalized intersections of Highway 38 and State Lane, and State Lane and First Lane/Project Driveway are anticipated to continue to operate at LOS “C” or better.



LEGEND

- - STUDY INTERSECTION
- XX/XX - WEEKDAY AM/PM PEAK HOUR VOLUMES

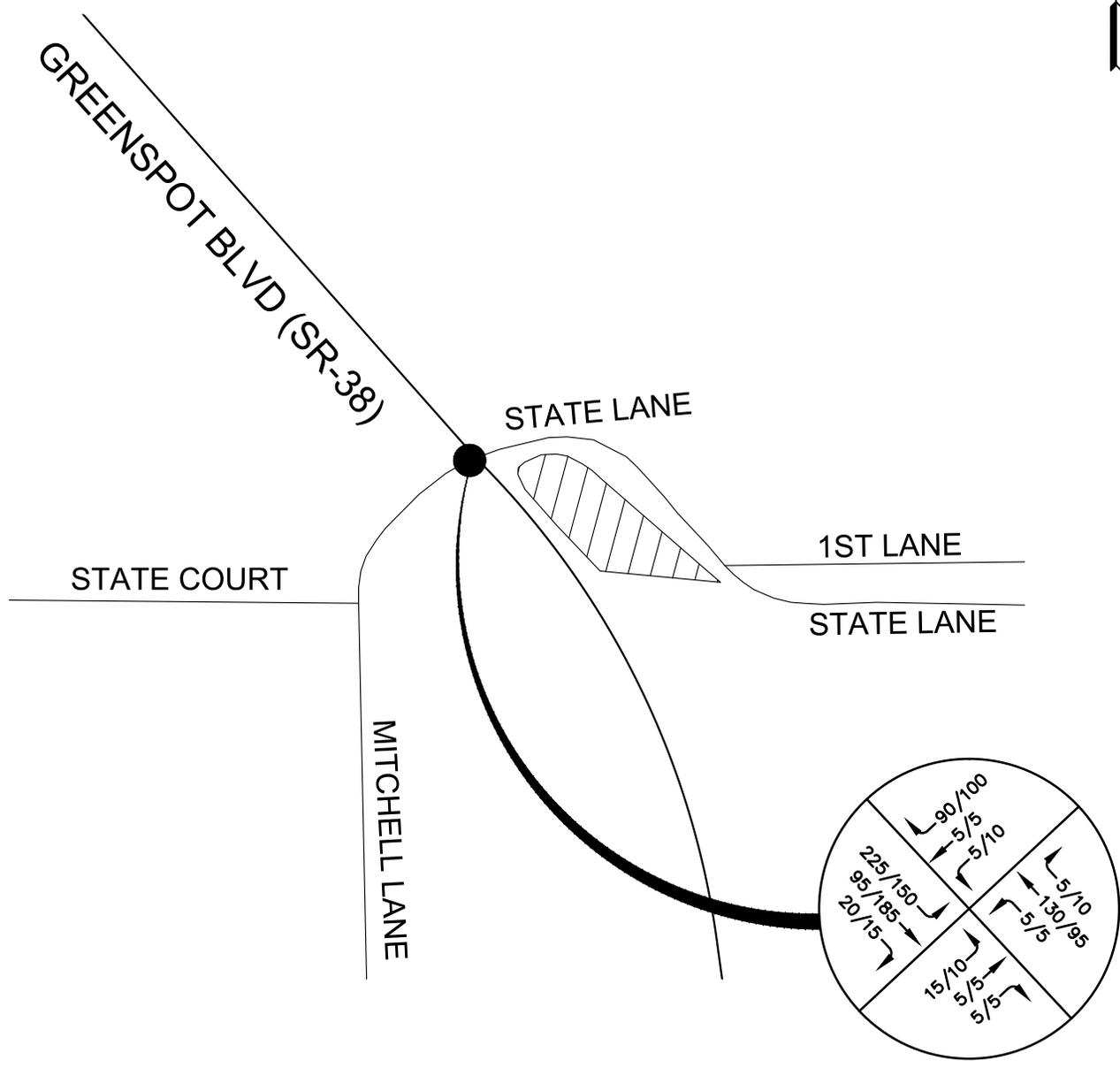
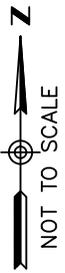
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**WEEKDAY AM AND PM
 YEAR 2014 BACKGROUND
 TRAFFIC VOLUMES**

**EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA**

**FIGURE
 6**

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LEGEND

- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PEAK HOUR VOLUMES

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**WINTER FRIDAY AND SUNDAY
 YEAR 2014 BACKGROUND
 TRAFFIC VOLUMES**
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE
7

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4. PROJECT CONDITIONS

Project Trip Generation

The project was analyzed to determine the amount of traffic that would be generated from the proposed development. To identify potential traffic impacts from the project, trip generation factors were applied to the type of use to generate project traffic estimates. The trip generation rates were obtained from the 9th edition of the Institute of Transportation Engineers trip generation report as presented in *Table 3*. The project site consists of a convenience market and a Residence for the caretaker. The trip generation accounts for the trips generated by the Caretaker's residence, since the trips produced are negligible and can be assumed in the rounding of distributed project trips.

Table 3: Project Trip Generation
Eagle Ridge Market Traffic Study

	Use	Daily	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
1	Convenience Market with Gasoline Pumps							
	(ITE 853) Per Fueling Positions	542.60	8.29	8.29	16.57	9.54	9.54	19.07
	8 Fueling Positions	4,341	66	66	133	76	76	153
	Pass by Reduction (15%)	651	10	10	20	11	11	23
	Primary Trips	3,690	56	56	113	65	65	130

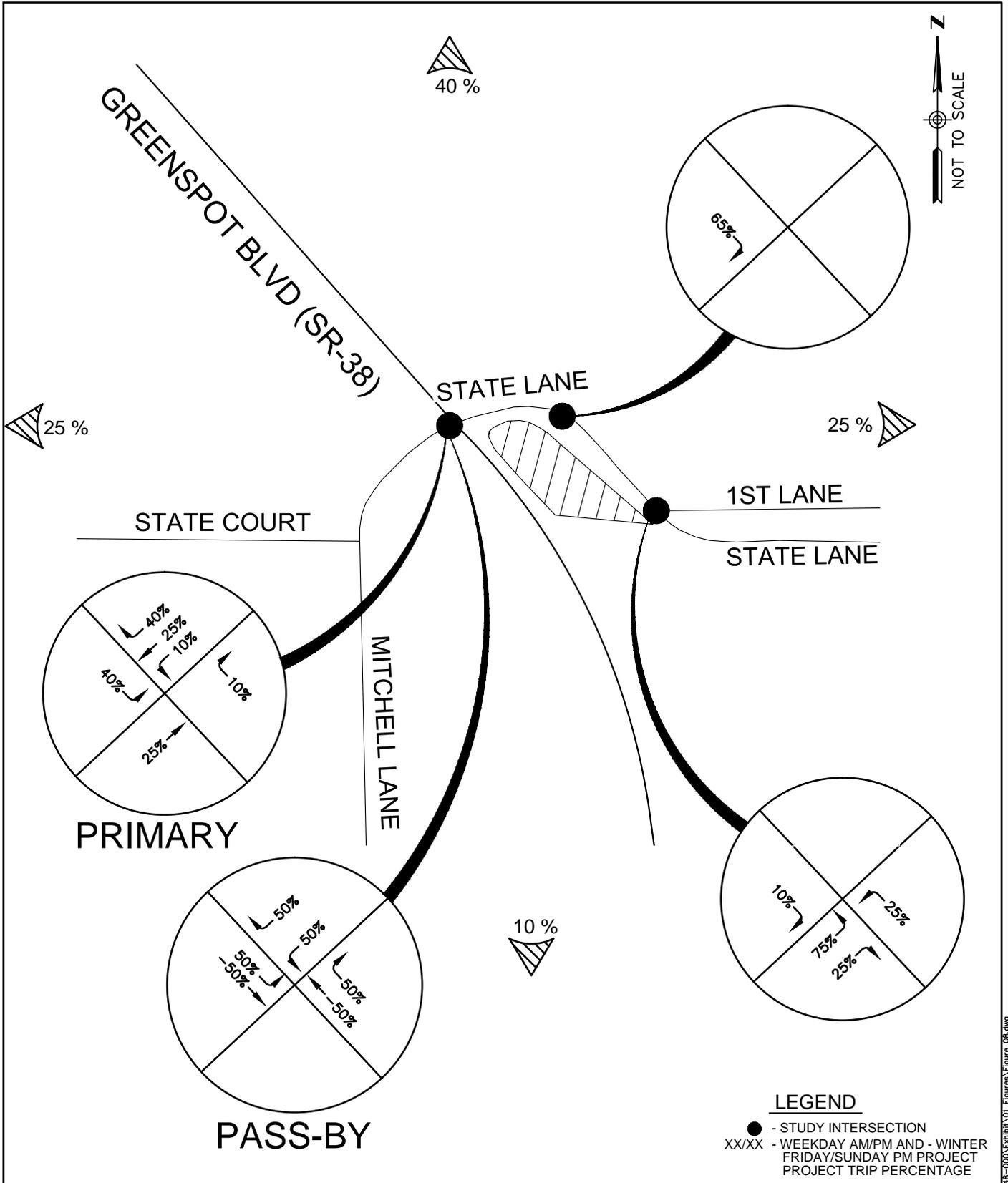
Source: Institute of Transportation Engineers' Trip Generation Report, 9th Edition

As presented, it is estimated that the project will generate 3,690 primary daily trips, and 113 primary trips during the AM Peak Hour, and 130 primary trips during the PM Peak Hour.

Project Trip Distribution

To address the impacts of the estimated project traffic, the trips were distributed and assigned to the surrounding streets and study intersection. The project traffic was distributed based on the anticipated project utilization. Once the distribution pattern was established, project trips were assigned to the area streets that serve the project.

Figure 8 illustrates the general and specific estimated distribution pattern for the primary and pass-by project trips. *Figure 9* illustrates the estimated weekday AM and PM peak hours for the project traffic volumes. *Figure 10* illustrates the estimated winter Friday and Sunday project traffic volumes. The project traffic was added to the existing traffic volume to assess the impacts generated.



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PROJECT TRIP DISTRIBUTION

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE

8



GREENSPOT BLVD (SR-38)

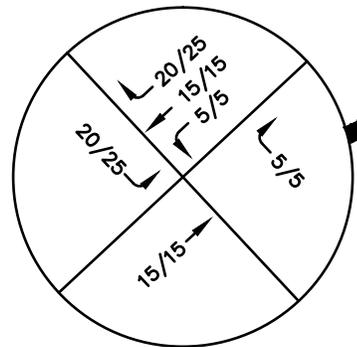
STATE LANE

STATE COURT

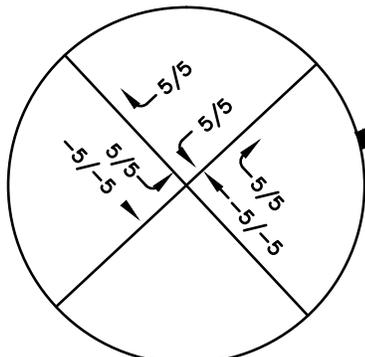
1ST LANE

STATE LANE

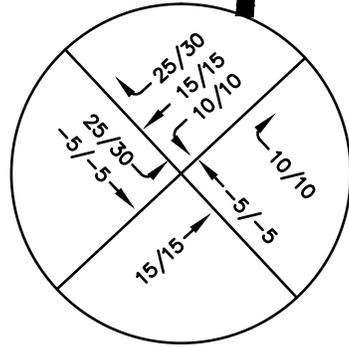
MITCHELL LANE



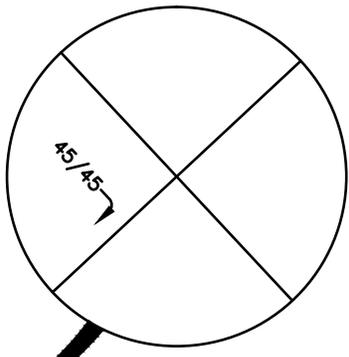
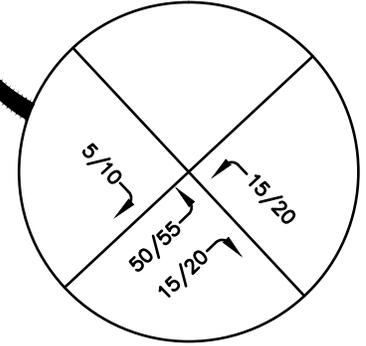
PRIMARY



PASS-BY



TOTAL



LEGEND

- - STUDY INTERSECTION
- XX/XX - AM/PM PROJECT TRIPS

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WEEKDAY AM AND PM
 PROJECT TRIPS

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE

9

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GREENSPOT BLVD (SR-38)

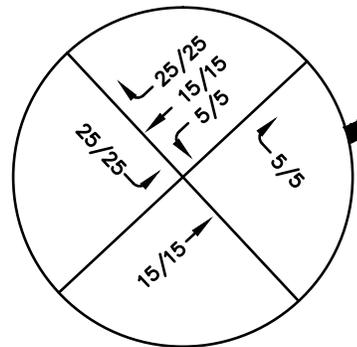
STATE LANE

STATE COURT

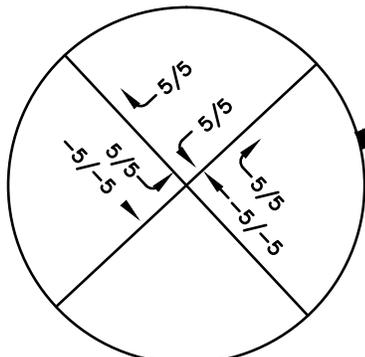
1ST LANE

STATE LANE

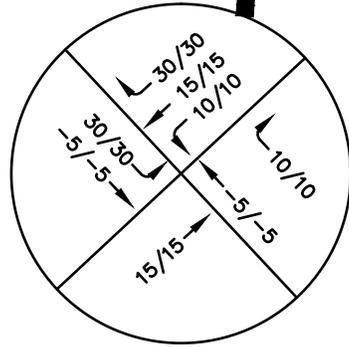
MITCHELL LANE



PRIMARY



PASS-BY



TOTAL

LEGEND

- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PROJECT TRIPS

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**WINTER FRIDAY AND SUNDAY
 PROJECT TRIPS**

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE

10

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Project Traffic Analysis

Based on the proposed traffic distribution, assignment patterns and project trip generation, intersection capacity analyses were conducted to assess the estimated project impacts. To determine the project impacts at the study intersection and driveways, the Background Year 2014 volumes and project trips, known as Project Conditions, were calculated. *Figure 11* illustrates weekday AM and PM year 2014 project conditions traffic volumes. *Figure 12* illustrates the winter Friday and Sunday project conditions traffic volumes.

Intersection capacity analysis for the Project Condition was performed using the same methodology as presented in Chapter 1.

Table 4: Intersection Capacity Analysis - Project Condition
Eagle Ridge Market Traffic Study

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Highway 38 and State Lane (3)	15.7	C	19.4	C	24.9	C	20.0	C
State Lane and First Lane Project Driveway (3)	11.6	B	12.3	B	-	-	-	-

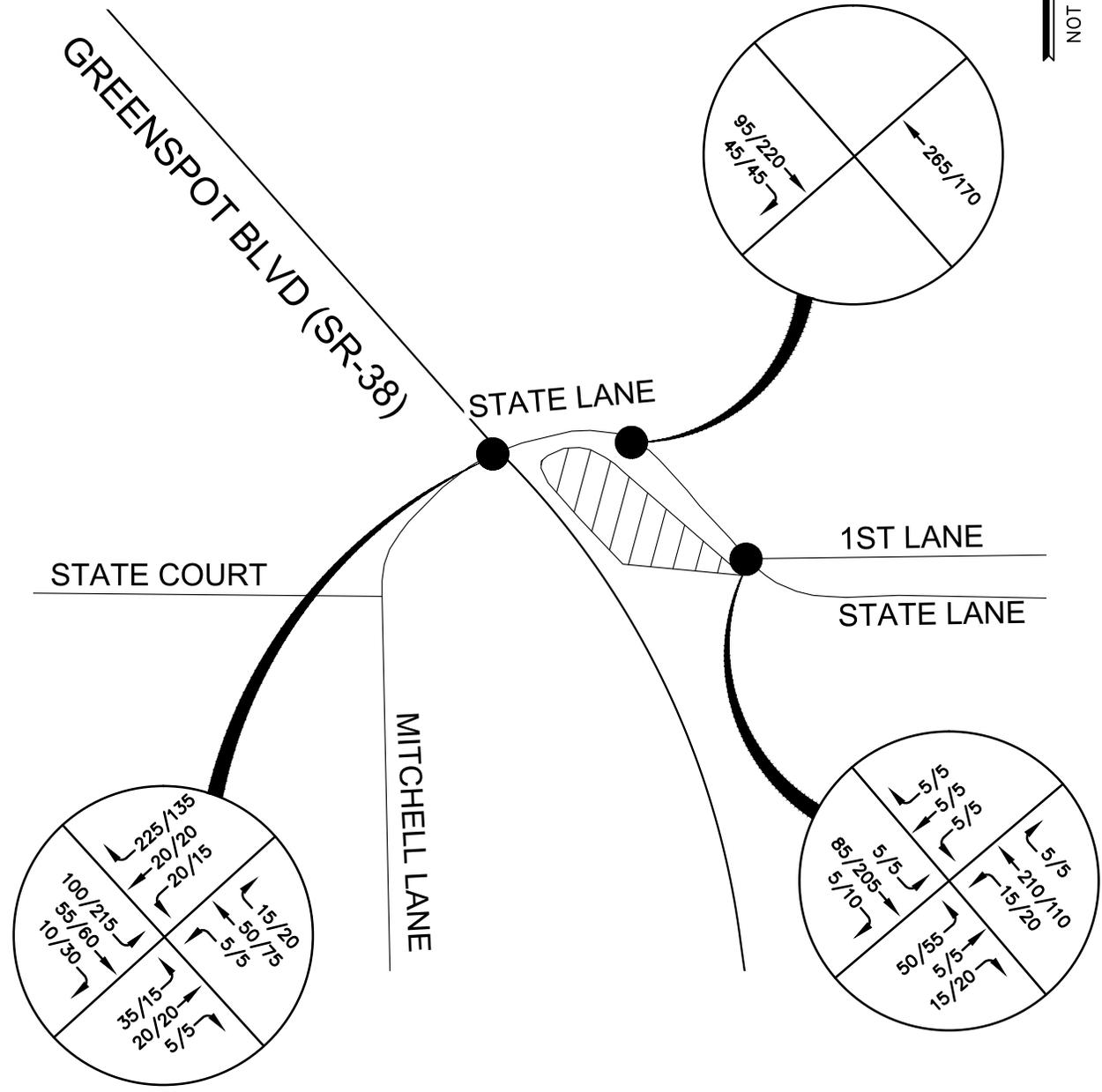
(1) LOS – HCM Level of Service

(2) Delay –In Seconds

(3) Un-Signalized Intersection

Source: **Hall & Foreman Inc.**

As presented in *Table 4* under project traffic conditions, the un-signalized intersections of Highway 38 and State Lane, and State Lane and First Lane/Project Driveway are anticipated to continue to operate at LOS “C” or better.



LEGEND

- - STUDY INTERSECTION
- XX/XX - WEEKDAY AM/PM PEAK HOUR VOLUMES

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**WEEKDAY AM AND PM
 PROJECT TRAFFIC VOLUMES**

**EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA**

FIGURE

11

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GREENSPOT BLVD (SR-38)

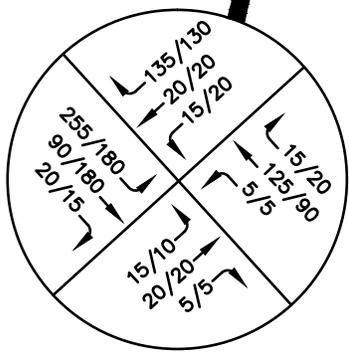
STATE LANE

STATE COURT

1ST LANE

STATE LANE

MITCHELL LANE



LEGEND

- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PEAK HOUR VOLUMES

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**WINTER FRIDAY AND SUNDAY
 PROJECT TRAFFIC VOLUMES**

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE

12

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Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted at the intersection of Highway 38 and State Lane to determine if the installation of a traffic control signal would improve the overall safety and/or operation of the intersection. Traffic Signal Warrant worksheets are provided in the Appendix. Consideration is given to the geometrics of each approach and the number of lanes used for the analysis. It was determined that a traffic signal was not warranted based on eight hour volumes, four hour volumes, peak hour volumes, or delay. The level of safety of the intersection was also considered by reviewing accident history for the intersection. The Transportation Injury Mapping System (TIMS) was referenced. TIMS report for Highway 38 and State Lane showed that a single accident occurred within the five year data period. Based on the above criteria the warrants for the installation of a traffic signal at this intersection are not met.

Left Turn Warrant Analysis

Several Left Turn Warrant Analysis Methodologies are available and presented in the Caltrans “Access Management” document. The Left Turn Warrant Analysis methodology to be used as presented in the California State Department of Transportation (Caltrans) “Access Management Plan” Table 17.B-3: *Criteria for Left-Turn Deceleration Lanes on Rural Two-Lane Highways*.

The criteria for an intersection with a speed of 50 mph is a Left-turn Deceleration Lane is required on Rural Two-Lane Highways for 16 or more Advancing Vehicles turning left per hour (vph). *Table 5* presents the volumes used in the analysis of the southbound (Greenspot Blvd/Highway 38) left turn movement. As a result for all conditions the Advancing Vehicles turning left is greater than 16 vehicles per hour (vph). A Left-turn lane is proposed for the southbound left turn.

**Table 5: Volume Comparison for Caltrans Access Management Plan Analysis
Greenspot Blvd (Highway 38) and State Lane/Mitchelle Lane Intersection**

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	V _A	V _L	V _A	V _L	V _A	V _L	V _A	V _L
Existing Condition	125	70	265	180	310	215	330	145
Existing plus Background	145	75	280	185	340	225	350	150
Project Year 2014	165	100	305	215	365	255	375	180
Year 2035 without Project	200	105	395	260	470	315	485	210
Year 2035 with Project	220	130	420	290	495	345	510	240

(1) V_A – Advancing Volume (veh/h)

(2) V_L – Advancing Vehicles turning Left (veh/h)

Source: **Hall & Foreman Inc**

Truck Turning Templates

Truck Turning templates were applied to the existing geometrics. These turn movements include northbound right, southbound left and westbound left and right turns. A custom fuel tanker was modeled to represent the model vehicle with dimensions and specifications. The truck turning templates are provided in *Figure 13*. As illustrated some widening of the shoulder at the southeast corner of the intersection will be needed to accommodate the north to east right turn movement.

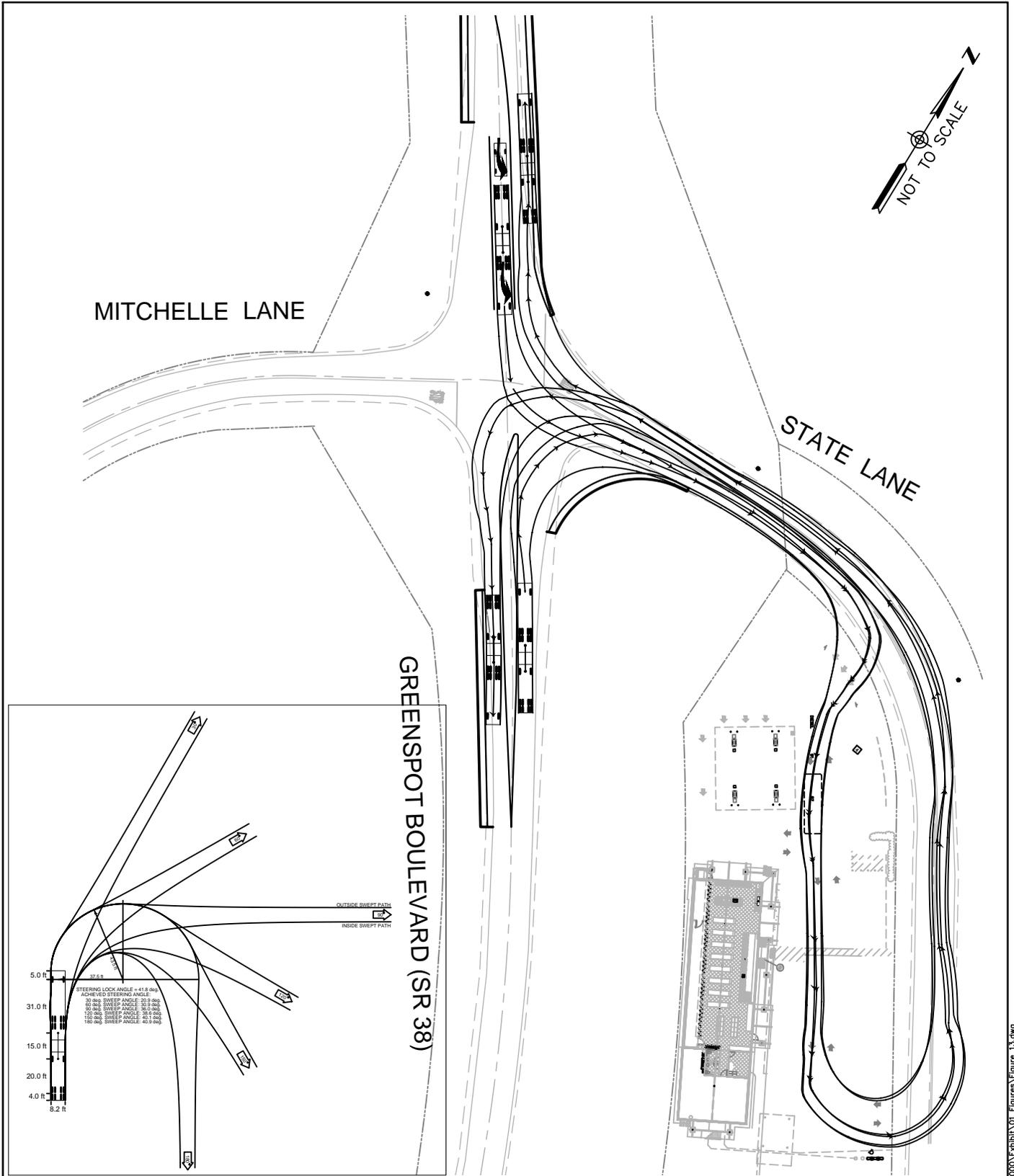
Greenspot Blvd (Highway 38) and State Lane/Mitchelle Lane Intersection Geometrics

The intersection of Greenspot Blvd (Highway 38) and State Lane/Mitchelle Lane, as previously discussed, was evaluated to determine if a traffic signal was warranted, a left turn lane was needed, and fuel tanker truck turning movements would be accommodated. The traffic signal warrant analysis resulted in the criterion not being met. The left turn warrant analysis resulted in the criterion being met for the southbound left turn movement. Widening of the southbound approach is proposed to accommodate a 100 feet long left turn lane. The length of the left turn lane will accommodate a fuel tanker truck and vehicle waiting to complete the left turn movement. The custom fuel tanker truck turning templates resulted in some widening of the shoulder at the southeast corner of the intersection needed to accommodate the north to east right turn movement. The Proposed Project Intersection Geometrics are illustrated in *Figure 14*.

State Lane Sight Distance Analysis

The project proposed to provide driveway access to the site along State Lane. A full access second driveway is proposed to intersect with the existing adjacent road First Lane. The proposed driveway intersection will be an un-signalized two-way stop controlled intersection, providing free movement along State Lane. Potential sight distance constraints were evaluated prior to selection of the location of the driveway due to the alignment of State Lane. The "Corner Sight Distance Triangle" utilized the current advisory speed of 20 mph. The north-west bound traffic currently has an advisory speed posted upon the approach of the westbound reverse curve on State Lane. The south-east bound traffic currently has an advisory speed posted upon the eastbound approach of the reverse curve on State Lane. The Caltrans Highway Design Manual presents a corner sight distance requirement of 7.5 second travel time for a vehicle to cross from a minor road. Based on the current advisory speed of 20 mph and the 7.5 second travel time the sight distance requirement would be 220 feet.

Project mitigations and Sight Distance Triangles are illustrated in *Figure 15*. The figure illustrates the placement of the second driveway accommodating the minimum corner sight distance of 220 feet for the westbound traffic traveling at the advisory speed of 20 mph. The eastbound traffic traveling at the advisory speed of 20 mph are also provided with adequate corner sight distance, providing 254 foot line of sight.



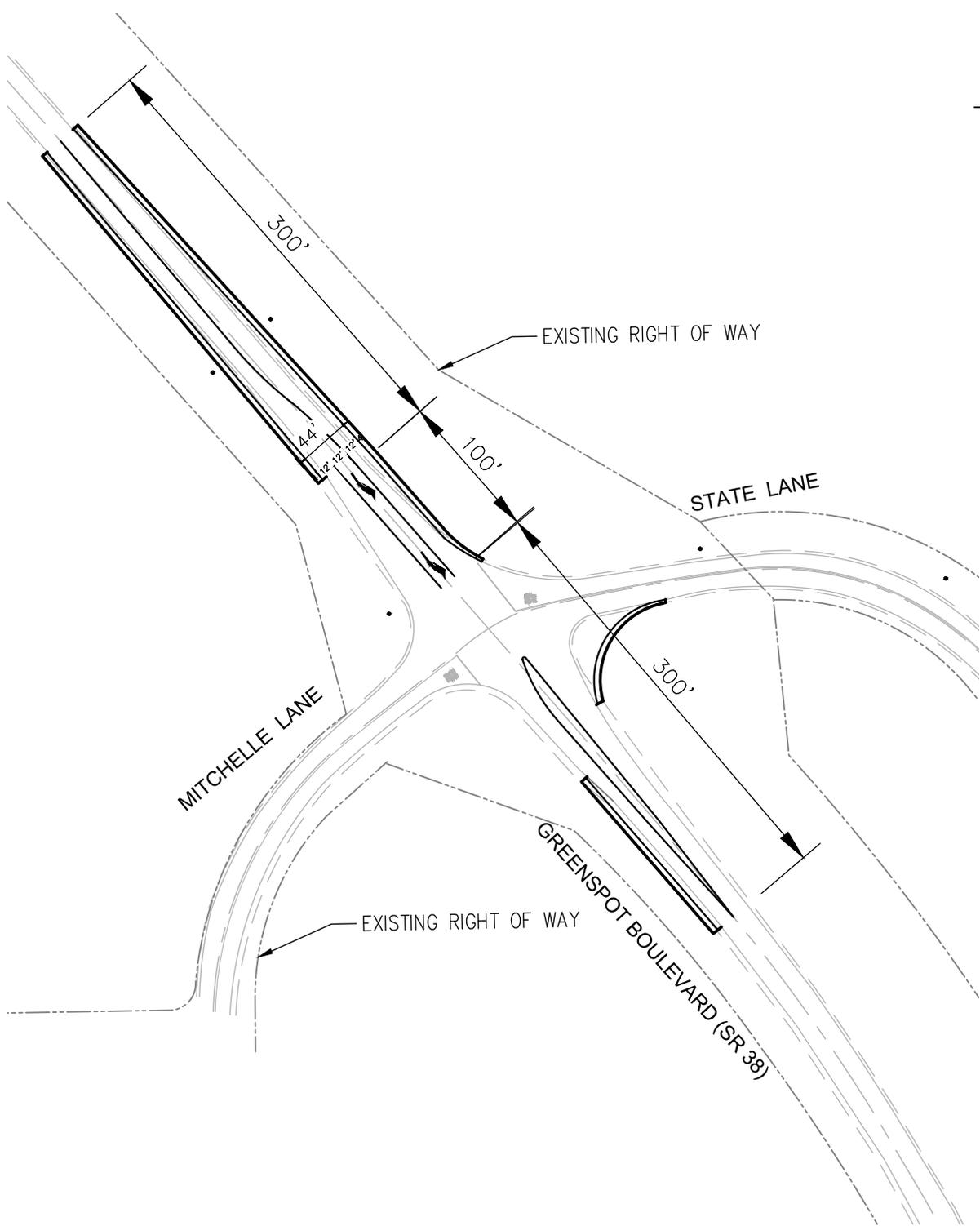
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TRUCK TURNING TEMPLATES

EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE

13



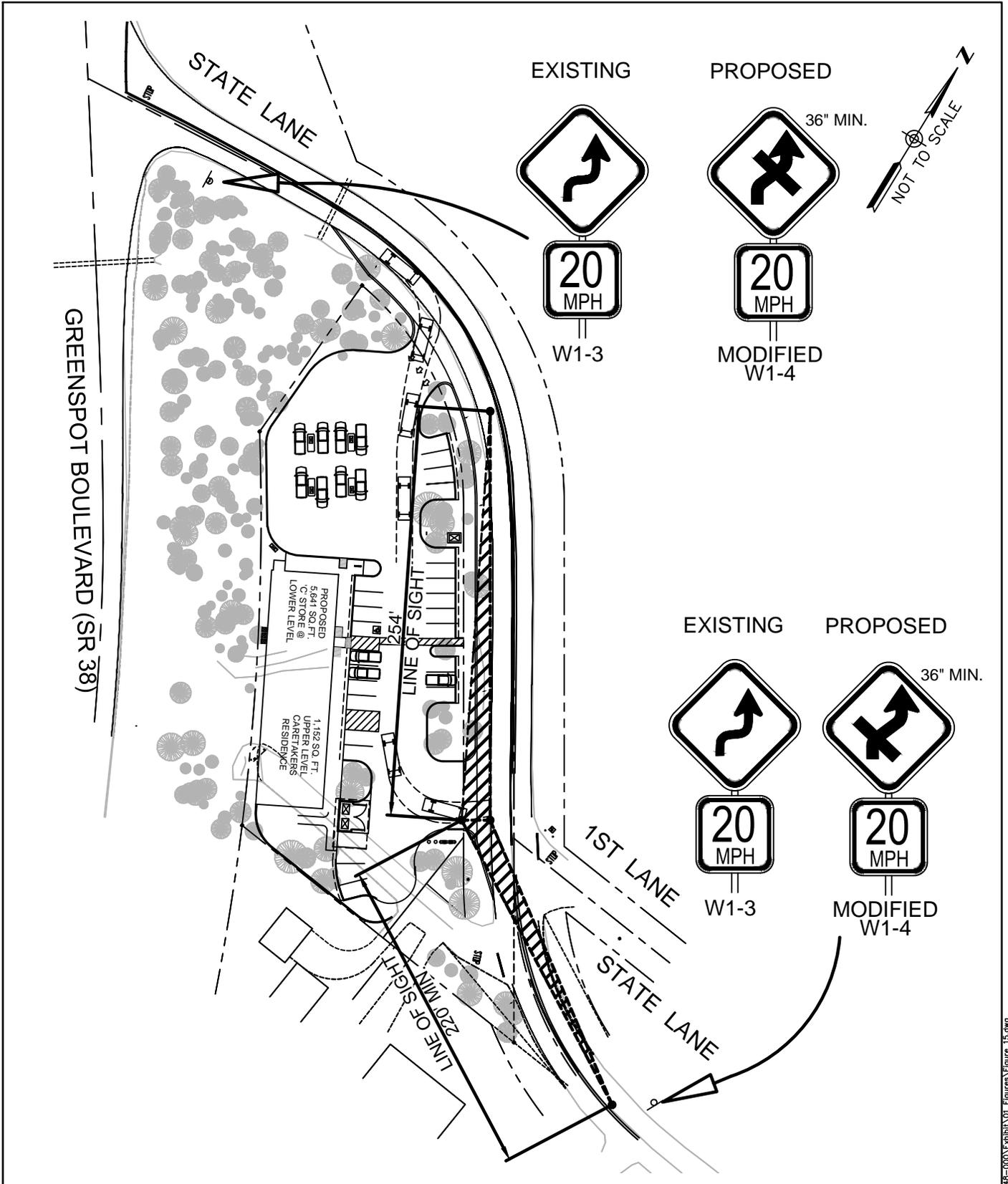
LEGEND
 • - POWER POLE LOCATION

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**PROPOSED INTERSECTION
 GEOMETRICS**
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

**FIGURE
 14**

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**STATE LANE PROPOSED
 PROJECT MITIGATIONS**
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

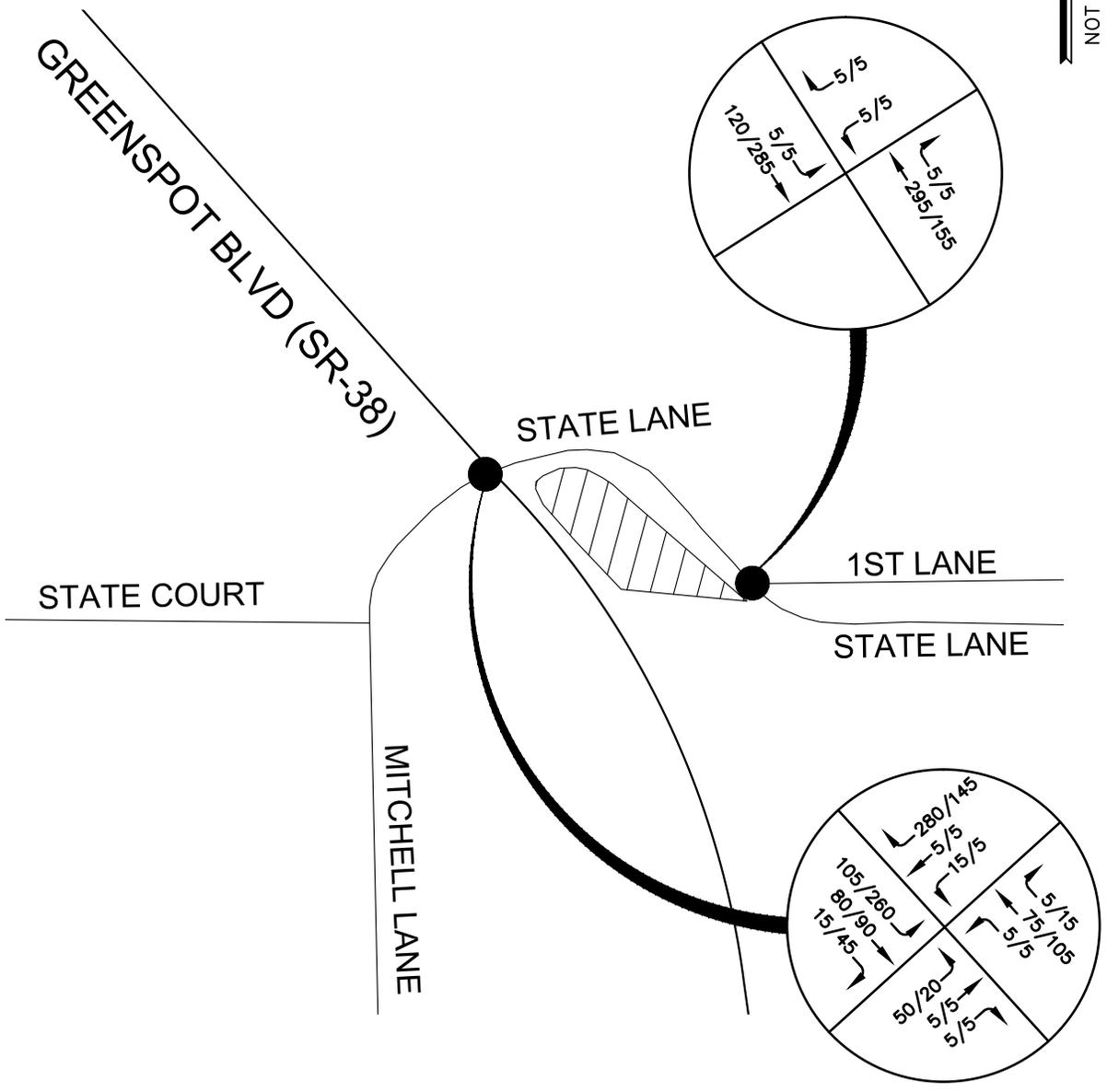
FIGURE
15

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5. FUTURE CONDITIONS

Area Growth

This report is primarily concerned with traffic impacts created by the proposed project. However, growth within the study area due to development will occur. To analyze the future conditions a 2% growth per year of the existing peak hour volumes was considered. *Figure 16* illustrates weekday AM and PM year 2035 without project forecasted volumes. *Figure 17* illustrates the winter Friday and Sunday year 2035 without project forecasted volumes. *Figure 18* illustrates weekday AM and PM year 2035 with project forecasted volumes. *Figure 19* illustrates the winter Friday and Sunday year 2035 with project forecasted volumes.



LEGEND
 ● - STUDY INTERSECTION
 XX/XX - WEEKDAY AM/PM PEAK HOUR VOLUMES

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WEEKDAY AM AND PM
 YEAR 2035 WITHOUT PROJECT
 TRAFFIC VOLUMES
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE
 16

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GREENSPOT BLVD (SR-38)

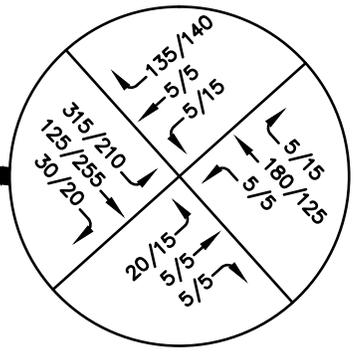
STATE LANE

STATE COURT

1ST LANE

STATE LANE

MITCHELL LANE



LEGEND

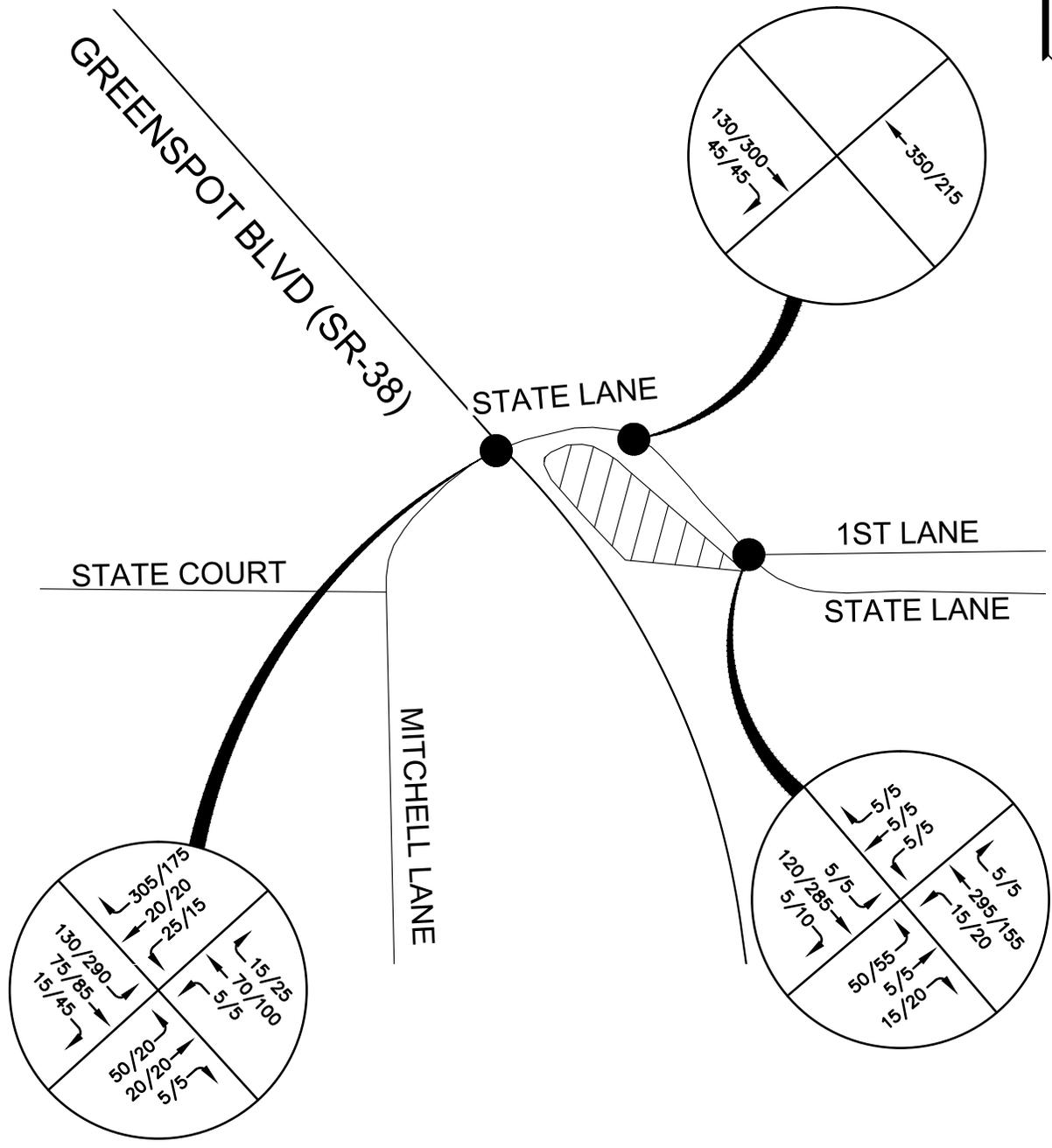
- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PEAK HOUR VOLUMES

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WINTER FRIDAY AND SUNDAY
 YEAR 2035 WITHOUT PROJECT
 TRAFFIC VOLUMES
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE
 17

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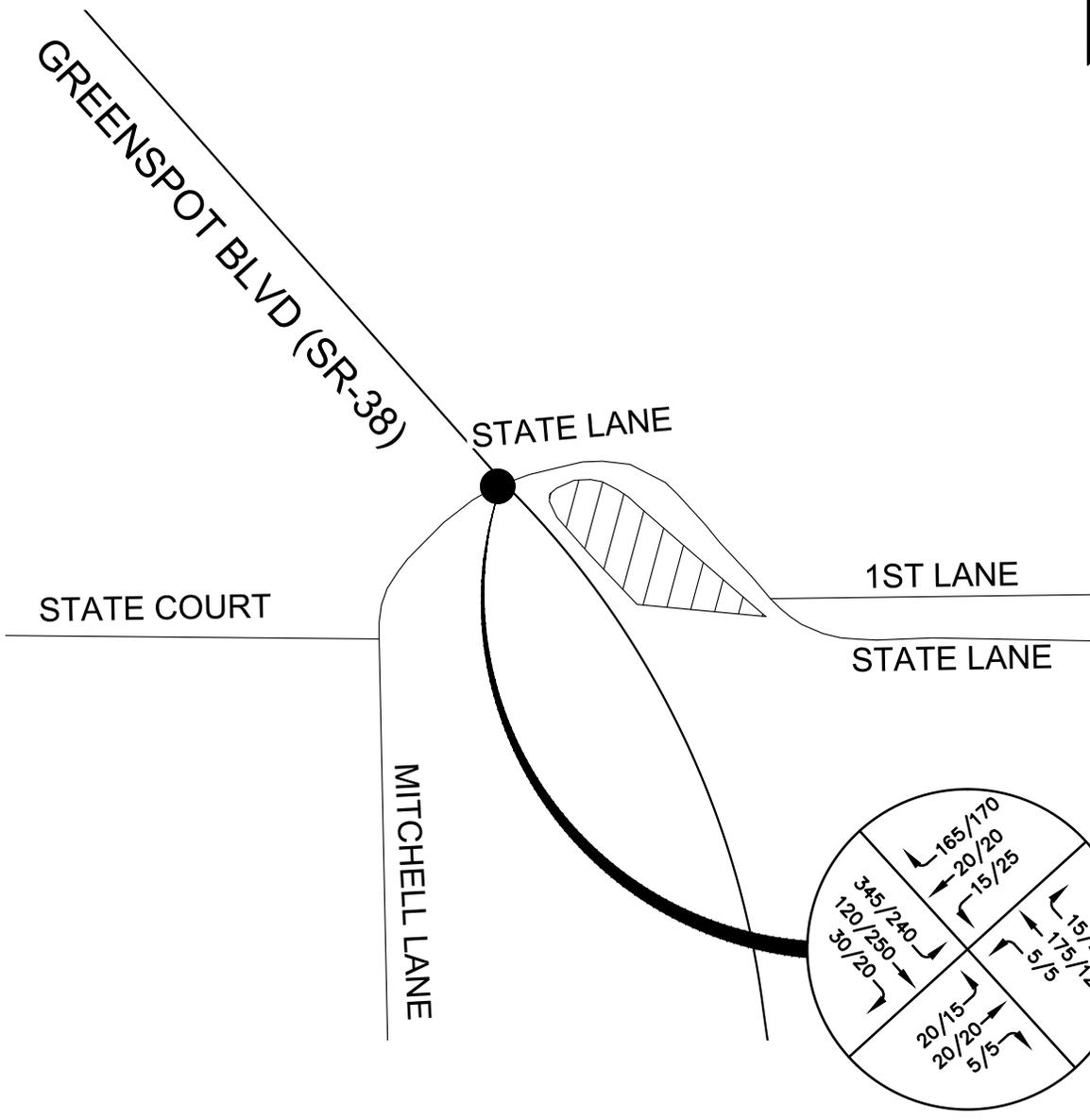
- - STUDY INTERSECTION
- XX/XX - WEEKDAY AM/PM PEAK HOUR VOLUMES

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**WEEKDAY AM AND PM
 YEAR 2035 WITH PROJECT
 TRAFFIC VOLUMES**
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

**FIGURE
 18**

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LEGEND

- - STUDY INTERSECTION
- XX/XX - WINTER FRIDAY/SUNDAY PM PEAK HOUR VOLUMES

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WINTER FRIDAY AND SUNDAY
 YEAR 2035 WITH PROJECT
 TRAFFIC VOLUMES
 EAGLE RIDGE MARKET
 ERWIN LAKE, CALIFORNIA

FIGURE
 19

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Future Traffic Analysis

The intersection of Highway 38 and State Lane was analyzed using the capacity analysis methodology described in Chapter 1. The analysis was conducted with the anticipated project and Future Year 2035 traffic volumes and the existing intersection geometrics. The results of the analysis are shown in *Table 6* and *Table 7*.

Table 6: Intersection Capacity Analysis - Future Year 2035 Condition without Project
Eagle Ridge Market Traffic Study

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Highway 38 and State Lane (3)	19.0	C	23.6	C	35.0	D	24.2	C
State Lane and First Lane Project Driveway (3)	10.7	B	10.4	B	-	-	-	-

(1) LOS – HCM Level of Service

(2) Delay –In Seconds

(3) Un-Signalized Intersection

Source: **Hall & Foreman Inc.**

As presented in *Table 6* under Year 2035 traffic conditions, the un-signalized intersections of Highway 38 and State Lane, and State Lane and First Lane/Project Driveway are anticipated to operate at LOS “D” or better.

Table 7: Intersection Capacity Analysis - Future Year 2035 Condition with Project
Eagle Ridge Market Traffic Study

Intersection	Weekday AM Peak		Weekday PM Peak		Winter Friday PM Peak		Winter Sunday PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Highway 38 and State Lane (3)	21.9	C	29.6	D	47.7	E	30.5	D
State Lane and First Lane Project Driveway (3)	12.8	B	13.6	B	-	-	-	-

(1) LOS – HCM Level of Service

(2) Delay –In Seconds

(3) Un-Signalized Intersection

Source: **Hall & Foreman Inc.**

As presented in *Table 7* under Year 2035 traffic conditions with project, the un-signalized intersections of Highway 38 and State Lane, and State Lane and First Lane/Project Driveway are anticipated to continue to operate at an acceptable LOS.

6. PROJECT MITIGATION AND SUMMARY

As presented, the project is anticipated to minimally impact area intersections. Improvements to area intersections are needed based on current traffic conditions and to handle estimated project and future traffic.

Site Improvement Mitigations

1. Driveway Number 1 is to be constructed as right turn in only.
2. Driveway Number 2 is to be constructed as full access, adjacent First Lane. The intersection will be Two Way Stop Controlled (TWSC) at the driveway and First Lane.
3. The curb and gutter along State Lane, project frontage, will be constructed.
4. Upgrading the existing warning signage along State lane. *Figure 15* illustrates this specific mitigation.

Intersection Improvement Mitigations

1. Widening of the intersection of Greenspot Blvd/Hwy 38 and State Lane/ Mitchelle Lane to accommodate a southbound 100 foot left turn lane and north to east right turn movement, as illustrated in *Figure 14*.

7. APPENDIX

1. Other Area Projects
2. Intersection Capacity Analysis Calculations
3. Traffic Signal Warrant Worksheets – Highway 38 and State Lane
4. Left Turn Warrant Analysis – Highway 38 and State Lane