1. Other Area Projects

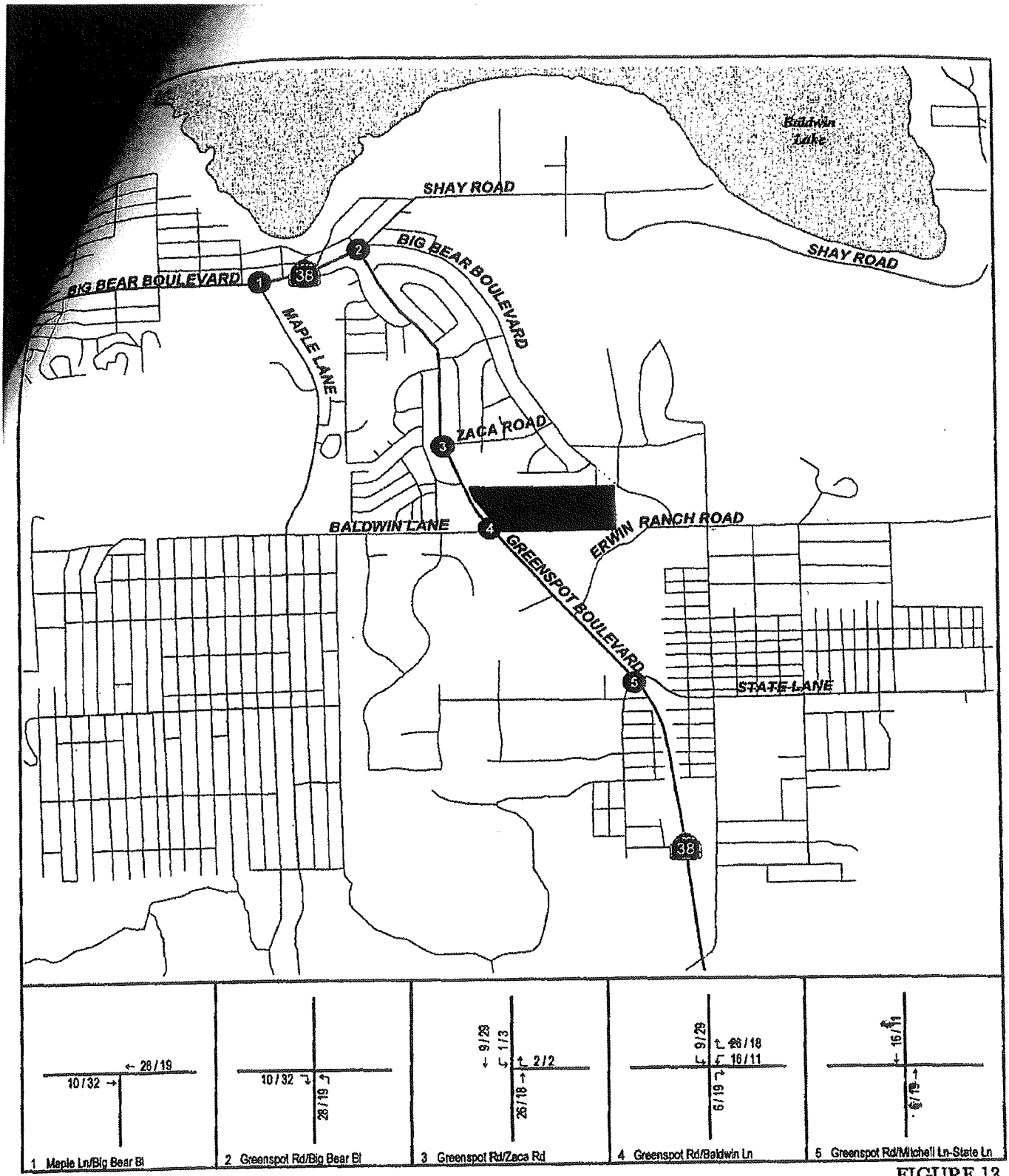

FIGURE 13

LSA

12 / 34 AM / PM Trips

Tentative Tract 16749

Project Trip Assignment

R:\CDJ530\Traffic\g30s\g30_13_trip_assign (7/29/2005)

2. Intersection Capacity Analysis Calculations

Hall & Foreman, Inc.

Engineering • Surveying • Planning • Landscape Architecture

SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	1 OF 2

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38
CONDITION : WEEKDAY AM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
SCENERIO #							
STATE LANE DRIVE							
EB LEFT	35	**0**	35	0	35	50	50
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	190	**0**	200	25	225	280	305
HIGHWAY 38							
NB LEFT	5	**0**	5	0	5	5	5
NB THRU	50	**5**	55	-5	50	75	70
NB RIGHT	5	**0**	5	10	15	5	15
SB LEFT	70	**0**	75	25	100	105	130
SB THRU	45	**15**	60	-5	55	80	75
SB RIGHT	10	**0**	10	0	10	15	15
TOTALS	**435**	**20**	**470**	**90**	**560**	**645**	**735**

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Santa Clarita Office: 661.284.7400 Tel/ 661.284.7401 Fax
Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : STATE LANE DRIVE N/S STREET : HIGHWAY 38

CONDITION : AM PEAK HOUR

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
1	0	2	0	0	0	0	1	0
0	2	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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	0	0	0	0	0	0	0
0	0	0	0	1	0	0	1	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
3	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	12	19	2	12	0	53	1	3	0	0	8
3	12	11	0	8	0	32	0	1	1	1	5
3	8	20	1	16	0	50	1	2	0	1	12
1	11	19	0	10	0	50	1	4	2	1	9

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE	
STATE LANE DRIVE						
EB LEFT	0	34	**34**	**35**	**0**	
EB THRU	0	3	**3**	**5**	**0**	**2**
EB RIGHT	1	3	**4**	**5**	**25**	
WB LEFT	0	10	**10**	**10**	**0**	
WB THRU	0	3	**3**	**5**	**0**	**1**
WB RIGHT	3	185	**188**	**190**	**2**	
HIGHWAY 38						
NB LEFT	0	0	**0**	**5**	**0**	
NB THRU	2	46	**48**	**50**	**4**	**6**
NB RIGHT	1	3	**4**	**5**	**25**	
SB LEFT	2	69	**71**	**70**	**3**	
SB THRU	4	43	**47**	**45**	**9**	**6**
SB RIGHT	1	8	**9**	**10**	**11**	

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Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HWY 38
EAST-WEST STREET: STATE LANE
JURISDICTION: BIG BEAR

DATE: 12-06-12

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 127

Rt	Thru	Lt	
9	47	71	Total
1	12	19	1st
4	13	13	2nd
3	10	20	3rd
1	12	19	4th

EAST LEG TOTAL: 201

	1st	2nd	3rd	4th	Total
Rt	53	32	53	50	188
Thru	1	0	1	1	3
Lt	3	1	2	4	10

WEST LEG TOTAL: 41

Total	1st	2nd	3rd	4th	
34	8	5	12	9	Lt
3	0	1	1	1	Thru
4	1	1	0	2	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.96
SOUTH LEG = 0.72
EAST LEG = 0.88
WEST LEG = 0.79

ALL LEGS = 0.88

SOUTH LEG

TOTAL: 52

	Lt	Thru	Rt
1st	0	12	2
2nd	0	8	0
3rd	0	16	2
4th	0	12	0
Total		48	4

HOUR TOTAL: 421

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE

TIME: 07:00AM-08:00AM DATE: 12-06-12

NORTH LEG

Rt	Thru	Lt	
5	43	55	Total
2	10	18	1st
1	12	11	2nd
1	9	7	3rd
1	12	19	4th

	1st	2nd	3rd	4th	Total
Rt	28	35	39	53	155
Thru	0	0	1	1	2
Lt	3	2	2	3	10

Total	1st	2nd	3rd	4th	
21	7	2	4	8	Lt
2	0	0	2	0	Thru
2	0	1	0	1	Rt

	Lt	Thru	Rt
1st	0	9	0
2nd	0	4	0
3rd	0	10	0
4th	0	12	2
Total	0	35	2

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE

TIME: 08:00AM-09:00AM DATE: 12-06-12

NORTH LEG

10	56	68	Total
4	13	13	1st
3	10	20	2nd
1	12	19	3rd
2	21	16	4th
Rt	Thru	Lt	

Rt	32	53	50	41	176
Thru	0	1	1	0	2
Lt	1	2	4	1	8
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
32	5	12	9	6	Lt
3	1	1	1	0	Thru
3	1	0	2	0	Rt

	Lt	Thru	Rt
1st	0	8	0
2nd	0	16	2
3rd	0	12	0
4th	0	8	1
Total	0	44	3

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : HWY 38 BIG BEAR

EAST-WEST STREET : STATE LANE 12-06-12

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
					NORTH LEG							
2	10	17	0	0	1	0	0	0	0	0	0	30
1	12	11	0	0	0	0	0	0	0	0	0	24
1	9	7	0	0	0	0	0	0	0	0	0	17
1	12	19	0	0	0	0	0	0	0	0	0	32
3	12	11	1	0	2	0	0	0	0	1	0	30
3	8	20	0	2	0	0	0	0	0	0	0	33
1	11	19	0	0	0	0	1	0	0	0	0	32
2	20	16	0	1	0	0	0	0	0	0	0	39
14	94	120	1	3	3	0	1	0	0	1	0	237
					SOUTH LEG							
0	9	0	0	0	0	0	0	0	0	0	0	9
0	4	0	0	0	0	0	0	0	0	0	0	4
0	9	0	0	0	0	0	1	0	0	0	0	10
2	12	0	0	0	0	0	0	0	0	0	0	14
0	8	0	0	0	0	0	0	0	0	0	0	8
1	16	0	1	0	0	0	0	0	0	0	0	18
0	10	0	0	0	0	0	1	0	0	1	0	12
1	8	0	0	0	0	0	0	0	0	0	0	9
4	76	0	1	0	0	0	2	0	0	1	0	84
					EAST LEG							
26	0	3	2	0	0	0	0	0	0	0	0	31
34	0	2	1	0	0	0	0	0	0	0	0	37
38	1	2	1	0	0	0	0	0	0	0	0	42
53	1	3	0	0	0	0	0	0	0	0	0	57
32	0	1	0	0	0	0	0	0	0	0	0	33
50	1	2	3	0	0	0	0	0	0	0	0	56
50	1	4	0	0	0	0	0	0	0	0	0	55
41	0	1	0	0	0	0	0	0	0	0	0	42
324	4	18	7	0	0	0	0	0	0	0	0	353
					WEST LEG							
0	0	7	0	0	0	0	0	0	0	0	0	7
1	0	2	0	0	0	0	0	0	0	0	0	3
0	2	4	0	0	0	0	0	0	0	0	0	6
0	0	8	1	0	0	0	0	0	0	0	0	9
1	1	5	0	0	0	0	0	0	0	0	0	7
0	1	12	0	0	0	0	0	0	0	0	0	13
2	1	9	0	0	0	0	0	0	0	0	0	12
0	0	6	0	0	0	0	0	0	0	0	0	6
4	5	53	1	0	0	0	0	0	0	0	0	63

Prepared by Newport Traffic Studies

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: AM 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: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	50	5	70	45	10
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Hourly Flow Rate, HFR	5	56	5	79	51	11
Percent Heavy Vehicles	6	--	--	6	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	5	190	35	5	5
Peak Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Hourly Flow Rate, HFR	11	5	215	39	5	5
Percent Heavy Vehicles	0	0	2	0	0	25
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	79		231			49	
C(m) (vph)	1516	1517		966			466	
v/c	0.00	0.05		0.24			0.11	
95% queue length	0.01	0.16		0.94			0.35	
Control Delay	7.4	7.5		9.9			13.6	
LOS	A	A		A			B	
Approach Delay				9.9			13.6	
Approach LOS				A			B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: AM 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
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	55	5	75	60	10
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Hourly Flow Rate, HFR	5	62	5	85	68	11
Percent Heavy Vehicles	6	--	--	6	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	5	200	35	5	5
Peak Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Hourly Flow Rate, HFR	11	5	227	39	5	5
Percent Heavy Vehicles	0	0	2	0	0	25
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	85		243			49	
C(m) (vph)	1494	1509		955			431	
v/c	0.00	0.06		0.25			0.11	
95% queue length	0.01	0.18		1.02			0.38	
Control Delay	7.4	7.5		10.1			14.4	
LOS	A	A		B			B	
Approach Delay				10.1			14.4	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: AM 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 Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	50	15	100	55	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	55	16	111	61	11
Percent Heavy Vehicles	6	--	--	6	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20	20	225	35	20	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	22	250	38	22	5
Percent Heavy Vehicles	0	0	2	0	0	25
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	111		294			65	
C(m) (vph)	1503	1504		882			401	
v/c	0.00	0.07		0.33			0.16	
95% queue length	0.01	0.24		1.49			0.58	
Control Delay	7.4	7.6		11.1			15.7	
LOS	A	A		B			C	
Approach Delay				11.1			15.7	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: AM 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 Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	75	5	105	80	15
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	78	5	110	84	15
Percent Heavy Vehicles	6	--	--	6	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	5	280	50	5	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	15	5	294	52	5	5
Percent Heavy Vehicles	0	0	2	0	0	25
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	110		314			62	
C(m) (vph)	1469	1489		926			319	
v/c	0.00	0.07		0.34			0.19	
95% queue length	0.01	0.24		1.53			0.72	
Control Delay	7.5	7.6		10.9			19.0	
LOS	A	A		B			C	
Approach Delay				10.9			19.0	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: AM 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

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	70	15	130	75	15
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	73	15	136	78	15
Percent Heavy Vehicles	6	--	--	6	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25	20	305	50	20	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	26	21	321	52	21	5
Percent Heavy Vehicles	0	0	2	0	0	25
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	136		368			78	
C(m) (vph)	1477	1483		854			291	
v/c	0.00	0.09		0.43			0.27	
95% queue length	0.01	0.30		2.25			1.09	
Control Delay	7.4	7.7		12.4			21.9	
LOS	A	A		B			C	
Approach Delay				12.4			21.9	
Approach LOS				B			C	

Hall & Foreman, Inc.

Engineering • Surveying • Planning • Landscape Architecture

SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	2 OF 2

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38
CONDITION : PM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH 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	100	**0**	105	30	135	145	175
HIGHWAY 38							
NB LEFT	5	**0**	5	0	5	5	5
NB THRU	60	**20**	80	-5	75	105	100
NB RIGHT	10	**0**	10	10	20	15	25
SB LEFT	180	**0**	185	30	215	260	290
SB THRU	55	**10**	65	-5	60	90	85
SB RIGHT	30	**0**	30	0	30	45	45
TOTALS	**475**	**30**	**515**	**100**	**615**	**705**	**805**

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
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : STATE LANE DRIVE N/S STREET : HIGHWAY 38

CONDITION : PM PEAK HOUR

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
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

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
8	14	28	3	22	0	31	1	1	1	2	6
11	9	46	2	16	2	22	0	1	0	1	0
4	17	49	3	10	0	20	0	0	0	1	3
9	16	57	4	10	0	24	0	1	1	0	4

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE	
STATE LANE DRIVE						
EB LEFT	1	13	**14**	**15**	**7**	
EB THRU	0	4	**4**	**5**	**0**	**5**
EB RIGHT	0	2	**2**	**5**	**0**	
WB LEFT	0	3	**3**	**5**	**0**	
WB THRU	0	1	**1**	**5**	**0**	**2**
WB RIGHT	2	97	**99**	**100**	**2**	
HIGHWAY 38						
NB LEFT	0	2	**2**	**5**	**0**	
NB THRU	0	58	**58**	**60**	**0**	**0**
NB RIGHT	0	12	**12**	**10**	**0**	
SB LEFT	1	180	**181**	**180**	**1**	
SB THRU	0	56	**56**	**55**	**0**	**0**
SB RIGHT	0	32	**32**	**30**	**0**	

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Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HWY 38
EAST-WEST STREET: STATE LANE
JURISDICTION: BIG BEAR

DATE: 12-06-12

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 269

Rt	Thru	Lt	
32	56	181	Total
8	14	28	1st
11	9	46	2nd
4	17	49	3rd
9	16	58	4th

EAST LEG TOTAL: 103

	1st	2nd	3rd	4th	Total
Rt	32	22	20	25	99
Thru	1	0	0	0	1
Lt	1	1	0	1	3

WEST LEG TOTAL: 19

Total	1st	2nd	3rd	4th	
13	6	0	3	4	Lt
4	2	1	1	0	Thru
2	1	0	0	1	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.81
SOUTH LEG = 0.72
EAST LEG = 0.76
WEST LEG = 0.53

ALL LEGS = 0.90

SOUTH LEG

TOTAL: 72

	Lt	Thru	Rt
1st	0	22	3
2nd	2	16	2
3rd	0	10	3
4th	0	10	4
Total	2	58	12

HOUR TOTAL: 463

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE

TIME: 04:00PM-05:00PM DATE: 12-06-12

NORTH LEG

31	59	160	Total
7	20	42	1st
5	16	44	2nd
8	14	28	3rd
11	9	46	4th
Rt	Thru	Lt	

	1st	2nd	3rd	4th	Total
Rt	29	18	32	22	101
Thru	0	0	1	0	1
Lt	1	1	1	1	4

Total	1st	2nd	3rd	4th	
15	6	3	6	0	Lt
4	1	0	2	1	Thru
1	0	0	1	0	Rt

	Lt	Thru	Rt
1st	1	14	2
2nd	1	14	5
3rd	0	22	3
4th	2	16	2
Total	4	66	12

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE

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

NORTH LEG

25	52	173	Total
4	17	49	1st
9	16	58	2nd
6	9	38	3rd
6	10	28	4th
Rt	Thru	Lt	

	1st	2nd	3rd	4th	Total
Rt	20	25	16	21	82
Thru	0	0	0	0	0
Lt	0	1	0	0	1

Total	1st	2nd	3rd	4th	
13	3	4	2	4	Lt
3	1	0	2	0	Thru
2	0	1	1	0	Rt

	Lt	Thru	Rt
1st	0	10	3
2nd	0	10	4
3rd	2	16	1
4th	2	18	1
Total	4	54	9

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : HWY 38 BIG BEAR

EAST-WEST STREET : STATE LANE 12-06-12

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
7	20	42	0	0	0	0	0	0	0	0	0	69
5	16	43	0	0	1	0	0	0	0	0	0	65
8	14	28	0	0	0	0	0	0	0	0	0	50
11	9	46	0	0	0	0	0	0	0	0	0	66
4	17	49	0	0	0	0	0	0	0	0	0	70
9	16	57	0	0	1	0	0	0	0	0	0	83
6	9	38	0	0	0	0	0	0	0	0	0	53
6	10	28	0	0	0	0	0	0	0	0	0	44
56	111	331	0	0	2	0	0	0	0	0	0	500
SOUTH LEG												
2	13	1	0	0	0	0	0	0	0	1	0	17
5	14	1	0	0	0	0	0	0	0	0	0	20
3	22	0	0	0	0	0	0	0	0	0	0	25
2	16	2	0	0	0	0	0	0	0	0	0	20
3	10	0	0	0	0	0	0	0	0	0	0	13
4	10	0	0	0	0	0	0	0	0	0	0	14
1	15	2	0	1	0	0	0	0	0	0	0	19
1	18	2	0	0	0	0	0	0	0	0	0	21
21	118	8	0	1	0	0	0	0	0	1	0	149
EAST LEG												
29	0	1	0	0	0	0	0	0	0	0	0	30
18	0	1	0	0	0	0	0	0	0	0	0	19
31	1	1	1	0	0	0	0	0	0	0	0	34
22	0	1	0	0	0	0	0	0	0	0	0	23
20	0	0	0	0	0	0	0	0	0	0	0	20
24	0	1	1	0	0	0	0	0	0	0	0	26
16	0	0	0	0	0	0	0	0	0	0	0	16
21	0	0	0	0	0	0	0	0	0	0	0	21
181	1	5	2	0	0	0	0	0	0	0	0	189
WEST LEG												
0	1	6	0	0	0	0	0	0	0	0	0	7
0	0	2	0	0	1	0	0	0	0	0	0	3
1	2	6	0	0	0	0	0	0	0	0	0	9
0	1	0	0	0	0	0	0	0	0	0	0	1
0	1	3	0	0	0	0	0	0	0	0	0	4
1	0	4	0	0	0	0	0	0	0	0	0	5
1	2	2	0	0	0	0	0	0	0	0	0	5
0	0	4	0	0	0	0	0	0	0	0	0	4
3	7	27	0	0	1	0	0	0	0	0	0	38

Prepared by Newport Traffic Studies

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: PM 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 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	60	10	180	55	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	66	11	200	61	33
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	100	15	5	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	5	111	16	5	5
Percent Heavy Vehicles	0	0	2	7	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	200		121			26	
C(m) (vph)	1513	1535		873			371	
v/c	0.00	0.13		0.14			0.07	
95% queue length	0.01	0.45		0.48			0.23	
Control Delay	7.4	7.7		9.8			15.4	
LOS	A	A		A			C	
Approach Delay				9.8			15.4	
Approach LOS				A			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: PM 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
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	80	10	185	65	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	88	11	205	72	33
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	105	15	5	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	5	116	16	5	5
Percent Heavy Vehicles	0	0	2	7	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	205		126			26	
C(m) (vph)	1499	1507		847			344	
v/c	0.00	0.14		0.15			0.08	
95% queue length	0.01	0.47		0.52			0.24	
Control Delay	7.4	7.8		10.0-			16.3	
LOS	A	A		A			C	
Approach Delay				10.0-			16.3	
Approach LOS				A			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: PM 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 Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	75	20	215	60	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	83	22	238	66	33
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	20	135	15	20	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	16	22	150	16	22	5
Percent Heavy Vehicles	0	0	2	7	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	238		188			43	
C(m) (vph)	1507	1499		674			293	
v/c	0.00	0.16		0.28			0.15	
95% queue length	0.01	0.57		1.16			0.51	
Control Delay	7.4	7.9		12.4			19.4	
LOS	A	A		B			C	
Approach Delay				12.4			19.4	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 12/10/2012
Analysis Time Period: PM 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 Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	105	15	260	90	45
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	110	15	273	94	47
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	145	20	5	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	5	152	21	5	5
Percent Heavy Vehicles	0	0	2	7	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	273		162			31	
C(m) (vph)	1455	1474		800			224	
v/c	0.00	0.19		0.20			0.14	
95% queue length	0.01	0.68		0.76			0.48	
Control Delay	7.5	8.0		10.6			23.6	
LOS	A	A		B			C	
Approach Delay				10.6			23.6	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: PM 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

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	100	25	290	85	45
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	105	26	305	89	47
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	20	175	20	20	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	15	21	184	21	21	5
Percent Heavy Vehicles	0	0	2	7	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	305		220			47	
C(m) (vph)	1461	1467		609			193	
v/c	0.00	0.21		0.36			0.24	
95% queue length	0.01	0.79		1.68			0.95	
Control Delay	7.5	8.1		14.2			29.6	
LOS	A	A		B			D	
Approach Delay				14.2			29.6	
Approach LOS				B			D	

Hall & Foreman, Inc.

Engineering • Surveying • Planning • Landscape Architecture

SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	1 OF 2

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38
CONDITION : WINTER FRIDAY PM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH 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	30	125	135	165
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	30	255	315	345
SB THRU	75	**15**	95	-5	90	125	120
SB RIGHT	20	**0**	20	0	20	30	30
TOTALS	**565**	**20**	**610**	**100**	**710**	**835**	**935**

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : STATE LANE DRIVE

N/S STREET : HIGHWAY 38

CONDITION : WINTER FRIDAY PM PEAK HOUR

COUNT DATE : December 13, 2013

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
1	0	2	0	0	0	0	1	0
0	2	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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	0	0	0	0	0	0	0
0	0	0	0	1	0	0	1	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
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	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 TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
STATE LANE DRIVE					
EB LEFT	0	0	**16**	**15**	**0**
EB THRU	0	0	**2**	**5**	**0**
EB RIGHT	1	0	**1**	**5**	**100**
WB LEFT	0	0	**7**	**5**	**0**
WB THRU	0	0	**3**	**5**	**0**
WB RIGHT	0	0	**92**	**90**	**0**
HIGHWAY 38					
NB LEFT	0	0	**7**	**5**	**0**
NB THRU	2	0	**122**	**120**	**2**
NB RIGHT	1	0	**6**	**5**	**17**
SB LEFT	2	0	**214**	**215**	**1**
SB THRU	4	0	**73**	**75**	**5**
SB RIGHT	1	0	**20**	**20**	**5**

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INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HWY 38
EAST-WEST STREET: STATE LANE DR
JURISDICTION: ERWIN LAKE

DATE: 12-13-13

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 307

Rt	Thru	Lt	
20	73	214	Total
6	16	42	1st
6	19	50	2nd
6	16	56	3rd
2	22	66	4th

EAST LEG TOTAL: 102

	1st	2nd	3rd	4th	Total
Rt	27	23	22	20	92
Thru	1	1	1	0	3
Lt	5	0	2	0	7

WEST LEG TOTAL: 19

Total	1st	2nd	3rd	4th	
16	1	3	6	6	Lt
2	1	0	0	1	Thru
1	0	0	1	0	Rt

PEAK HOUR FACTORS

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

ALL LEGS = 0.93

SOUTH LEG

TOTAL: 135

	Lt	Thru	Rt
1st	2	30	2
2nd	4	37	1
3rd	1	21	2
4th	0	34	1
Total	7	122	6

HOUR TOTAL: 563

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

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

NORTH LEG

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

	1st	2nd	3rd	4th	Total
Rt	32	27	27	23	109
Thru	1	0	1	1	3
Lt	0	0	5	0	5

Total	1st	2nd	3rd	4th	
9	4	1	1	3	Lt
1	0	0	1	0	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	22	3
2nd	3	26	4
3rd	2	30	2
4th	4	37	1
Total	9	115	10

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

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	Lt
1	0	1	0	0	Thru
1	1	0	0	0	Rt

	Lt	Thru	Rt
1st	1	21	2
2nd	0	34	1
3rd	0	26	1
4th	0	19	5
Total	1	100	9

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

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

NORTH LEG

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

	1st	2nd	3rd	4th	Total
Rt	18	21	25	16	80
Thru	1	0	3	0	4
Lt	0	1	0	0	1

Total	1st	2nd	3rd	4th	
11	4	1	3	3	Lt
2	0	1	1	0	Thru
0	0	0	0	0	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

HCS+: Unsignalized Intersections Release 5.6

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: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	120	5	215	75	20
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Hourly Flow Rate, HFR	5	129	5	231	80	21
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	90	15	5	5
Peak Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Hourly Flow Rate, HFR	5	5	96	16	5	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	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		B			C	
Approach Delay				10.5			18.0	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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 plus Background
Project ID: VV.130048.0000
East/West Street: State Lane Drive
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	130	5	225	95	20
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Hourly Flow Rate, HFR	5	139	5	241	102	21
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	95	15	5	5
Peak Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Hourly Flow Rate, HFR	5	5	102	16	5	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			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	A	A		B			C	
Approach Delay				10.7			19.5	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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: Project Year 2014
Project ID: VV.130048.0000
East/West Street: State Lane Drive
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	125	15	250	90	20
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	138	16	277	100	22
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	20	120	15	20	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	16	22	133	16	22	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	277		171			43	
C(m) (vph)	1447	1408		543			224	
v/c	0.00	0.20		0.31			0.19	
95% queue length	0.01	0.73		1.37			0.71	
Control Delay	7.5	8.2		14.7			24.9	
LOS	A	A		B			C	
Approach Delay				14.7			24.9	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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: Year 2035 without 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

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	180	5	315	125	30
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	189	5	331	131	31
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	135	20	5	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	5	142	21	5	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			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	0.01	0.96		0.89			0.77	
Control Delay	7.6	8.5		12.0			35.0-	
LOS	A	A		B			D	
Approach Delay				12.0			35.0-	
Approach LOS				B			D	

HCS+: Unsignalized Intersections Release 5.6

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: 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

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	175	15	340	120	30
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	184	15	357	126	31
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	20	160	20	20	5
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	15	21	168	21	21	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	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 length	0.01	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				C			E	

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SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	2 OF 2

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38
CONDITION : WINTER SUNDAY PM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
SCENERIO #							
STATE LANE 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 38							
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
TOTALS	**545**	**30**	**595**	**100**	**695**	**815**	**915**

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : STATE LANE DRIVE

N/S STREET : HIGHWAY 38

CONDITION : WINTER SUNDAY PM PEAK HOUR

COUNT DATE : December 15, 2013

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
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

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
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	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 TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
STATE LANE DRIVE					
EB LEFT	1	0	**10**	**10**	**10**
EB THRU	0	0	**2**	**5**	**0**
EB RIGHT	0	0	**3**	**5**	**0**
WB LEFT	0	0	**10**	**10**	**0**
WB THRU	0	0	**4**	**5**	**0**
WB RIGHT	2	0	**97**	**95**	**2**
HIGHWAY 38					
NB LEFT	0	0	**2**	**5**	**0**
NB THRU	0	0	**70**	**70**	**0**
NB RIGHT	0	0	**8**	**10**	**0**
SB LEFT	1	0	**145**	**145**	**1**
SB THRU	0	0	**171**	**170**	**0**
SB RIGHT	0	0	**15**	**15**	**0**

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INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HWY 38
EAST-WEST STREET: STATE LANE DR
JURISDICTION: ERWIN LAKE

DATE: 12-15-13

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 331

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

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

WEST LEG TOTAL: 15

Total	1st	2nd	3rd	4th	
10	2	2	3	3	Lt
2	0	0	0	2	Thru
3	0	0	1	2	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.93
SOUTH LEG = 0.74
EAST LEG = 0.73
WEST LEG = 0.54

ALL LEGS = 0.94

SOUTH LEG

TOTAL: 80

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

HOUR TOTAL: 537

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

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

NORTH LEG

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

	1st	2nd	3rd	4th	Total
Rt	23	19	20	18	80
Thru	0	1	0	0	1
Lt	1	4	4	2	11

Total	1st	2nd	3rd	4th	
18	3	5	5	5	Lt
5	1	1	1	2	Thru
2	1	1	0	0	Rt

	Lt	Thru	Rt
1st	0	14	2
2nd	0	12	2
3rd	2	12	1
4th	0	15	2
Total	2	53	7

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

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

NORTH LEG

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

	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	Lt
2	0	0	0	2	Thru
3	0	0	1	2	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: HWY 38

EAST-WEST STREET: STATE LANE DR

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

NORTH LEG

Rt	Thru	Lt	
24	96	105	Total
2	26	32	1st
7	19	33	2nd
10	23	14	3rd
5	28	26	4th

	1st	2nd	3rd	4th	Total
Rt	16	22	20	15	73
Thru	0	0	0	0	0
Lt	1	0	3	3	7

Total	1st	2nd	3rd	4th	
9	3	3	1	2	Lt
1	0	0	1	0	Thru
3	1	0	1	1	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

HCS+: Unsignalized Intersections Release 5.6

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 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	70	10	145	170	15
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Hourly Flow Rate, HFR	5	74	10	154	180	15
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	5	95	10	5	5
Peak Hour Factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Hourly Flow Rate, HFR	10	5	101	10	5	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
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		B			B	
Approach Delay				10.2			14.8	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.6

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
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	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, HFR	5	101	10	159	196	15
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	5	100	10	5	5
Peak Hour Factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Hourly Flow Rate, HFR	10	5	106	10	5	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	5	159		121			20	
C(m) (vph)	1342	1492		771			354	
v/c	0.00	0.11		0.16			0.06	
95% queue length	0.01	0.36		0.56			0.18	
Control Delay	7.7	7.7		10.5			15.8	
LOS	A	A		B			C	
Approach Delay				10.5			15.8	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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
North/South Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	90	20	180	180	15
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	100	22	200	200	16
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20	20	130	10	20	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	22	144	11	22	5
Percent Heavy Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			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 length	0.01	0.48		1.36			0.47	
Control Delay	7.7	7.9		13.7			20.0	
LOS	A	A		B			C	
Approach Delay				13.7			20.0	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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 Street: Highway 38
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	125	15	210	255	20
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	131	15	221	268	21
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	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 Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	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 length	0.01	0.55		1.01			0.40	
Control Delay	7.9	8.0		12.3			24.2	
LOS	A	A		B			C	
Approach Delay				12.3			24.2	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.6

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

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	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 Vehicles	5	--	--	5	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	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 Vehicles	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, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
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		C			D	
Approach Delay				17.6			30.5	
Approach LOS				C			D	

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SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	1 OF 2

E/W STREET : PROJECT DRIVEWAY
N/S STREET : STATE LANE DRIVE
CONDITION : WEEKDAY AM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
SCENERIO #							
PROJECT DRIVEWAY							
EB LEFT	0	**0**	0	50	50	0	50
EB THRU	0	**0**	0	5	5	0	5
EB RIGHT	0	**0**	0	15	15	0	15
WB LEFT	5	**0**	5	0	5	5	5
WB THRU	0	**0**	0	5	5	0	5
WB RIGHT	5	**0**	5	0	5	5	5
STATE LANE DRIVE							
NB LEFT	0	**0**	0	15	15	0	15
NB THRU	200	**0**	210	0	210	295	295
NB RIGHT	5	**0**	5	0	5	5	5
SB LEFT	5	**0**	5	0	5	5	5
SB THRU	80	**0**	85	0	85	120	120
SB RIGHT	0	**0**	0	5	5	0	5
TOTALS	**300**	**0**	**315**	**95**	**410**	**435**	**530**

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : PROJECT DRIVEWAY N/S STREET : STATE LANE DRIVE

CONDITION : AM PEAK HOUR

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
1	0	2	0	0	0	0	1	0
0	2	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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	0	0	0	0	0	0	0
0	0	0	0	1	0	0	1	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
3	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	12	19	2	12	0	53	1	3	0	0	8
3	12	11	0	8	0	32	0	1	1	1	5
3	8	20	1	16	0	50	1	2	0	1	12
1	11	19	0	10	0	50	1	4	2	1	9

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE	
PROJECT DRIVEWAY						
EB LEFT	0	0	**0**	**0**	**0**	
EB THRU	0	0	**0**	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**	
WB LEFT	0	0	**5**	**5**	**0**	
WB THRU	0	0	**0**	**0**	**0**	**0**
WB RIGHT	0	0	**5**	**5**	**0**	
STATE LANE DRIVE						
NB LEFT	0	0	**0**	**0**	**0**	
NB THRU	3	198	**201**	**200**	**0**	**1**
NB RIGHT	0	0	**5**	**5**	**0**	
SB LEFT	0	0	**5**	**5**	**0**	
SB THRU	3	75	**78**	**80**	**5**	**4**
SB RIGHT	0	0	**0**	**0**	**0**	

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 1/30/13
Analysis Time Period: AM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Existing
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		200	5	5	80	
Peak-Hour Factor, PHF		0.88	0.88	0.88	0.88	
Hourly Flow Rate, HFR		227	5	5	90	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.88		0.88			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1348		733				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		7.7		10.0-				
LOS		A		A				
Approach Delay				10.0-				
Approach LOS				A				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed:
Analysis Time Period: AM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Existing plus Background
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		210	5	5	85	
Peak-Hour Factor, PHF		0.88	0.88	0.88	0.88	
Hourly Flow Rate, HFR		238	5	5	96	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.88		0.88			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1335		721				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		7.7		10.1				
LOS		A		B				
Approach Delay				10.1				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: AM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Project Year 2014
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	210	5	5	85	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	16	233	5	5	94	5
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	5	50	5	15
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	5	5	55	5	16
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	16	5		15			76	
C(m) (vph)	1507	1341		618			620	
v/c	0.01	0.00		0.02			0.12	
95% queue length	0.03	0.01		0.07			0.42	
Control Delay	7.4	7.7		11.0			11.6	
LOS	A	A		B			B	
Approach Delay				11.0			11.6	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 1/30/13
Analysis Time Period: AM Peak Hour
Intersection: Project Dwy#2/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: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		295	5	5	120	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR		310	5	5	126	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1257		641				
v/c		0.00		0.02				
95% queue length		0.01		0.05				
Control Delay		7.9		10.7				
LOS		A		B				
Approach Delay				10.7				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: AM Peak Hour
Intersection: Project Dwy#2/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: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	295	5	5	120	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	15	310	5	5	126	5
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	5	50	5	15
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	5	5	52	5	15
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	15	5		15			72	
C(m) (vph)	1467	1257		539			534	
v/c	0.01	0.00		0.03			0.13	
95% queue length	0.03	0.01		0.09			0.47	
Control Delay	7.5	7.9		11.9			12.8	
LOS	A	A		B			B	
Approach Delay				11.9			12.8	
Approach LOS				B			B	

Hall & Foreman, Inc.
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SUBJECT	BY	DATE	JOB NO.	SHEET OF
SUMMARY	TM	27-Jun-14	VV.130048.0000	2 OF 2

E/W STREET : PROJECT DRIVEWAY
N/S STREET : STATE LANE DRIVE
CONDITION : WEEKDAY PM PEAK HOUR

PROJECT YEAR : 2014
PROJECTED GROWTH PER YEAR : 2%

CONDITION DIAGRAMS

EXISTING GEOMETRICS **PROPOSED GEOMETRICS** **FUTURE GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	BACKGROUND TRAFFIC	EXISTING + BACKGROUND TRAFFIC	PROJECT TRIPS	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
SCENERIO #							
PROJECT DRIVEWAY							
EB LEFT	0	**0**	0	55	55	0	55
EB THRU	0	**0**	0	5	5	0	5
EB RIGHT	0	**0**	0	20	20	0	20
WB LEFT	5	**0**	5	0	5	5	5
WB THRU	0	**0**	0	5	5	0	5
WB RIGHT	5	**0**	5	0	5	5	5
STATE LANE DRIVE							
NB LEFT	0	**0**	0	20	20	0	20
NB THRU	105	**0**	110	0	110	155	155
NB RIGHT	5	**0**	5	0	5	5	5
SB LEFT	5	**0**	5	0	5	5	5
SB THRU	195	**0**	205	0	205	285	285
SB RIGHT	0	**0**	0	10	10	0	10
TOTALS	**320**	**0**	**335**	**115**	**450**	**460**	**575**

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Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

Hall & Foreman, Inc.

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SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	27-Jun-14	VV.130048.0000	2	OF 2

E/W STREET : PROJECT DRIVEWAY N/S STREET : STATE LANE DRIVE

CONDITION : PM PEAK HOUR

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
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
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	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
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
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

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
8	14	28	3	22	0	31	1	1	1	2	6
11	9	46	2	16	2	22	0	1	0	1	0
4	17	49	3	10	0	20	0	0	0	1	3
9	16	57	4	10	0	24	0	1	1	0	4

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE	
PROJECT DRIVEWAY						
EB LEFT	0	0	**0**	**0**	**0**	
EB THRU	0	0	**0**	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**	
WB LEFT	0	0	**5**	**5**	**0**	
WB THRU	0	0	**0**	**0**	**0**	**0**
WB RIGHT	0	0	**5**	**5**	**0**	
STATE LANE DRIVE						
NB LEFT	0	0	**0**	**0**	**0**	
NB THRU	2	101	**103**	**105**	**0**	**2**
NB RIGHT	0	0	**5**	**5**	**0**	
SB LEFT	0	0	**5**	**5**	**0**	
SB THRU	1	196	**197**	**195**	**0**	**0**
SB RIGHT	0	0	**0**	**0**	**0**	

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 1/30/13
Analysis Time Period: PM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Existing
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		105	5	5	195	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		116	5	5	216	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1479		772				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		7.4		9.7				
LOS		A		A				
Approach Delay				9.7				
Approach LOS				A				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 1/30/13
Analysis Time Period: PM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Existing plus Project
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		110	5	5	205	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		122	5	5	227	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1472		759				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		7.5		9.8				
LOS		A		A				
Approach Delay				9.8				
Approach LOS				A				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed:
Analysis Time Period: PM Peak Hour
Intersection: Project Dwy#2/State Lane Drive
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: Project Year 2014
Project ID: VV.130048.0000
East/West Street: Project Driveway #2
North/South Street: State Lane Drive
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	110	5	5	205	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	122	5	5	227	11
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	5	55	5	20
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	5	5	61	5	22
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	22	5		15			88	
C(m) (vph)	1341	1472		608			584	
v/c	0.02	0.00		0.02			0.15	
95% queue length	0.05	0.01		0.08			0.53	
Control Delay	7.7	7.5		11.1			12.3	
LOS	A	A		B			B	
Approach Delay				11.1			12.3	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst:	TM
Agency/Co.:	Hall and Foreman, Inc
Date Performed:	1/30/12
Analysis Time Period:	PM Peak Hour
Intersection:	Project Dwy#2/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:	Project Driveway #2
North/South Street:	State Lane Drive
Intersection Orientation: NS	Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		155	5	5	285	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR		163	5	5	300	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5		5			
Peak Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	5		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		10				
C(m) (vph)		1422		677				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		7.5		10.4				
LOS		A		B				
Approach Delay				10.4				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: TM
Agency/Co.: Hall and Foreman, Inc
Date Performed: 4/24/2013
Analysis Time Period: PM Peak Hour
Intersection: Project Dwy#2/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: Project Driveway #2
North/South Street:
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	155	5	5	285	10
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	21	163	5	5	300	10
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	5	5	55	5	20
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	5	5	57	5	21
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	21	5		15			83	
C(m) (vph)	1262	1422		530			500	
v/c	0.02	0.00		0.03			0.17	
95% queue length	0.05	0.01		0.09			0.60	
Control Delay	7.9	7.5		12.0			13.6	
LOS	A	A		B			B	
Approach Delay				12.0			13.6	
Approach LOS				B			B	

3. Traffic Signal Warrant Worksheets – Highway 38 and State Lane

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

08	581	38	46.533
DIST	CO	RTE	PM

COUNT DATE 12/4/2012
CALC JM DATE 6/5/13
CHK RL DATE 6/5/13
UPDATED

Major St: Greenspot Blvd / Hwy 38
Minor St: State Lane

Critical Approach Speed 55 mph
Critical Approach Speed 40 mph

Speed limit or critical speed on major street traffic > 40 mph..... ☒
or
In built up area of isolated community of < 10,000 population..... ☐
} RURAL (R)

☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☒
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				3-4 PM	4-5 PM	2-3 PM	5-6 PM	8-9 AM	12-1 PM	11-12 PM	1-2 PM
	U	R	U	R								Hour
APPROACH LANES	1		2 or More									
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	341	316	276	304	162	245	235	223
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	115	120	122	94	177	103	108	114

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				3-4 PM	4-5 PM	2-3 PM	5-6 PM	8-9 AM	12-1 PM	11-12 PM	1-2 PM
	U	R	U	R								Hour
APPROACH LANES	1		2 or More									
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	341	316	276	304	162	245	235	223
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	115	120	122	94	177	103	108	114

Combination of Conditions A & B SATISFIED YES ☐ NO ☒

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☒
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume SATISFIED* YES ☐ NO ☒

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	3-4 PM	4-5 PM	2-3 PM	5-6 PM Hour
Both Approaches - Major Street	X		341	316	276	304
Higher Approach - Minor Street	X		115	120	122	94

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐ No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐ No ☒

WARRANT 3 - Peak Hour SATISFIED YES ☐ NO ☒
(Part A or Part B must be satisfied)

PART A SATISFIED YES ☐ NO ☒

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒ No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐ No ☒

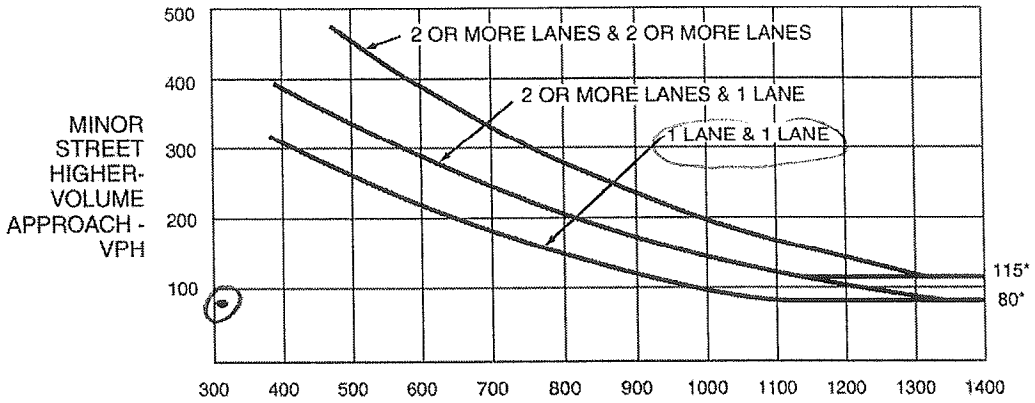
PART B SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	3-4 PM Hour
Both Approaches - Major Street	X		341
Higher Approach - Minor Street	X		115

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐ No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

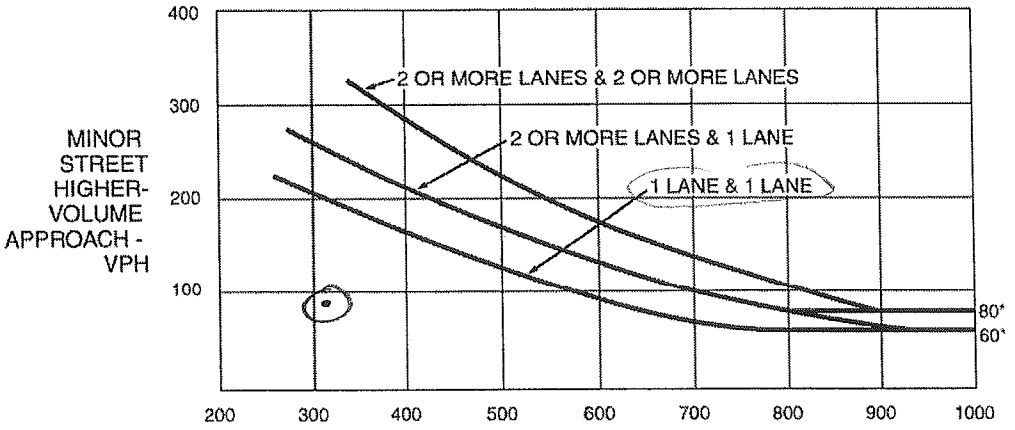
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

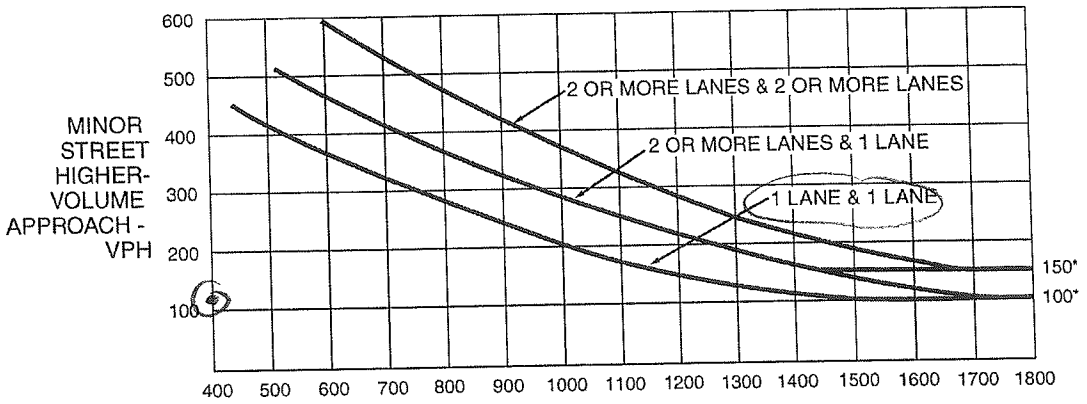
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

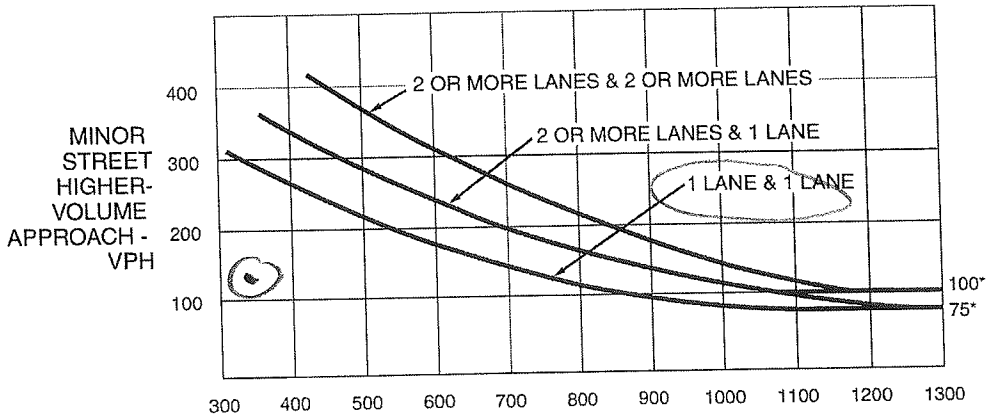
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

WARRANT 4 - Pedestrian Volume
(Parts 1 and 2 Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part 1 (Parts A or B must be satisfied)

	Hours - - ->				
A.	Vehicles per hour for any 4 hours				
	Pedestrians per hour for any 4 hours				

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☐

	Hours - - ->				
B.	Vehicles per hour for any 1 hour				
	Pedestrians per hour for any 1 hour				

Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☐

Part 2

SATISFIED YES ☐ NO ☐

AND, The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☐ No ☐

WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part A
Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☐

		Hour
Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Gaps < Minutes YES ☐ NO ☐
AND Children > 20/hr YES ☐ NO ☐

AND, Consideration has been given to less restrictive remedial measures.	Yes ☐ No ☐

Part B

SATISFIED YES ☐ NO ☐

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed signal will not restrict the progressive movement of traffic.	Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)

WARRANT 6 - Coordinated Signal System **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes ☐ No ☐
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

WARRANT 7 - Crash Experience Warrant **SATISFIED YES ☐ NO ☒**
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☐
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☐ No ☒
5 OR MORE			
REQUIREMENTS	CONDITIONS	✓	
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		Yes ☐ No ☒
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 152 for any hour OR, Ped Vol ≥ 80 for any 4 hours		

WARRANT 8 - Roadway Network **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		

CHARACTERISTICS OF MAJOR ROUTES	MAJOR ROUTE A	MAJOR ROUTE B	
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 5 of 5)

WARRANT 9 - Intersection Near a Grade Crossing **SATISFIED YES ☐ NO ☐**
(Both Parts A and B Must Be Satisfied)

N/A

PART A A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☐
PART B **There is one minor street approach lane at the track crossing -** During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☐
OR, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calcualte AF) = _____ VPH	

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

1- Number of Rail Traffic per Day_____ Adjustment factor from table 4C-2____

2- Percentage of High-Occupancy Buses on Minor Street Approach_____ Adjustment factor from table 4C-3____

3- Percentage of Tractor-Trailer Trucks on Minor Street Approach_____ Adjustment factor from table 4C-4____

NOTE: If no data is availale or known, then use AF = 1 (no adjustment)

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

08 DIST | 561 CO | 3B RTE | ____ PM

COUNT DATE forecast year 2025
CALC ____ DATE ____
CHK ____ DATE ____

Major St: SR 3B
Minor St: SIDE WALK

Critical Approach Speed 55 mph
Critical Approach Speed 40 mph

Speed limit or critical speed on major street traffic > 40 mph ☒ or ☐ } RURAL (R)
In built up area of isolated community of < 10,000 population ☐ } URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN ____ RURAL X

CONDITION A - Minimum Vehicular Volume

Satisfied ____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street	Minor Street
1 or 2 or More (5,000)	1 or 2 or More (1,900)
2 or More	1
2 or More	2 or More
1	2 or More

Minimum Requirements EADT			
Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
8,000	(5,600)	2,400	(1,680)
9,600	6,720	2,400	1,680
9,600	6,720	3,200	2,240
8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied ____ Not Satisfied X

Number of lanes for moving traffic on each approach

Major Street	Minor Street
(1 or 2 or More 5,000)	(1 1,900)
2 or More	1
2 or More	2 or More
1	2 or More

Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban	Rural	Urban	Rural
12,000	(8,400)	1,200	(850)
14,400	10,080	1,200	850
14,400	10,080	1,600	1,120
12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied ____ Not Satisfied X

No one condition satisfied, but following conditions fulfilled 80% or more ..... YES (A) NO (B)

2 CONDITIONS 80%	2 CONDITIONS 80%
NO	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

24 HOUR INTERSECTION VOLUME

NORTH-SOUTH ST : HWY 38
EAST-WEST ST : STATE LANE

DATE : 12-04-12

		NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
AM	12:00	6	4	0	1	11
	1:00	7	5	7	2	21
	2:00	5	0	1	0	6
	3:00	7	2	3	0	12
	4:00	7	4	10	5	26
	5:00	17	6	34	5	62
	6:00	59	30	87	19	195
	7:00	96	39	168	33	336
	8:00	117	45	177	37	376 (5)
	9:00	127	41	109	32	309
	10:00	140	50	110	19	319
	11:00	181	54	108	13	356 (7)
PM	12:00	189	56	103	19	367 (6)
	1:00	176	47	114	19	356 (8)
	2:00	203	73	122	24	422 (3)
	3:00	275	66	115	25	481 (1)
	4:00	243	73	120	18	454 (2)
	5:00	247	57	94	18	416 (4)
	6:00	134	45	82	11	272
	7:00	88	37	45	7	177
	8:00	97	23	29	8	157
	9:00	61	26	26	8	121
	10:00	28	17	12	3	60
	11:00	16	12	6	1	35
	12:00	2,526	812	1,682	327	5,347

PK HOUR 11 2

Prepared by NEWPORT TRAFFIC STUDIES

15 MINUTE COUNTS

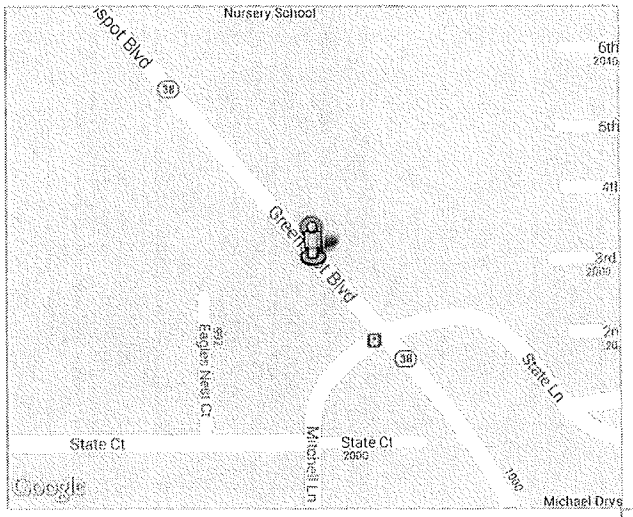
NORTH-SOUTH ST : HWY 38
EAST-WEST ST : STATE LANE

DATE : 12-04-12

AM						PM				
NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL		NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
1	1	0	0	2	12:00	55	18	20	5	98
0	1	0	0	1		52	14	30	8	104
2	2	0	1	5		43	9	31	1	84
3	0	0	0	3		39	15	22	5	81
1	1	1	0	3	1:00	39	14	24	4	81
1	0	2	0	3		60	11	33	7	111
5	0	1	1	7		31	9	30	4	74
0	4	3	1	8		46	13	27	4	90
2	0	1	0	3	2:00	44	22	26	4	96
1	0	0	0	1		65	14	29	7	115
0	0	0	0	0		48	17	31	7	103
2	0	0	0	2		46	20	36	6	108
1	1	1	0	3	3:00	63	14	23	4	104
2	1	0	0	3		63	19	33	9	124
3	0	2	0	5		66	17	25	6	114
1	0	0	0	1		83	16	34	6	139
0	0	2	3	5	4:00	67	15	37	6	125
2	0	1	1	4		60	20	26	7	113
2	2	2	0	6		63	23	32	1	119
3	2	5	1	11		53	15	25	4	97
7	0	3	1	11	5:00	87	10	23	4	124
1	2	6	2	11		69	9	22	8	108
6	1	11	1	19		58	17	27	4	106
3	3	14	1	21		33	21	22	2	78
6	5	7	4	22	6:00	40	13	25	2	80
15	3	18	3	39		39	9	23	5	76
17	12	28	4	61		32	15	19	1	67
21	10	34	8	73		23	8	15	3	49
12	10	35	9	66	7:00	36	10	17	2	65
24	8	30	6	68		23	12	11	1	47
31	6	59	7	103		10	8	9	0	27
29	15	44	11	99		19	7	8	4	38
26	17	34	16	93	8:00	33	7	5	3	48
28	9	54	5	96		24	7	11	1	43
33	9	52	8	102		30	6	7	2	45
30	10	37	8	85		10	3	6	2	21
31	15	30	8	84	9:00	23	4	10	1	38
35	8	20	8	71		19	9	6	0	34
29	8	43	4	84		7	3	2	4	16
32	10	16	12	70		12	10	8	3	33
39	9	20	5	73	10:00	8	4	1	2	15
28	14	35	5	82		9	8	6	0	23
38	14	35	1	88		8	2	4	0	14
35	13	20	8	76		3	3	1	1	8
38	14	30	3	85	11:00	2	5	4	1	12
47	9	20	2	78		10	2	1	0	13
53	9	32	4	98		3	2	0	0	5
43	22	26	4	95		1	3	1	0	5

Prepared by NEWPORT TRAFFIC STUDIES

COLLISION DETAILS: CASE ID **5140780**

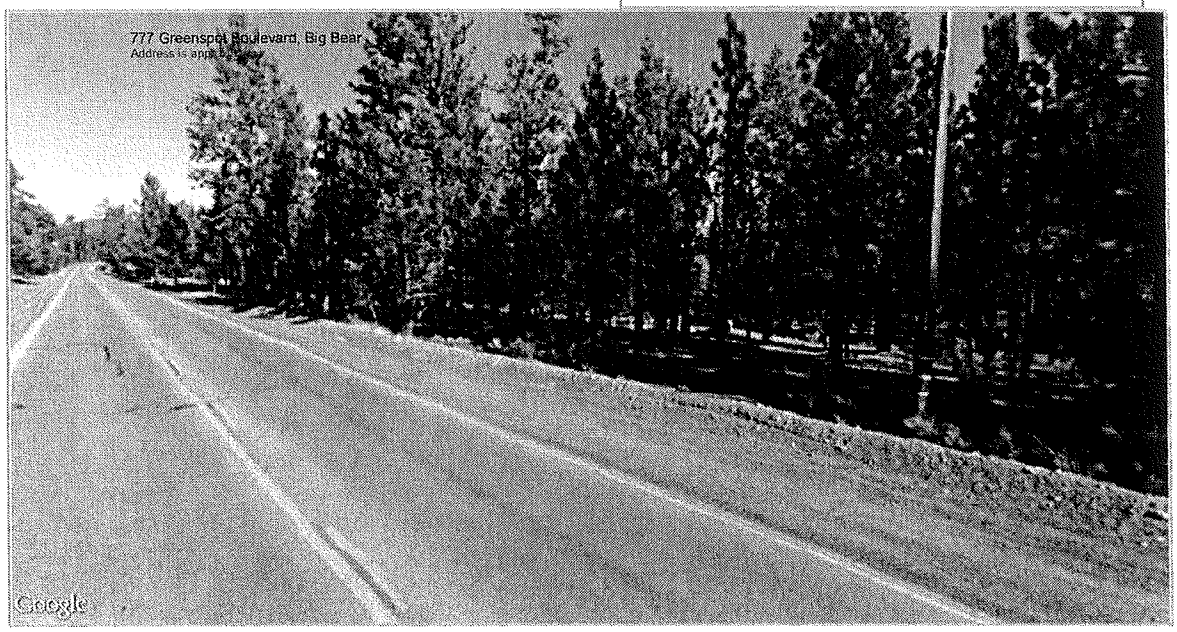


STREET VIEW

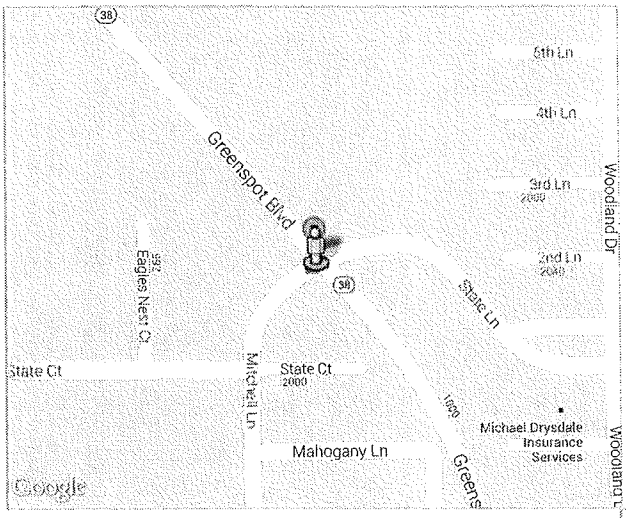
County	SAN BERNARDINO	**City**	UNINCORPORATED
Date (Y-M-D)	2011-03-20	**Time**	11:00
Nearby Intersection	RT 38 & STATE LN		
Coordinate Location	34.244538153, -116.809493163		

State Highway	Y	**Route**	38E	**Postmile**	46.67

Injured Victims	1	**Fatalities**	0
Alcohol	NO	**Weather**	Snowing
Primary Collision Factor	Other Than Driver (or Pedestrian)	**Involved with**	Other Object



COLLISION DETAILS: CASE ID **4996329**

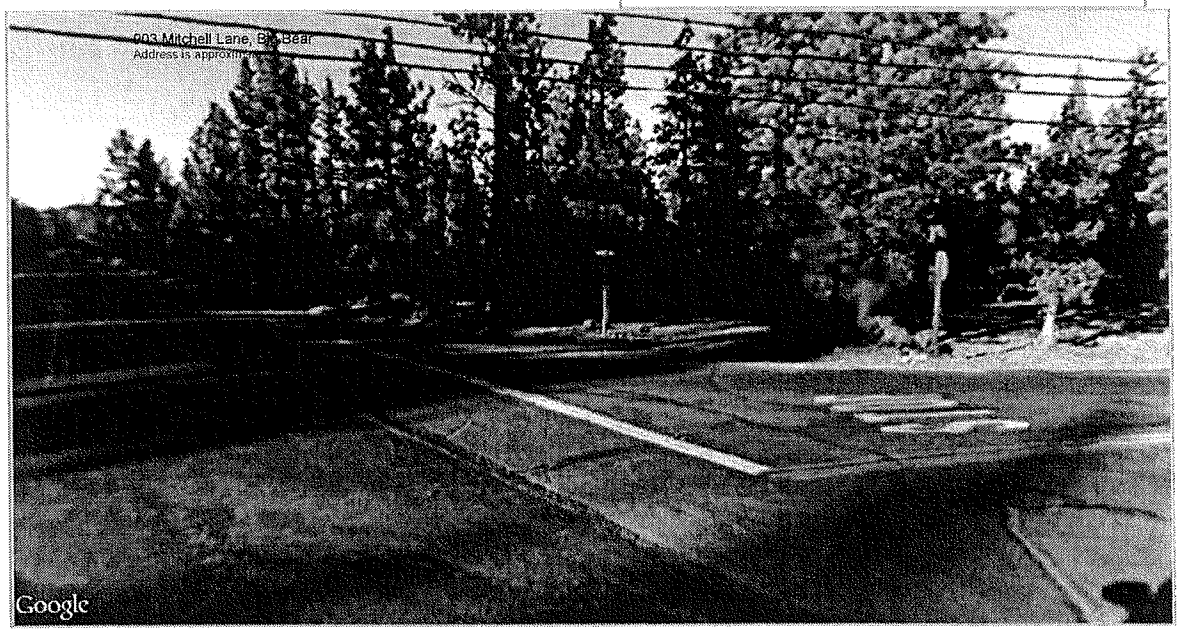


STREET VIEW

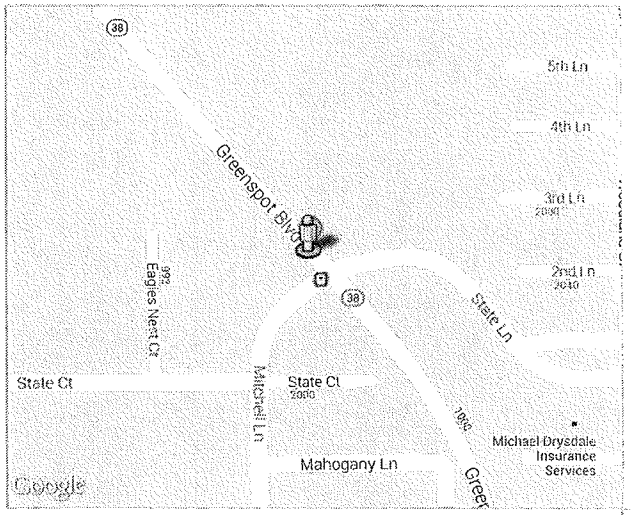
County	SAN BERNARDINO	**City**	UNINCORPORATED
Date (Y-M-D)	2010-11-29	**Time**	14:32
Nearby Intersection	STATE LN & RT 38		
Coordinate Location	34.24399944, -116.808935521		

State Highway	Y	**Route**	38E	**Postmile**	46.621

Injured Victims	1	**Fatalities**	0
Alcohol	NO	**Weather**	Clear
Primary Collision Factor	Unsafe Speed	**Involved with**	Other Motor Vehicle



COLLISION DETAILS: CASE ID **4469449**

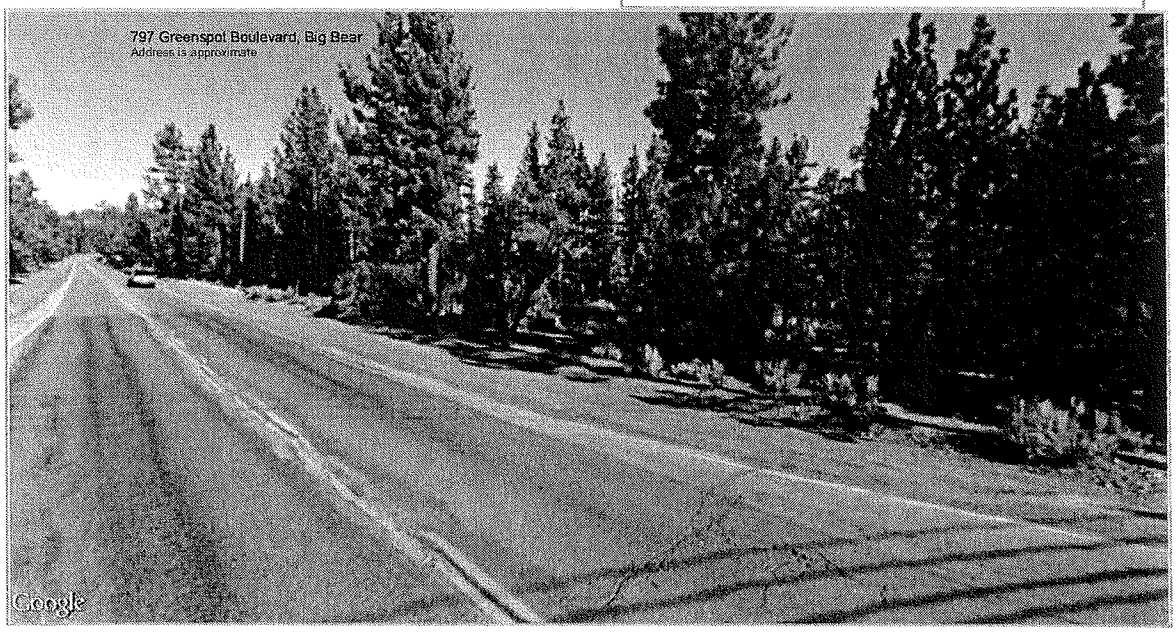


STREET VIEW

County	SAN BERNARDINO	**City**	UNINCORPORATED
Date (Y-M-D)	2009-10-27	**Time**	16:35
Nearby Intersection	RT 38 & STATE LN		
Coordinate Location	34.244099547, -116.809036453		

State Highway	Y	**Route**	38E	**Postmile**	46.63

Injured Victims	1	**Fatalities**	1
Alcohol	NO	**Weather**	Clear
Primary Collision Factor	Improper Turning	**Involved with**	Fixed Object



4. Left Turn Warrant Analysis – Highway 38 and State Lane

Hall & Foreman, Inc.

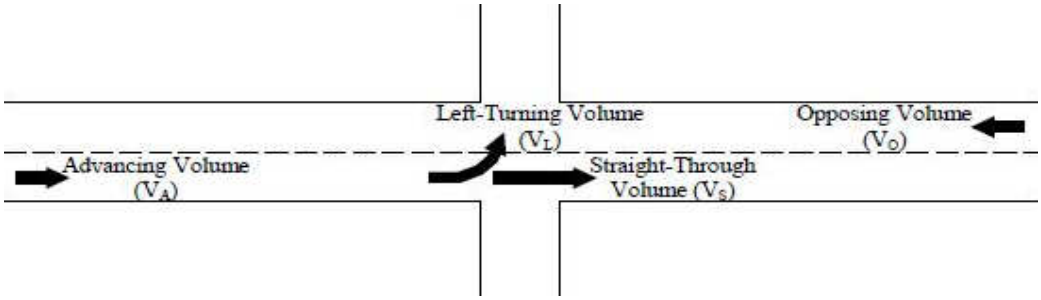
Engineering • Surveying • Planning • Landscape Architecture

SUBJECT	BY	DATE	JOB NO.
LEFT TURN WARRANT	TM	19-Jun-14	VV.130048.0000

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38

DESIGN SPEED : 55MPH
CONDITION : WEEKDAY AM PEAK HOUR

CONDITION DIAGRAMS



CONDITION	EXISTING TRAFFIC	EXISTING + BACKGROUND TRAFFIC	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
V_A	125	145	165	200	220
V_L	70	75	100	105	130
V_L (%)	60%	50%	60%	50%	60%
V_S	55	70	65	95	90
V_O	60	65	70	85	90

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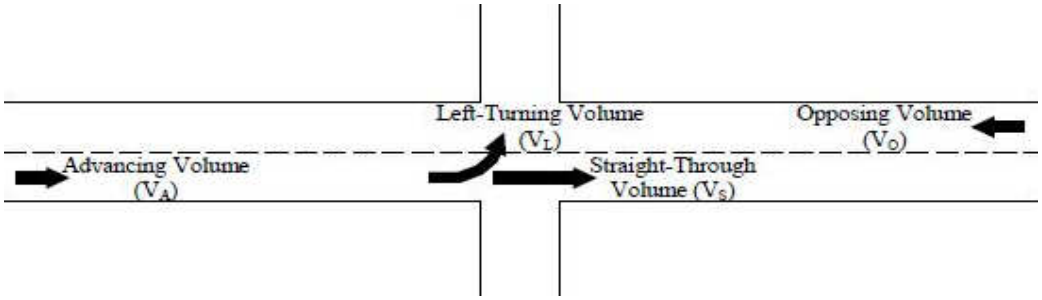
SUBJECT	BY	DATE	JOB NO.
LEFT TURN WARRANT	TM	19-Jun-14	VV.130048.0000

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38

DESIGN SPEED : 55MPH
CONDITION : WEEKDAY PM PEAK HOUR

CONDITION DIAGRAMS



CONDITION	EXISTING TRAFFIC	EXISTING + BACKGROUND TRAFFIC	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
V_A	265	280	305	395	420
V_L	180	185	215	260	290
V_L (%)	70%	70%	70%	70%	70%
V_S	85	95	90	135	130
V_O	75	95	100	125	130

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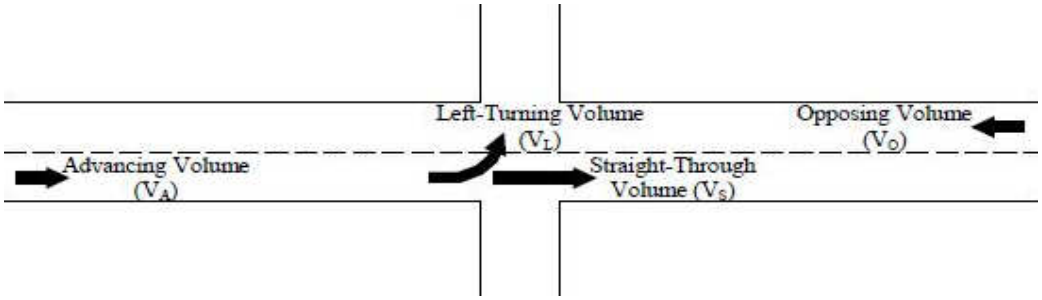
SUBJECT	BY	DATE	JOB NO.
LEFT TURN WARRANT	TM	19-Jun-14	VV.130048.0000

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38

DESIGN SPEED : 55MPH
CONDITION : WINTER FRIDAY PM PEAK HOUR

CONDITION DIAGRAMS



CONDITION	EXISTING TRAFFIC	EXISTING + BACKGROUND TRAFFIC	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
V_A	310	340	365	470	495
V_L	215	225	255	315	345
V_L (%)	70%	70%	70%	70%	70%
V_S	95	115	110	155	150
V_O	130	140	145	190	195

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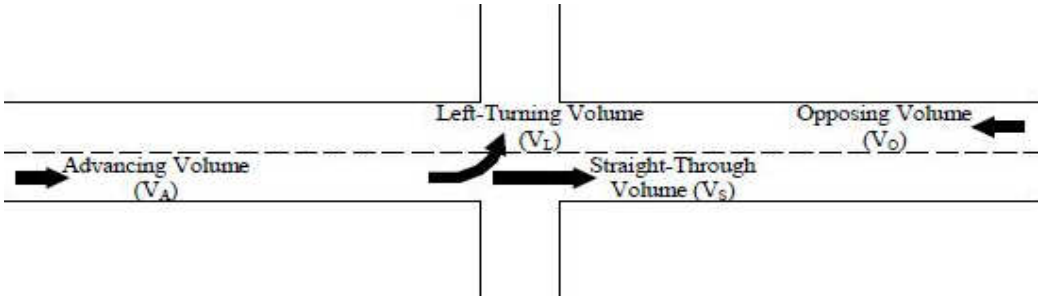
SUBJECT	BY	DATE	JOB NO.
LEFT TURN WARRANT	TM	19-Jun-14	VV.130048.0000

E/W STREET : STATE LANE DRIVE
N/S STREET : HIGHWAY 38

DESIGN SPEED : 55MPH
CONDITION : WINTER SUNDAY PM PEAK HOUR

CONDITION DIAGRAMS



CONDITION	EXISTING TRAFFIC	EXISTING + BACKGROUND TRAFFIC	EXISTING + BACKGROUND + PROJECT	YEAR 2035 WITHOUT PROJECT	YEAR 2035 WITH PROJECT
V_A	330	350	375	485	510
V_L	145	150	180	210	240
V_L (%)	40%	40%	50%	40%	50%
V_S	185	200	195	275	270
V_O	85	110	115	145	150

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Table 17.B-3
Criteria for Left-turn Deceleration Lanes on
RURAL TWO-LANE HIGHWAYS

Left-Turn Volume [1] (vph)	LEFT-TURN DECELERATION LANE			
	Minimum Directional Volume in Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	400	220	120	60
10	240	140	80	40
15	160	100	60	Required
20	120	80	Required	Required
25	100	Required	Required	Required
≥ 26	Required	Required	Required	Required
	Left-turn Deceleration Lanes are Required on Rural Two-lane Highways for the following Left-turn Volumes: • ≤ 30 mph : 26 vph or more • 35 to 40 mph : 21 vph or more • 45 to 55 mph : 16 vph or more • > 55 mph : 11 vph or more			

Notes:
1. *Use linear interpolation for left-turn volumes between 5 and 25 vph.*
2. *The directional volume in the through lane includes through vehicles and turning vehicles.*

Table 17.B-4
Criteria for Left-turn Deceleration Lanes on
RURAL MULTI-LANE HIGHWAYS

Left-Turn Volume [1] (vph)	LEFT-TURN DECELERATION LANE			
	Minimum Volume in Adjacent Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	450	310	210	130
10	310	220	130	90
15	240	160	100	70
20	190	130	80	Required
25	150	110	Required	Required
30	130	Required	Required	Required
35	110	Required	Required	Required
≥ 36	Required	Required	Required	Required
	Left-turn Deceleration Lanes are Required on Rural Multi-lane Highways for the following Left-turn Volumes: • ≤ 30 mph : 36 vph or more • 35 to 40 mph : 26 vph or more • 45 to 55 mph : 21 vph or more • > 55 mph : 16 vph or more			

Notes:
1. *Use linear interpolation for left-turn volumes between 5 and 35 vph.*
2. *The volume in the adjacent through lane includes through vehicles and turning vehicles.*

Table 9-23. Guide for Left-Turn Lanes on Two-Lane Highways (*10*)

Metric					U.S. Customary				
	Advancing Volume (veh/h)					Advancing Volume (veh/h)			
Opposing Volume (veh/h)	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns	Opposing Volume (veh/h)	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
60-km/h Operating Speed					**40-mph Operating Speed**				
800	330	240	180	160	800	330	240	180	160
600	410	305	225	200	600	410	305	225	200
400	510	380	275	245	400	510	380	275	245
200	640	470	350	305	200	640	470	350	305
100	720	515	390	340	100	720	515	390	340
80-km/h Operating Speed					**50-mph Operating Speed**				
800	280	210	165	135	800	280	210	165	135
600	350	260	195	170	600	350	260	195	170
400	430	320	240	210	400	430	320	240	210
200	550	400	300	270	200	550	400	300	270
100	615	445	335	295	100	615	445	335	295
100-km/h Operating Speed					**60-mph Operating Speed**				
800	230	170	125	115	800	230	170	125	115
600	290	210	160	140	600	290	210	160	140
400	365	270	200	175	400	365	270	200	175
200	450	330	250	215	200	450	330	250	215
100	505	370	275	240	100	505	370	275	240

Additional information on left-turn lanes, including their suggested lengths, can be found in *Highway Research Record 211*, NCHRP Report 225, and NCHRP Report 279 (*10*, *19*, *17*). In the case of double left-turn lanes, a capacity analysis of the intersection should be performed to determine what traffic controls are needed in order for it to function properly.

Local conditions and the cost of right-of-way often influence the type of intersection selected as well as many of the design details. Limited sight distance, for example, may make it desirable to control traffic by yield signs, stop signs, or traffic signals when the traffic densities are less than those ordinarily considered appropriate for such control. The alignment and grade of the intersecting roads and the angle of intersection may make it advisable to channelize or use auxiliary pavement areas, regardless of the traffic densities. In general, traffic service, highway design designation, physical conditions, and cost of right-of-way are considered jointly in choosing the type of intersection.

For the general benefit of through-traffic movements, the number of crossroads, intersecting roads, or intersecting streets should be minimized. Where intersections are closely spaced on a two-way facility, it is seldom practical to provide signals for completely coordinated traffic movements at reasonable speeds in opposing directions on that facility. At the same time, the resultant road or street patterns should permit travel on roadways other than the predominant highway without too much inconvenience. Traffic analysis

The following general steps would be undertaken by IDRM to evaluate the left-turn lane warrants:

1. For each unstopped approach to an intersection, determine whether a left-turn lane is present or not.
2. From data provided by the designer, determine the peak-hour volume of each unstopped approach. If peak-hour volume is not available, use design-hour volume.
3. Determine the 85th percentile speed. The speed can be determined from actual data, from a speed prediction model like those developed for the IHSDM design consistency module, or from engineering judgment by the user. (Note that both directions of travel need to be evaluated.)
4. Look up the appropriate warranting condition and display an appropriate message.

No formulas or calculations are required to obtain output from the left-turn lane warrant model. Model output is obtained via a look-up table.

Model Output

Model output is summarized in Table 15 . Determination of whether a left-turn lane is warranted is based on consulting the table for a particular operating speed and opposing design-hour volume. If the advancing volume is greater than the value shown (for a given percentage of left turns), a left-turn lane is warranted.

Table 15. Volume Warrants for Left-Turn Lanes

Advancing Volume/Hour				
Opposing Volume/Hour	**5% Left Turns**	**10% Left Turns**	**20% Left Turns**	**30% Left Turns**
60-km/h Operating Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
80-km/h Operating Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
100-km/h Operating Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

References

1. *A Policy on Geometric Design of Highways and Street (Green Book)*. American Association of State Highway and Transportation Officials, Washington, DC, 1994 (Table II-1: Design Vehicle Dimensions, p. 21).
2. *Intersection Channelization Design Guide*, NCHRP Report 279. Transportation Research Board, Washington, DC (Figure 4-12 [Harmelink study]).