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MEMORANDUM

January 15, 2014

Job No. VV.130048.0000

To: Mr. Tom Steeno

Steeno Design Studio 11774 Hesperia Rd, Suite 1B Hesperia, CA, 92345

From: Robert A. Kilpatrick, P.E., T.E.

Vice President/Associate



Re: Winter Weekend Traffic Analysis Addendum - - Eagle Ridge Market- State Hwy 38 and State Lane - - Erwin Lake, San Bernardino County, California,

Hall & Foreman, Inc. is pleased to submit this Traffic Analysis Addendum Memorandum to provide a Winter Weekend Traffic Analysis at the intersection of Highway 38 and State Lane, in connection with the proposed Eagle Ridge commercial development in the unincorporated community of Erwin Lake, in the County of San Bernardino. The Traffic Analysis Addendum reviews the traffic existing conditions for a typical winter weekend.

1. INTRODUCTION

The approved Traffic Study for the proposed project dated September 19, 2013 analyzed the weekday AM and PM peak hours to analyze traffic impacts for the proposed project. HFI has conducted a traffic analysis of the existing Friday PM and Sunday PM peak hour conditions. The turn movement counts were conducted on Friday December 13, 2013 and Sunday December 15, 2013, and were representative of typical winter weekend traffic, when the local ski resorts were in operation. This memorandum identifies the potential Friday and Sunday traffic impacts, for the intersection of Highway 38 and State Lane, in connection with the proposed Eagle Ridge commercial development in the unincorporated community of Erwin Lake, in the County of San Bernardino.

HFI has conducted traffic analysis of the Existing, Year 2014 Background, Year 2014 Project, Future Year 2035 without Project, and Future Year 2035 with Project volumes at the intersection of Highway 38 and State Lane. The analysis utilized a straight line growth of 2% increase, compounded annually for the Year 2014 Background volumes and the Future Year 2035 without Project. The previously outlined conditions were examined to identify traffic impacts.

2. EXISTING CONDITIONS

Currently the intersection of Highway 38 and State Lane is controlled by two way stop controls. 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.

2.1 Traffic Volume

Newport Traffic Studies staff conducted a 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, identified for detailed analysis. These counts were conducted on December 13, 2013 and December 15, 2013 respectively. The resulting volumes are provided as an attachment.

2.2 Capacity Analysis

An intersection capacity analysis calculation was conducted to determine the current intersection level of service (LOS). The Synchro 8 Software package, by Trafficware Ltd was utilized. Synchro implements the methods of the 2010 Highway Capacity Manual. The analysis determines a level-of-service (LOS) which quantitatively describes the operating characteristics of signalized intersections and the maximum delay. The LOS ranges from "A" (the best) through "F" (system breakdown). The level-of-service is based on the average delay of vehicles at the intersections.

TABLE ACapacity Analysis – Existing Conditions
Traffic Analysis – Eagle Ridge Market

Interceptions	Friday	PM Peak	Sunday PM Peak		
Intersections	LOS	Delay	LOS	Delay	
Highway 38 and State Lane	18.0	С	14.8	В	

(1) LOS - HCM Level of Service

(2) Delay -In Seconds

Source: Hall & Foreman Inc.

As shown in *Table A* the study intersection is currently operating at LOS C or better during the Friday and Sunday PM peak hours.

3. YEAR 2014

The Year 2014 is the anticipated opening year of the project. The Year 2014 considers two conditions, Year 2014 Background Condition and Year 2014 Project Condition.

3.1 Traffic Volumes

The Year 2014 Background Condition is necessary to analyze the project impacts, with the inclusion of traffic generated by other projects within the study area. The turn movement volumes utilized a straight line growth of 2% increase, compounded annually to represent regional growth of 1 to 2%. The 2% increase was used to be conservative.

The Year 2014 Project Condition 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 the Proposed Commercial Development Eagle Ridge Market Traffic Report, by Hall & Foreman Inc., dated September 19, 2013.

3.2 Capacity Analysis

TABLE B

Capacity Analysis -Year 2014

Traffic Analysis - Eagle Ridge Market

		Backgrour	ıd Conditio	n	Project Condition				
Intersections	Frida	Friday Peak		Sunday Peak		Friday Peak		ay Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
Highway 38 and State Lane	19.5	С	15.8	С	24.9	С	20.0	С	

⁽¹⁾ LOS - HCM Level of Service

(2) Delay -In Seconds

Source: Hall & Foreman Inc.

As shown in *Table B* the study intersections are anticipated to continue to operate at LOS C during the Friday and Sunday peak hours, under the Background and Project conditions.

4. FUTURE YEAR - 2035

The Future Year 2035 considers two conditions, Future Year 2035 without Project Condition and Future Year 2035 with Project Condition.

4.1 Traffic Volumes

The analysis primary focus is 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. The turn movement volumes utilized a straight line growth of 2% increase, compounded annually to represent regional growth of 1 to 2%. The 2% increase was used to be conservative.

4.2 Capacity Analysis

TABLE C Capacity Analysis – Future Year 2035 Traffic Analysis – Eagle Ridge Market

	Futu	re Year 203	5 without	Future Year 2035 with Project				
Intersections	Frida	y Peak	Sunda	ay Peak	Friday Peak		Sunday Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Highway 38 and State Lane	35.0	D	24.2	С	47.7	E	30.5	D

⁽¹⁾ LOS - HCM Level of Service

(2) Delay -In Seconds

Source: Hall & Foreman Inc.

As shown in Table C the study intersections are anticipated to operate at LOS "E" or better during the Friday and Sunday PM peak hours under the Year 2035 conditions.

5. SUMMARY

Based on the traffic analysis, the project will not cause any significant negative impacts to the surrounding street system. The existing street system will be adequate to handle estimated project and future traffic with the existing intersection geometrics. As a result no project specific mitigation is needed at the study intersection.

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SUBJECT BY DATE JOB NO. SHEET OF

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<u>E/W STREET</u>: <u>STATE LANE DRIVE</u> <u>PROJECT YEAR</u>: 2014

N/S STREET : HIGHWAY 38 PROJECTED GROWTH : 2%

<u>CONDITION</u>: <u>FRIDAY PEAK HOUR</u> <u>PER YEAR</u>

CONDITION DIAGRAMS









EXISTING GEOMETRICS

TURN MOVEMENTS

			EXISTING +		EXISTING +	YEAR 2035	YEAR 2035
	EXISTING	BACKGROUND	BACKGROUND	PROJECT	BACKGROUND +	WITHOUT	WITH
CONDITION	TRAFFIC	TRAFFIC	TRAFFIC	TRIPS	PROJECT	PROJECT	PROJECT
SCENERIO#							

STATE LANE DRIVE

EB LEFT	15	0	15	0	15	20	20
EB THRU	5	0	5	15	20	5	20
EB RIGHT	5	0	5	0	5	5	5
WB LEFT	5	0	5	10	15	5	15
WB THRU	5	0	5	15	20	5	20
WB RIGHT	90	0	95	25	120	135	160

HIGHWAY 38

NB LEFT	5	0	5	0	5	5	5
NB THRU	120	5	130	-5	125	180	175
NB RIGHT	5	0	5	10	15	5	15
SB LEFT	215	0	225	25	250	315	340
SB THRU	75	15	95	-5	90	125	120
SB RIGHT	20	0	20	0	20	30	30
TOTALS	565	20	610	90	700	835	925

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	STRE		_		LAN Y PE						S STF				-IWAY		<u>2013</u>				
NOR1	TH LEG]		SOUT	H LEG	i]	
LAF	RGE 2 A	XLE	LAF	RGE 3 A	XLE	LAR	GE 4(+)	AXLE			LAF	RGE 2 A	XLE	LAF	RGE 3 A	XLE	LAR	GE 4(+)	AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT			RT	THRU	LT	RT	THRU	LT	RT	THRU	LT		
0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0		
1	0	2	0	0	0	0	1	0			0	0	0	0	0	0	0	0	0		
0	2	0	0	0	0	0	0	0			1	0	0	0	0	0	0	0	0		
0	0	0	0	1	0	0	0	0]		0	0	0	0	1	0	0	1	0	<u> </u> -	
EAST	LEG								1		WES	T LEG]	
	RGE 2 A	XLE		RGE 3 A	XLE		GE 4(+)	AXLE				RGE 2 A	XLE	1	RGE 3 A	XLE		GE 4(+)			
	THRU	LT	RT	THRU	LT		THRU	LT			RT	THRU	LT	RT	THRU	LT	RT	THRU		ļ	
0	0	0	0	0	0	0	0	0	4		1	0	0	0	0	0	0	0	0		
0	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	ł	
0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0		
0	0	0	0	0	0	0	0	0]		0	0	0	0	0	0	0	0	0	j	
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	THRU	LT	RT	THRU			THRU	LT	i i	THRU	LT										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
		т	RUCK		AUTO			RC	DUNDED	Т	RUCK										
			TOTAL		LUMES	Т	OTALS		OTALS		CENTAG	SE									
STA	TE LA																				
EB LE	FT		0		0		16		15		0										
EB TH	HRU		0		0		2		5		0										
EB RI			1		0		1		5		100										
WB L	EFT	4	0		0	-	7		5		0										
WB T	HRU		0	_	0		3	_	5	1	0	_									
WB R			0		0		92		90		0										
	HWAY	38								1		_									
NB LE		+	0	+	0	+	7	1	5	+	0										
NB TH		+	1		0	+	122 6	+	120 5	+	17										
NB RI			2		0		214		215		17 1	\dashv									
SB TH		+	4	+	0	+	73	+	75	+	5										
SB RI			1	+	0	1	20		20	1	5										
	2		-			-				1											

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PEAK HOUR

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR DATE: 12-13-13

JURISDICTION: ERWIN LAKE

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 307

20	73	214
6	16	42
6	19	50
6	16	56
2	22	66

Rt Thru Lt

EAST LEG TOTAL: 102

 Rt
 27
 23
 22
 20
 92

 Thru
 1
 1
 1
 0
 3

 Lt
 5
 0
 2
 0
 7

Total

1st

2nd

3rd

4th

1st

Total 1st 2nd 3rd 4th

16	1	3	6	6	Lt
2	1	0	0	1	Thru
1	0	0	1	0	Rt

WEST LEG TOTAL: 19

PEAK HOUR FACTORS

2nd 3rd 4th Total

Lt Thru Rt 1st 30 2 2 2nd 37 4 1 3rd 1 21 2 0 34 4th 1 6 Total 122

Jear

NORTH LEG = 0.85 SOUTH LEG = 0.80 EAST LEG = 0.77 WEST LEG = 0.68

ALL LEGS = 0.93

TOTAL: 135

SOUTH LEG

HOUR TOTAL: 563 Prepared by NEWPORT TRAFFIC STUDIES

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 04:00PM-05:00PM DATE: 12-13-13

NORTH LEG

22	73	192	Total
5	21	49	1st
5	17	51	2nd
6	16	42	3rd
6	19	50	4th
			រា

Rt Thru Lt

Rt 32 27 27 23 109 Thru 1 0 1 3 Lt 0 0 5 0 5

2nd 3rd 4th Total

1st

Total 1st 2nd 3rd 4th

9	4	1	1	3
1	0	0	1	0
0	0	0	0	0

Lt Thru Rt

Lt Thru Rt 1st 0 22 3 2nd 3 26 4 3rd 2 30 2 1 4th 4 37 115 Total 10

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 05:00PM-06:00PM DATE: 12-13-13

NORTH LEG

24	55	198	Total
6	16	56	1st
2	22	66	2nd
8	9	38	3rd
8	8	38	4th

Rt Thru Lt

 Rt
 22
 20
 30
 32
 104

 Thru
 1
 0
 2
 1
 4

 Lt
 2
 0
 0
 2
 4

1st

2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

23	6	6	4	7
1	0	1	0	0
1	1	0	0	0

Lt Thru Rt

Lt Thru Rt 21 1st 1 2nd 0 34 1 0 26 1 3rd 19 5 4th 0 100 Total 1

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 06:00PM-07:00PM DATE: 12-13-13

NORTH LEG

11	36	140	Total
4	9	49	1st
3	9	46	2nd
3	7	23	3rd
1	11	22	4th

Rt Thru Lt

18	21	25	16	80
1	0	3	0	4
0	1	0	0	1
	18 1 0		1 0 3	1 0 3 0

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

11	4	1	3	3
2	0	1	1	0
0	0	0	0	0

Lt Thru Rt

_	Lt	Thru	Rt
1st	2	14	1
2nd	0	23	1
3rd	1	19	1
4th	2	20	3
Total	5	76	6

__TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Friday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Existing Conditions

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South Street Intersection Orie		nway 38 NS		St	udy pe	riod (hr	rs): 1.0	0
		cle Volu			tments			
Major Street: Ap			rthbound			Southbo	_	
Мс	vement	1	2	3	4	5	6	
		L	Т	R	L	Т	R	
Volume		5	120		21	5 75	20	
Peak-Hour Factor,	PHF	0.93	0.93	0.93	0.	93 0.9	0.93	
Hourly Flow Rate,		5	129	5	23	1 80	21	
Percent Heavy Veh		5			5			
Median Type/Stora RT Channelized?	ıge	Undiv	ided		/			
Lanes		0	1 0			0 1	0	
Configuration		L	ΓR			LTR		
Upstream Signal?			No			No		
Minor Street: Ap	proach	Wes	tbound			Eastbou	 ınd	
Мс	vement	7	8	9	10	11	12	
		L	Т	R	L	Т	R	
Volume		5	5	90	15	5	5	
Peak Hour Factor,	PHF	0.93	0.93	0.93	0.	93 0.9	0.93	
Hourly Flow Rate,	HFR	5	5	96	16	5	5	
Percent Heavy Veh	nicles	5	5	5	5	5	5	
Percent Grade (%)			0					
Flared Approach:	Exists?/	'Storage		No	/		No	/
Lanes		0	1 0			0 1	0	
Configuration			LTR			LTF	2	
	Dala 0			J T				
Approach	Delay, Ç NB	SB		.a веvе .bound	I OL S		stbound	
Movement	1	4		8	9	1 10	11	12
Lane Config	LTR	LTR		LTR			LTR	- -
v (vph)	5	231		106			26	
C(m) (vph)	1473	1432		761			303	
v/c	0.00	0.16		0.14			0.09	
95% queue length	0.01	0.58		0.48			0.28	
Control Delay	7.5	8.0		10.5			18.0	
LOS	A	A		В			C	
Approach Delay				10.5			18.0	
Approach LOS				В			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Friday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Existing plus Background

Project ID: VV.130048.0000

East/West Street: State Lane Drive

Intersection Ori	entation:	NS		St	udy pe	riod	(hrs)	: 1.00)
	Vehi	.cle Volu	mes and	Adjus	tments				
Major Street: A			thbound			South	ıboun	d	
M	lovement	1	2	3	4	į	5	6	
		L	Т	R	L	7	Γ	R	
Volume		 5	130	 5	22	5 9	 95	20	
Peak-Hour Factor	î, PHF	0.93	0.93	0.93	0.	93 ().93	0.93	
Hourly Flow Rate		5	139	5	24	1 1	L02	21	
Percent Heavy Ve	ehicles	5			5	-			
Median Type/Stor RT Channelized?	age	Undivi	.ded		/				
Lanes		0	1 0			0 1	L	0	
Configuration		LT	R			LTR			
Upstream Signal?			No			1	10		
Minor Street: A	Approach	Wes	tbound			Eastl	oound		
N	lovement	7	8	9	10	1	L1	12	
		L	T	R	L	7	Γ	R	
Volume		5	 5	95	15		5	5	
Peak Hour Factor		0.93	0.93	0.93	0.	93 ().93	0.93	
Hourly Flow Rate	, HFR	5	5	102	16	į	5	5	
Percent Heavy Ve		5	5	5	5	Ţ	5	5	
Percent Grade (%			0			()		
Flared Approach:	Exists?/	Storage		No	/			No	/
Lanes		0	1 0			_	='	0	
Configuration			LTR			Ι	LTR		
	Delay, Q),,e,,e T.er	acth an	d T.eve	1 of S	ervi ca			
Approach	BCIAY, Q NB	SB	_	bound	I OI D	CIVICO		 bound	
Movement	1	4		8	9	10		11	12
Lane Config	LTR	LTR		LTR		İ		LTR	
v (vph)	5	241		 112				26	
C(m) (vph)	1446	1420		745				274	
v/c	0.00	0.17		0.15				0.09	
95% queue length	0.01	0.61		0.53				0.31	
Control Delay	7.5	8.1		10.7				19.5	
LOS	А	A		В				C	
Approach Delay				10.7				19.5	
Approach LOS				В				С	

_TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Friday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Project Year 2014

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South Str Intersection Or	_	nway 38 NS		St	udy	period	d (hrs): 1.0	0
	Veh:	icle Volu	mes and	Adjus	tmer	nts			
Major Street:	Approach	Nor	thbound			Sou	ıthbour	nd	
	Movement	1	2	3		4	5	6	
		L	T	R	İ	L	Т	R	
Volume		5	125	15		250	90	20	
Peak-Hour Facto	r, PHF	0.90	0.90	0.90		0.90	0.90	0.90	
Hourly Flow Rat	e, HFR	5	138	16		277	100	22	
Percent Heavy V	ehicles	5				5			
Median Type/Sto RT Channelized?		Undivi	ded		,	/			
Lanes		0	1 0			0	1	0	
Configuration		LT	_			-	rr		
Upstream Signal	?		No				No		
Minor Street:			tbound				stbound		
	Movement	7	8	9	ļ	10	11	12	
		L	T	R		L	Т	R	
Jolume		15	20	120		15	20	5	
Peak Hour Facto	r, PHF	0.90	0.90	0.90		0.90	0.90	0.90	
Hourly Flow Rat		16	22	133		16	22	5	
Percent Heavy V	ehicles	5	5	5		5	5	5	
Percent Grade (웅)		0				0		
Flared Approach	: Exists?	/Storage		No	/			No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR				LTR		
 Approach	Delay, (Queue Len SB		d Leve bound	1 of	f Servi		bound	
Approach Movement	1	3B 4		Bouria 8	9	1	Lasi	11	12
Lane Config	LTR	LTR		o LTR	9	-	LU	LTR	12
				штк					
v (vph)	5	277		171				43	
C(m) (vph)	1447	1408		543				224	
7/C	0.00	0.20		0.31				0.19	
95% queue lengt	h 0.01	0.73		1.37				0.71	
Control Delay	7.5	8.2		14.7				24.9	
				_					
LOS	A	A		В				C	
LOS Approach Delay	A	A		В 14.7				24.9	

__TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Friday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Year 2035 without Project

Project ID: VV.130048.0000

East/West Street: State Lane Drive

Intersection Or:		_		St	udy	period	(hrs)	: 1.00)
	Vehi	.cle Volu	ımes and	Adjus	tmen	ıts			
Major Street: A	Approach		thbound				thbour	 nd	
_	Movement	1	2	3		4	5	6	
		L	Т	R	j	L	Т	R	
Volume		5	180	 5		315	125	30	
Peak-Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Rate		5	189	5		331	131	31	
Percent Heavy Ve		5				5			
Median Type/Stor RT Channelized?	rage	Undivi	ided		/				
Lanes		0	1 0			0	1	0	
Configuration		LT	ΓR			$_{ m LT}$	R		
Upstream Signal?	?		No				No		
Minor Street: A	Approach	Wes	stbound			Eas	tbound	 i	
N	Movement	7	8	9		10	11	12	
		L	Т	R		L	Т	R	
Volume		5	5	135		20	5	5	
Peak Hour Factor	C, PHF	0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Rate		5	5	142		21	5	5	
Percent Heavy Ve		5	5	5		5	5	5	
Percent Grade (0				0		
Flared Approach	Exists?/			No	/			No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR 				LTR 		
	Delay, Ç	Nilelie T.er	nath an	d T.e.ve	1 of	Servi	CA		
Approach	DCIQ,, © NB	SB		bound	_ 0_	DCIVI		bound	
Movement	1	4		8	9	1	0	11	12
Lane Config	LTR	LTR		LTR		İ		LTR	
v (vph)	5	331		 152				31	
C(m) (vph)	1399	1361		665				151	
v/c	0.00	0.24		0.23				0.21	
95% queue length		0.96		0.89				0.77	
Control Delay	7.6	8.5		12.0				35.0-	
LOS	A	A		В				D	
Approach Delay				12.0				35.0-	
Approach LOS				В				D	

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Friday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Year 2035 with Project

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South St Intersection O	_	_		St	udy pe	riod (hrs): 1.0	0
	Vehi	.cle Volu	ımes and	d Adjus	tments			
Major Street:			thbound			Southbou	.nd	
	Movement	1	2	3	4	5	6	
		L	Т	R	L	T	R	
Volume		5	175	15	34	0 120	30	
Peak-Hour Fact	or, PHF	0.95	0.95	0.95	0.	95 0.95	0.95	
Hourly Flow Ra	te, HFR	5	184	15	35	7 126	31	
Percent Heavy	Vehicles	5			5			
Median Type/St RT Channelized		Undivi	ded		/			
Lanes	•	0	1 ()		0 1	0	
Configuration		L7		,		LTR	O	
Upstream Signa	12		No			No		
	· - ·							
Minor Street:	Approach		stbound			Eastboun		
	Movement	7	8	9	10	11	12	
		L	Т	R	L	Т	R	
Volume		15	20	160	20	20	5	
Peak Hour Fact	or, PHF	0.95	0.95	0.95	0.	95 0.95	0.95	
Hourly Flow Ra	te, HFR	15	21	168	21	21	5	
Percent Heavy		5	5	5	5	5	5	
Percent Grade	(%)		0			0		
Flared Approac	h: Exists?/	Storage		No	/		No	/
Lanes		0	1 ()		0 1	0	
Configuration			LTR			LTR		
Approach Movement	Delay, Ç NB 1	ueue Ler SB 4		nd Leve	1 of S	ervice Eas 10	tbound	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	 5	357		204			47	
C(m) (vph)	1405	1356		456			131	
v/c	0.00	0.26		0.45			0.36	
95% queue leng		1.07		2.38			1.62	
Control Delay	7.6	8.6		19.2			47.7	
LOS	A	A		C			E	
Approach Delay	-			19.2			47.7	
Approach LOS				С			E	

Hall & Foreman, Inc.

Engineering - Surveying - Planning - Landscape Architecture

SUBJECT BY DATE JOB NO. SHEET OF

SUMMARY TM 7-Jan-14 VV.130048.0000 1 OF 2

<u>E/W STREET</u> : <u>STATE LANE DRIVE</u> <u>PROJECT YEAR</u> : 2014

N/S STREET : HIGHWAY 38 PROJECTED GROWTH : 2%

<u>CONDITION</u>: <u>SUNDAY PEAK HOUR</u> <u>PER YEAR</u>

CONDITION DIAGRAMS

TURN MOVEMENTS

TOTALS

545

30

			EXISTING +		EXISTING +	YEAR 2035	YEAR 2035
	EXISTING	BACKGROUND	BACKGROUND	PROJECT	BACKGROUND +	WITHOUT	WITH
CONDITION	TRAFFIC	TRAFFIC	TRAFFIC	TRIPS	PROJECT	PROJECT	PROJECT
SCENERIO#							
STATE LAN	E DRIVE						
EB LEFT	10	0	10	0	10	15	15
EB THRU	5	0	5	15	20	5	20
EB RIGHT	5	0	5	0	5	5	5
WB LEFT	10	0	10	10	20	15	25
WB THRU	5	0	5	15	20	5	20
WB RIGHT	95	0	100	30	130	140	170
HIGHWAY 3	<u>8</u>						
NB LEFT	5	0	5	0	5	5	5
NB THRU	70	20	95	-5	90	125	120
NB RIGHT	10	0	10	10	20	15	25
SB LEFT	145	0	150	30	180	210	240
SB THRU	170	10	185	-5	180	255	250
SB RIGHT	15	0	15	0	15	20	20

Tustin Office: 714.665.4500 Tel/ 714.665.4501 Fax
Santa Clarita Office: 661.284.7400 Tel/ 661.284.7401 Fax
Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax

100

695

815

915

595

Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax



Engineering - Surveying - Planning - Landscape Architecture

SUBJEC	т					BY				DA	TE			JOB N	10.			SHEET		OF	
TU	RN V	OLUN	ΛΕ SL	JMMA	λRΥ		TM				7 -J	an-14		٧٧	′.1300)48.00	000		2	OF	2
	STRE						<u>ORIVE</u> K HOUR			_	N/S ST				HWA\ ember		<u>2013</u>				
NORT	H LEG									SOUTH LEG											
LAF	RGE 2 A	XLE	LAF	RGE 3 A	XLE	LAR	GE 4(+)	AXLE			L	RGE 2	AXLE	LAF	RGE 3 A	XLE	LAR	GE 4(+)	AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT			RT	THRU	J LT	RT	THRU	LT	RT	THRU	LT		
0	0	0	0	0	0	0	0	0	-		0	0	0	0	0	0	0	0	0	ļ	
0	0	0	0	0	0	0	0	0	_		0	0	0	0	0	0	0	0	0		
0	0	0	0	0	0	0	0	0	-		0	0	0	0	0	0	0	0	0		
0	0	1	0	0	0	0	0	0]		0	0	0	0	0	0	0	0	0]	
EAST	LEG						-		_		WES	T LEG									
LAF	RGE 2 A	XLE	LAF	RGE 3 A	XLE	LAR	3E 4(+)	AXLE			L	RGE 2	XLE	LAF	RGE 3 A	XLE	LAR	GE 4(+)	AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	_		RT	THRU	J LT	RT	THRU	LT	RT	THRU	LT		
1	0	0	0	0	0	0	0	0	-		0	0	0	0	0	0	0	0	0	ļ	
0	0	0	0	0	0	0	0	0	_		0	0	1	0	0	0	0	0	0		
0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0		
1	0	0	0	0	0	0	0	0	J		0	0	0	0	0	0	0	0	0	J	
N/	ORTH LI			OUTH L	F.C.		AST LE		10/	EST L	FC										
	THRU	LT	RT	THRU			THRU		1 1	THRI	1										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
0	0	0	0	0	0	0	0	0	0	0	0										
			TRUCK		AUTO			RC	DUNDED	, [TRUCK										
			TOTAL		DLUMES	; т	OTALS		OTALS		RCENTA	GE									
STA	TE LA																				
EB LE	FT		1		0		10		10		10										
EB TI	HRU		0		0		2		5		0										
EB RI	GHT		0		0		3		5	\perp	0	_									
WB L	EFT	_	0		0	_	10	4	10	\bot	0	_									
WBT	HRU		0		0		4	+	5	+	0	_									
WB R		/ 00	2		0		97		95		2										
	HWAY	38				<u> </u>		T		Т		_									
NB LE		+	0		0	+	2 70	+	5 70	+	0	\dashv									
NB TI NB RI		+	0		0	+	8	+	10	+	0	\dashv									
SB LE		+	1		0	+	145	+	145	+	1	\dashv									
SB TH			0		0		171	+	170	T	0	\dashv									
SB RI			0		0		15		15	T	0	\exists									
		_				-															

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Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

PEAK HOUR

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR DATE: 12-15-13

JURISDICTION: ERWIN LAKE

PEAK HOUR: 04:00PM

Total

1st

2nd

3rd

4th

NORTH LEG

TOTAL: 331

15	171	145
4	50	35
2	37	43
5	43	33
4	41	34

Rt Thru Lt

EAST LEG TOTAL: 111

1st 2nd 3rd 4th Total

Rt	21	32	27	17	97
Thru	0	1	0	3	4
Lt	2	5	2	1	10

Total 1st 2nd 3rd 4th

10	2	2	3	3
2	0	0	0	2
3	0	0	1	2

WEST LEG TOTAL:

Lt

Thru

Rt

15

PEAK HOUR FACTORS

Lt	Thru	Rt
0	15	0
1	17	3
1	13	3
0	25	2
2	70	8
	0 1 1 0	0 15 1 17 1 13 0 25

NORTH LEG = 0.93

SOUTH LEG = 0.74 EAST LEG = 0.73 WEST LEG = 0.54

ALL LEGS = 0.94

TOTAL: 80

SOUTH LEG

HOUR TOTAL: 537

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 03:00PM-04:00PM DATE: 12-15-13

NORTH LEG

23	141	107	Total
5	22	26	1st
6	38	23	2nd
4	38	32	3rd
8	43	26	4th

Rt Thru Lt

> Rt 23 19 20 18 80 Thru 0 0 0 1 1 1 2 11 Lt

> > 2nd 3rd 4th Total

1st

7

Total 1st 2nd 3rd 4th

- 11						1
	18	3	5	5	5	Lt
	5	1	1	1	2	Thr
	2	1	1	0	0	Rt

Thru Rt

1st

2nd

3rd

4th

Total

Lt Thru Rt 0 14 2 0 12 2 2 12 1 15 2

53

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 04:00PM-05:00PM DATE: 12-15-13

NORTH LEG

15	171	145	Total
4	50	35	1st
2	37	43	2nd
5	43	33	3rd
4	41	34	4th

Rt Thru Lt

17 Rt 21 32 27 97 Thru 0 1 0 3 Lt 2 5 2 1 10

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

10	2	2	3	3
2	0	0	0	2
3	0	0	1	2

Lt Thru Rt

Lt Thru Rt 1st 0 15 0 2nd 1 17 3 3rd 1 13 3 4th 0 25 2 70 8 Total

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

TIME: 05:00PM-06:00PM DATE: 12-15-13

NORTH LEG

24	96	105
2	26	32
7	19	33
10	23	14
5	28	26

Total

1st

2nd

3rd

4th

Rt Thru Lt

Rt

Lt

16 22 20 15 73 Thru 0 0 0 0 0 0 3

Total 1st 2nd 3rd 4th

9	3	3	1	2
1	0	0	1	0
3	1	0	1	1

Lt

Thru

Rt

1st 2nd 3rd 4th Total

	Lt	Thru	Rt
1st	1	19	1
2nd	1	5	3
3rd	1	6	2
4th	0	9	2
Total	3	39	8

__TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Sunday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Existing Condition

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South Street: Highway 38 Intersection Orientation: NS

Intersection Orient	ation:	NS		Stud	y period	l (hrs)	: 1.00)
	Vehi	cle Volu	mes and	Adjustm	ents			
Major Street: Appr	oach		thbound			thboun	 d	
	ement	1	2	3	4	5	6	
		L	T	R	L	T	R	
					1 4 5	1.70	1.5	
Volume		5	70	10	145	170	15	
Peak-Hour Factor, F		0.94	0.94	0.94	0.94	0.94	0.94	
Hourly Flow Rate, H		5	74	10	154	180	15	
Percent Heavy Vehic		5			5			
Median Type/Storage RT Channelized?		Undivi			/			
Lanes		0	1 0		0	1	0	
Configuration		LT	R		LI	'R		
Upstream Signal?			No			No		
Minor Street: Appr	oach	Wes	tbound		Eas	tbound		
Move	ement	7	8	9	10	11	12	
		L	Т	R	L	Т	R	
Volume		10	 5	95	10	 5	5	
Peak Hour Factor, F	HF	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly Flow Rate, H	IFR	10	5	101	10	5	5	
Percent Heavy Vehic	eles	5	5	5	5	5	5	
Percent Grade (%)			0			0		
Flared Approach: E	xists?/	Storage		No	/		No	/
Lanes		0	1 0		0	1	0	
Configuration			LTR			LTR		
			ath on	d Level	of Corri			
Approach	NB	SB	_	bound	OI DCIVI		 bound	
Movement	1			8 9	1		11	12
Lane Config	LTR	LTR		LTR	i -		LTR	12
v (vph)	5	154		116			20	
C(m) (vph)	1360	1494		803			386	
V/C	0.00	0.10		0.14			0.05	
95% queue length	0.01	0.34		0.51			0.16	
Control Delay	7.7	7.7		10.2			14.8	
LOS	A	A		В			В	
Approach Delay				10.2			14.8	
Approach LOS				В			В	

__TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Sunday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Existing plus Background

Project ID: VV.130048.0000

East/West Street: State Lane Drive

Intersection Orien	itation:	NS		Stu	ıdy	period	(hrs)	1.00	0
	Vehi	cle Volu	mes and	Adiust	mei	nts			
Major Street: App	roach		thbound				thbour	 nd	
	rement	1	2	3		4	5	6	
		L	T	R	İ	L	T	R	
Volume		5	95	10		150	185	15	
Peak-Hour Factor,	PHF	0.94	0.94	0.94		0.94	0.94	0.94	
Hourly Flow Rate,		5	101	10		159	196	15	
Percent Heavy Vehi		5							
Median Type/Storag RT Channelized?	je	Undivi	.ded	/					
Lanes		0	1 0			0	1	0	
Configuration		LT	'R			$_{ m LT}$	R		
Upstream Signal?			No				No		
Minor Street: App	roach	 Wes	tbound			Eas	tbound	 i	
	rement	7	8	9		10	11	12	
		L	T	R	İ	L	T	R	
Volume		10	5	100		10	5	5	
Peak Hour Factor,		0.94	0.94	0.94		0.94	0.94	0.94	
Hourly Flow Rate,		10	5	106		10	5	5	
Percent Heavy Vehi	cles	5	5	5		5	5	5	
Percent Grade (%)		_	0				0		
Flared Approach:	Exists?/		1 0	No	/	•	-	No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR				LTR 		
	_Delay, Q	116116 T.en	ath an	d Tavel	0	f Servi	C O		
Approach	NB	SB		bound	- 0.	I DCIVI		bound	
Movement	1	4		8	9	1	0	11	12
Lane Config	LTR	LTR		LTR		İ		LTR	
v (vph)	5	159		121				20	
C(m) (vph)	1342	1460		771				353	
V/C	0.00	0.11		0.16				0.06	
95% queue length	0.01	0.37		0.56				0.18	
Control Delay	7.7	7.8		10.5				15.8	
LOS	A	A		В				С	
Approach Delay				10.5				15.8	
Approach LOS				В				С	

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Sunday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Project Year 2014

Project ID: VV.130048.0000

East/West Street: State Lane Drive

Intersection On	Study period (hrs): 1.00								
	Vehi	cle Volu	mes and	Adjus	tme	nts			
Major Street:	Approach	Nor	thbound			Sou	thbour	nd	
	Movement	1	2	3		4	5	6	
		L	T	R		L	Т	R	
Volume		5	90	20		180	180	15	
Peak-Hour Facto		0.90	0.90	0.90		0.90	0.90	0.90	
Hourly Flow Rat		5	100	22		200	200	16	
Percent Heavy V		5				5			
Median Type/Sto RT Channelized		Undivi	.ded			/			
Lanes		0	1 0			0	1	0	
Configuration		LT	TR			LT	'R		
Upstream Signal	1?		No				No		
Minor Street:	Approach	Wes	tbound			Eas	tbound	d	
	Movement	7	8	9		10	11	12	
		L	T	R		L	Т	R	
Volume		20	20	130		10	20	5	
Peak Hour Facto	or, PHF	0.90	0.90	0.90		0.90	0.90	0.90	
Hourly Flow Rat		22	22	144		11	22	5	
Percent Heavy V		5	5	5		5	5	5	
Percent Grade			0				0		
Flared Approach	n: Exists?/			No	/	•	_	No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR 				LTR 		
	Delay, Q	oueue Ler	ngth, an	d Leve	1 o	f Servi	ce		
Approach		SB		bound				bound	
Movement	1	4		8	9	1	. 0	11	12
Lane Config	LTR	LTR	:	LTR		j		LTR	
v (vph)	5	200		188				38	
C(m) (vph)	1336	1447		601				278	
V/C	0.00	0.14		0.31				0.14	
95% queue lengt		0.48		1.36				0.47	
Control Delay	7.7	7.9		13.7				20.0	
LOS	A	A		В				С	
Approach Delay				13.7				20.0	
Approach LOS				В				С	

_TWO-WAY STOP CONTROL SUMMARY__

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Sunday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Year 2035 without Project

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South St Intersection C	_	way 38 NS		St	udy	period	(hrs)	: 1.0	0
	Vehi	.cle Vol	ımes and	Adius	tmen	t.s			
Major Street:			rthbound		, cincii		 thbour	 nd	
najor bereee	Movement	1	2	3	1	4	5	6	
	110 V CIII CII C	L	T	R		L	T	R	
Volume		5	125	 15		210	 255	20	
Peak-Hour Fact	or, PHF	0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Ra	te, HFR	5	131	15		221	268	21	
Percent Heavy	Vehicles	5				5			
Median Type/St	orage	Undiv	ided		/				
Lanes	· •	0	1 0			0	1	0	
Configuration		_	TR U			LT	_	U	
Upstream Signa	1 2	ш.	No			шт	No		
							NO 		
Minor Street:	Approach	Wes	stbound			Eas	tbound	i.	
	Movement	7	8	9	!	10	11	12	
		L	Т	R		L	T	R	
Volume		15	5	140		15	5	5	
Peak Hour Factor, PHF		0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Rate, HFR		15	5	147		15	5	5	
Percent Heavy	Vehicles	5	5	5		5	5	5	
Percent Grade	(%)		0				0		
Flared Approac	h: Exists?/	Storage		No	/			No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR				LTR		
	Delay, Q		_		el of	Servi		bound	
Approach Movement	NB 1	SB 4	west 7	bound 8	9	1	East 0	11	12
		!			9	+	U		12
Lane Config	LTR	LTR		LTR 		 		LTR 	
v (vph)	5	221		167				25	
C(m) (vph)	1256	1418		663				212	
v/c	0.00	0.16		0.25				0.12	
95% queue leng		0.55		1.01				0.40	
Control Delay	7.9	8.0		12.3				24.2	
LOS	A	A		В				C	
Approach Delay	-			12.3				24.2	
Approach LOS				В				С	

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM

Agency/Co.: Hall and Foreman, Inc

Date Performed: 1/7/2014

Analysis Time Period: Sunday Peak Hour

Intersection: Highway 38/State Lane Drive

Jurisdiction: San Bernardino County

Units: U. S. Customary

Analysis Year: Year 2035 with Project

Project ID: VV.130048.0000

East/West Street: State Lane Drive

North/South Street: Highway 38 Intersection Orientation: NS Study period (hrs): 1.00									
	Vehi	cle Volu			tmen				
Major Street: Ag	proach		thbound				thbour	nd	
Mo	ovement	1	2	3	ļ	4	5	6	
		L	Т	R		L	Т	R	
Volume		5	120	25		240	250	20	
Peak-Hour Factor,	PHF	0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Rate,	HFR	5	126	26		252	263	21	
Percent Heavy Veh	nicles	5				5			
Median Type/Stora RT Channelized?	age	Undivi	.ded		/				
Lanes		0	1 0			0	1	0	
Configuration		LT	R			LT	'R		
Upstream Signal?			No				No		
Minor Street: Ag	proach	Wes	tbound			Eas	tbound	d	
Мс	ovement	7	8	9		10	11	12	
		L	Т	R		L	Т	R	
Volume		25	20	170		15	20	5	
Peak Hour Factor,	PHF	0.95	0.95	0.95		0.95	0.95	0.95	
Hourly Flow Rate,	HFR	26	21	178		15	21	5	
Percent Heavy Veh	nicles	5	5	5		5	5	5	
Percent Grade (%))		0				0		
Flared Approach:	Exists?/	Storage		No	/			No	/
Lanes		0	1 0			0	1	0	
Configuration			LTR				LTR		
	Delay, Q	ulouo I on	ath an	d Torro	.1 of	Corri			
Approach	Delay, Q NB	SB	_	a вече bound		DCIVI		tbound	
Movement	1	4	7	8	9	1	.0	11	12
Lane Config	LTR	LTR		LTR	,	-	. •	LTR	12
v (vph)	 5	252		225				41	
C(m) (vph)	1261	1411		510				182	
V/C	0.00	0.18		0.44				0.23	
95% queue length	0.01	0.65		2.33				0.86	
Control Delay	7.9	8.1		17.6				30.5	
LOS	A	A		С				D	
Approach Delay				17.6				30.5	
Approach LOS				С				D	