ZINFANDEL LANE / SILVERADO TRAIL INTERSECTION TRAFFIC ANALYSIS

UPDATED TRAFFIC STUDY FOR THE PROPOSED RAYMOND VINEYARDS WINERY USE PERMIT MODIFICATION #P11-00156

AUGUST 5, 2014

PREPARED BY:

OMNI-MEANS, LTD.
ENGINEERS & PLANNERS
1901 OLYMPIC BOULEVARD, SUITE 120
WALNUT CREEK, CALIFORNIA 94596
(925) 935-2230

35-5629-01
(R1557TIA003.DOC)

ZINFANDEL LANE / SILVERADO TRAIL INTERSECTION TRAFFIC ANALYSIS

RAYMOND VINEYARDS WINERY USE PERMIT MODIFICATION #P11-00156

INTRODUCTION / SUMMARY

Traffic conditions were evaluated at the Zinfandel Lane/Silverado Trail intersection for the proposed Raymond Winery use permit modification (P11-00156). This analysis supplements the traffic study which was conducted for the proposed use permit modification (Updated Traffic Study for the Proposed Raymond Vineyards Winery Use Permit Modification P11-00156, April 5, 2013) which evaluated two other intersections. The originally proposed use permit modification evaluated in the report (and subsequently the current smaller request) would not result in a significant impact based on the County standards of significance (with the provision that a left turn lane would be installed on Zinfandel Lane at the project access intersection.)

This analysis of the Zinfandel Lane/Silverado Trail intersection found that the original proposed use permit would add vehicular traffic above "without project" conditions, but within the standards of significance based on the County standards. The eastbound Zinfandel Lane approach operates at LOS 'F' for existing, near term, and long term scenarios without the project and would continue to do so with the project with eastbound vehicle queues increasing by one to two vehicle during the peak hours. The northbound Silverado Trail left turn movement would operate at LOS 'A'-'B' conditions, with slight increases in delays. The original permit request was calculated to add 14-26 peak hour trips above existing volumes to the intersection. The current proposal is calculated to add 10-18 peak hour trips to the Zinfandel Lane/Silverado Trail intersection.

SETTING

A traffic study prepared for the Castellucci Winery located at the east end of Zinfandel Lane evaluated the Zinfandel Lane/Silverado Trail intersection.[1] The traffic volumes from that study were utilized for the "without project" conditions of this analysis. The Raymond Winery proposed use permit volumes were added to the Castellucci report volumes to evaluate "with project" conditions. In order to remain consistent with the traffic report conducted for the Raymond Winery, this analysis has evaluated the original proposed use permit modification (consisting of 500 daily visitors, 90 employees, and average annual wine production of 1,500,000 gallons). The use permit modification has been reduced and no longer includes changes to the current use permit visitation level (400 daily visitors) and no change in production levels (900,000 peak annual gallons). Therefore, the current use modification request would generate fewer vehicle trips and all of the findings of this analysis address conditions associated with the current proposal's reduced size.

Silverado Trail is a two lane through route oriented in a north-south direction along the eastern side of the Napa Valley. In the project vicinity it consists of 12-foot travel lanes with striped shoulder areas marked as Class 2 bicycle lanes. The posted speed limit is 55 mph near Zinfandel Lane.

Zinfandel Lane east of the Raymond Winery to Silverado Trail consists of two twelve foot wide lanes with 1-4 foot wide striped shoulder areas. It is flat and straight until curving at the Napa River 700 west of Silverado Trail where there is a bridge (approximately 100 feet long) with narrower 9-foot travel lanes then continues straight to Zinfandel Lane. The posted speed limit is 45 mph with yellow warning 35 mph speed limit signs through the curved segment.

[1] Crane Transportation Group, Traffic Impact Report for Proposed Castellucci Family Winery, November 2013.

The Zinfandel Lane/Silverado Trail intersection has a single lane approach on Zinfandel Lane which is stop sign controlled. Northbound Silverado Trail has a separate left turn lane pocket on the approach to the intersection. A private driveway is located on the east side of the intersection.

Napa County Significance Criteria

The County of Napa's significance criteria has been based on a review of the Napa County Transportation & Planning Agency and Napa County General Plan documentation on roadway and intersection operations. Specifically, the Circulation Element of the County's General Plan outlines the following significance criteria specific to operations:

- The County shall seek to maintain an arterial Level of Service D or better on all county roadways, except where maintaining this desired level of service would require the installation of more travel lanes than shown on the Circulation Map.

- The County shall seek to maintain a Level of Service D or better at all signalized intersections, except where the level of service already exceeds this standard (i.e. Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way.

- No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met.

Further significance criteria are based on County and CEQA guidelines and apply mainly to intersection operation and access. A significant impact occurs if project traffic would result in the following:

- Cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume capacity ratio on roads, or congestion at intersections);
- Exceed either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways;
- Result in a change of traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency vehicle access;
- Project site or internal circulation on the site is not adequate to accommodate pedestrians and bicycles.

EXISTING TRAFFIC CONDITIONS

The Castellucci report conducted peak hour counts at the Zinfandel Lane/Silverado Trail intersection in June 2013 and daily volume counts on Zinfandel Lane in August, 2013. The Castellucci Winery report found daily volumes on Zinfandel Lane near Silverado Trail averaged 3,512 vehicles. Volume data for Silverado Trail available from Napa County identifies volumes north and south of Zinfandel Lane are equal to ten times the peak hour volumes. Applied to the 2013 intersection counts results in 15,150 two-way weekday average daily trips north of Zinfandel Lane and 15,650 daily trips to the south. Weekend volumes equate to 13,710 daily trips to the north and 14,020 trips to the south of Zinfandel Lane. The average daily volumes on Silverado Trail are equivalent to LOS 'D' conditions (13,800-22,300 ADT) based on Napa County LOS volume thresholds.

The calculated peak hour intersection levels of service are provided in Table 1. The Zinfandel Lane/Silverado Trail intersection has calculated existing peak hour operating conditions of LOS 'F' (delays in excess of 50 seconds) for the eastbound Zinfandel Lane approach during the weekday and Saturday peak hours. The Silverado Trail northbound left turn movement operates at LOS 'A'-'B' (9.4-10.7 seconds delay) during peak hours.

NEAR TERM TRAFFIC CONDITIONS

For the Near Term conditions, the "Year 2018 With Castellucci Project" volumes from the Castellucci report were used. The volumes are based on traffic model projections from the Napa County General Plan and reflect an eight percent increase from existing volumes. Future lane geometries and controls at the Zinfandel Lane/Silverado Trail intersection were unchanged from existing conditions. (However, a left turn lane on eastbound Zinfandel Lane is proposed at the Castellucci Winery access.)

Silverado Trail would be expected to have daily volumes of 16,360-16,900 weekday trips and 13,250-13,260 Saturday daily trips. The volumes would continue to reflect LOS 'D' conditions based on the volume thresholds.

The Zinfandel Lane/Silverado Trail intersection would continue to operate at LOS 'F' for the eastbound Zinfandel Lane approach and the northbound left turn movement would continue to operate at LOS 'A'-'B' (9.6-11.3 seconds of delay) during the weekday and Saturday peak hours.

Signalization Warrants

The volumes were compared with the California Manual on Uniform Traffic Control Devices "peak hour" signal warrants. The peak hour volume warrant is one of several warrants available to determine if installation of a traffic signal may be appropriate. The Zinfandel Lane/Silverado Trail intersection would qualify for signalization under existing, near term, and long term Year 2030 cumulative "without project" conditions. With signalization, the intersection would operate at LOS 'B' or better during all evaluated timeframes.

TRAFFIC CONDITIONS WITH PROPOSED USE PERMIT

The total winery trips with the original proposed use permit as calculated in the Raymond Winery traffic report were distributed with 30% to/from the east on Zinfandel Lane to Silverado Trail. The project trips at the Zinfandel Lane/Silverado Trail intersection were distributed in proportion to the background turning volumes. For weekdays, this resulted in 40% of the trips to/from the north and 60% to/from the south on Silverado Trail, while the Saturday distribution resulted in 50% of the trips equally to the north and to the south.

With the originally proposed use permit, the project trips would add 33 weekday daily and 74 Saturday daily trips above existing volumes to Zinfandel Lane east of the winery. On Silverado Trail, approximately 13 daily weekday and 37 Saturday daily trips would be added north of Zinfandel Lane and 20 weekday daily and 37 Saturday daily trips would be added south of the intersection. The reduced permit application, which excludes the visitation and production increase components, now represents an increase of 23 weekday daily and 51 Saturday daily volumes on Zinfandel Lane east of the Winery. The revised permit would add approximately 9 weekday and 25 Saturday daily trips on Silverado Trail north of Zinfandel Lane and 14 weekday and 26 Saturday daily trips on Silverado Trail south of the intersection.

The originally proposed permit would add 14 weekday peak hour trips and 26 Saturday peak hour trips to the Zinfandel Lane/Silverado Trail intersection above existing volumes. The revised permit would add 10 weekday and 18 Saturday peak hour trips above existing volumes. The roadway LOS on Silverado Trail would remain unchanged for existing, near term and long term with project conditions, continuing to operate at LOS 'D' conditions. Zinfandel Lane would continue to operate at LOS 'C' conditions.

The peak hour conditions with the original proposed use permit were evaluated for the Zinfandel Lane/Silverado Trail intersection (level of service conditions are shown in Table 1). The levels of service for "with project" conditions would remain unchanged from "without project" conditions. The eastbound Zinfandel Lane approach would continue to operate at LOS 'F' with longer delays compared to "without project" conditions and the northbound left turn would operate at LOS 'A'-'B' with delay increases, if any, of approximately one second compared to "without project" conditions.

The calculated vehicle queues indicate vehicle queues would increase by one to two vehicles at the eastbound Zinfandel Lane approach during Friday and Saturday peak hours. There are no calculated increases in queues for the northbound left turn lane approach on Silverado Trail.

It is noted that the calculated increases are based on the visitation numbers used in the original permit application, but the ratio of surveyed visitation to the current permit level is lower than the levels used for the trip rate calculations, indicating actual volume increases may be less than calculated during typical conditions.

Signalization Warrants

The volumes were compared with the California Manual on Uniform Traffic Control Devices "peak hour" signal warrants. The peak hour volume warrant is one of several warrants available to determine if installation of a traffic signal may be appropriate. The Zinfandel Lane/Silverado Trail intersection qualifies for signalization for all "without project" conditions and would qualify for signalization under existing, near term, and long term cumulative "with project" conditions. With signalization, the intersection would operate at LOS 'B' or better during all evaluated periods.

CUMULATIVE CONDITIONS

The long term cumulative volumes were based on the County's General Plan transportation model forecasts as provided in the Circulation Element for future Year 2030 conditions. The growth projections translated into a 25 percent growth in traffic on Zinfandel Lane and 28 percent growth in traffic on Silverado Trail from the Year 2013 volumes.

The volume projections equate to daily volumes on Silverado Trail of 19,390-20,030 two-way trips to the north and to the south of Zinfandel Lane, respectively. The volumes would continue to equate to LOS 'D' conditions based on the volume thresholds. Conditions would operate at LOS 'C' on Zinfandel Lane.

The cumulative volumes indicate the eastbound approach to the Zinfandel Lane/Silverado Trail intersection would continue to operate at LOS 'F' with increased delays at peak times of the day and with longer peak periods during the day.

As noted in the Raymond Winery traffic study, the County has identified mitigation policies for potential long term traffic volume increases outlined in the Napa County General Plan. The policies include street network improvements, potential development of a traffic impact fee, and reduction of vehicle trips through alternative transportation and trip reducing policies. As stated in the report, the winery would provide bicycle racks and an electric vehicle charging station. It is our understanding a travel demand management program with trip reduction strategies would be provided to winery employees. If, for example, the measures result in 25% of employees ridesharing, daily and peak hour trips would be reduced by 20%-26%.

Although no significant impacts were found based on the County standards at this intersection, the findings/recommendations in the Raymond Winery traffic analysis would remain applicable; notably the construction of a left turn lane on Zinfandel Lane at the Wheeler Lane project access (proposed for installation as part of the use permit modification) which would mitigate the left turn lane operating conditions at the winery access intersection.

TABLE 1
ZINFANDEL LANE / SILVERADO TRAIL

EXISTING AND EXISTING + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Existing** **LOS Delay**	**Existing + Project** **LOS Delay**	**Existing** **LOS Delay**	**Existing + Project** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 10.7"	B 10.7"	A 9.4"	A 9.5"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

EXISTING AND EXISTING + CURRENT USE PERMIT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Existing** **LOS Delay**	**Existing + Current Use Permit** **LOS Delay**	**Existing** **LOS Delay**	**Existing + Current Use Permit** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 10.7"	B 10.7"	A 9.4"	A 9.4"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

NEAR TERM AND NEAR TERM + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Near Term** **LOS Delay**	**Near Term + Project** **LOS Delay**	**Near Term** **LOS Delay**	**Near Term + Project** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 11.3"	B 11.3"	A 9.6"	A 9.7"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

Based on Highway Capacity Manual (HCM) 2000, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds.

APPENDIX
Zinfandel Lane/Silverado Trail Traffic Analysis
Raymond Vineyards Winery Use Permit Modification # P11-00156

- Level of Service Definitions
- Level of Service Calculations
- Peak Hour Signal Warrants

TABLE A-1
LEVEL-OF-SERVICE CRITERIA FOR INTERSECTIONS

LEVEL OF SERVICE	TYPE OF FLOW	DELAY	MANEUVERABILITY	CONTROL DELAY (SECONDS/VEHICLE)		
				SIGNALIZED	UNSIGNALIZED	ALL-WAY STOP
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10.0 secs. ≤ 0.60 v/c	≤ 10.0	≤ 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤ 20.0 secs. 0.61 – 0.70 v/c	>10 and ≤ 15.0	>10 and ≤ 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20 and ≤ 35.0 secs. 0.71 – 0.80 v/c	>15 and ≤ 25.0	>15 and ≤ 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles of stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and ≤ 55.0 secs. 0.81 – 0.90 v/c	>25 and ≤ 35.0	>25 and ≤ 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and ≤ 80.0 secs. 0.91 – 1.00 v/c	>35 and ≤ 50.0	>35 and ≤ 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0 secs. > 1.00 v/c	> 50.0	> 50.0

References: 1. Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000, Contra Costa Transportation Authority (CCTA), Technical Procedures Update, Final, July 9, 2006. For the purposes of this study, CCTA intersection methodology has been used for signalized intersections yielding an LOS and v/c ratio.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	84	1	130	0	0	1	50	578	0	1	916	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	88	1	137	0	0	1	53	608	0	1	964	44
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1703	1702	986	1839	1724	608	1008			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1703	1702	986	1839	1724	608	1008			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	54	100	100	100	92			100		
cM capacity (veh/h)	67	85	301	29	82	495	687			970		

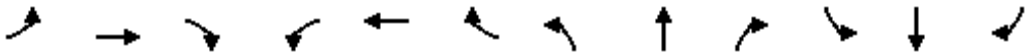
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	226	1	53	608	1009
Volume Left	88	0	53	0	1
Volume Right	137	1	0	0	44
cSH	127	495	687	1700	970
Volume to Capacity	1.78	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	433	0	6	0	0
Control Delay (s)	442.1	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	442.1	12.3	0.8		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	53.0		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	97	1	83	2	0	0	76	559	1	0	605	54
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	103	1	88	2	0	0	81	595	1	0	644	57
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1429	1430	672	1518	1458	595	701			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1429	1430	672	1518	1458	595	701			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	1	99	81	97	100	100	91			100		
cM capacity (veh/h)	105	122	456	73	118	504	896			981		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	193	2	81	596	701
Volume Left	103	2	81	0	0
Volume Right	88	0	0	1	57
cSH	162	73	896	1700	981
Volume to Capacity	1.19	0.03	0.09	0.35	0.00
Queue Length 95th (ft)	265	2	7	0	0
Control Delay (s)	186.2	56.0	9.4	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	186.2	56.0	1.1		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	23.4			
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	85	1	132	0	0	1	50	578	0	1	916	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	89	1	139	0	0	1	53	608	0	1	964	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1704	1703	987	1842	1725	608	1009			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1704	1703	987	1842	1725	608	1009			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	54	100	100	100	92			100		
cM capacity (veh/h)	67	85	300	29	82	495	687			970		

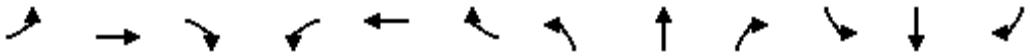
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	229	1	53	608	1010
Volume Left	89	0	53	0	1
Volume Right	139	1	0	0	45
cSH	127	495	687	1700	970
Volume to Capacity	1.81	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	442	0	6	0	0
Control Delay (s)	452.3	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	452.3	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	54.9		
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	103	1	89	2	0	0	79	559	1	0	605	57
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	110	1	95	2	0	0	84	595	1	0	644	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1437	1438	674	1532	1468	595	704			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1437	1438	674	1532	1468	595	704			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	79	97	100	100	91			100		
cM capacity (veh/h)	103	121	455	70	116	504	894			981		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	205	2	84	596	704
Volume Left	110	2	84	0	0
Volume Right	95	0	0	1	61
cSH	160	70	894	1700	981
Volume to Capacity	1.28	0.03	0.09	0.35	0.00
Queue Length 95th (ft)	300	2	8	0	0
Control Delay (s)	220.3	58.4	9.4	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	220.3	58.4	1.2		0.0
Approach LOS	F	F			

Intersection Summary			
Average Delay	29.0		
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	1	136	0	0	1	52	586	0	1	1031	43
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	92	1	142	0	0	1	54	610	0	1	1074	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1818	1817	1096	1959	1840	610	1119			610		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1818	1817	1096	1959	1840	610	1119			610		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	45	100	100	100	91			100		
cM capacity (veh/h)	55	71	259	20	69	494	624			968		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	234	1	54	610	1120
Volume Left	92	0	54	0	1
Volume Right	142	1	0	0	45
cSH	106	494	624	1700	968
Volume to Capacity	2.22	0.00	0.09	0.36	0.00
Queue Length 95th (ft)	510	0	7	0	0
Control Delay (s)	644.8	12.3	11.3	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	644.8	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary				
Average Delay	75.2			
Intersection Capacity Utilization	84.3%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	97	1	83	2	0	0	78	607	1	0	656	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	102	1	87	2	0	0	82	639	1	0	691	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1523	1524	719	1611	1552	639	748			640		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1523	1524	719	1611	1552	639	748			640		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	80	97	100	100	90			100		
cM capacity (veh/h)	90	107	428	61	103	476	860			944		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	191	2	82	640	748
Volume Left	102	2	82	0	0
Volume Right	87	0	0	1	58
cSH	141	61	860	1700	944
Volume to Capacity	1.35	0.03	0.10	0.38	0.00
Queue Length 95th (ft)	303	3	8	0	0
Control Delay (s)	257.3	65.6	9.6	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	257.3	65.6	1.1		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	30.0			
Intersection Capacity Utilization	80.9%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	1	137	0	0	1	51	578	0	1	916	44
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	93	1	144	0	0	1	54	608	0	1	964	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1706	1705	987	1850	1728	608	1011			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1706	1705	987	1850	1728	608	1011			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	52	100	100	100	92			100		
cM capacity (veh/h)	67	84	300	28	81	495	686			970		

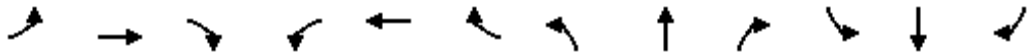
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	238	1	54	608	1012
Volume Left	93	0	54	0	1
Volume Right	144	1	0	0	46
cSH	126	495	686	1700	970
Volume to Capacity	1.88	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	468	0	6	0	0
Control Delay (s)	483.6	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	483.6	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary				
Average Delay	60.5			
Intersection Capacity Utilization	78.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	1	92	2	0	0	81	559	1	0	605	58
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	112	1	98	2	0	0	86	595	1	0	644	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1441	1443	674	1443	1473	595	705			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1441	1443	674	1443	1473	595	705			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	78	97	100	100	90			100		
cM capacity (veh/h)	102	119	454	79	115	504	893			981		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	211	2	86	596	705
Volume Left	112	2	86	0	0
Volume Right	98	0	0	1	62
cSH	160	79	893	1700	981
Volume to Capacity	1.32	0.03	0.10	0.35	0.00
Queue Length 95th (ft)	315	2	8	0	0
Control Delay (s)	235.1	51.6	9.5	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	235.1	51.6	1.2		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	31.5			
Intersection Capacity Utilization	84.3%	ICU Level of Service		E
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	92	1	143	0	0	1	53	586	0	1	1031	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	96	1	149	0	0	1	55	610	0	1	1074	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1821	1820	1097	1970	1844	610	1121			610		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1821	1820	1097	1970	1844	610	1121			610		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	42	100	100	100	91			100		
cM capacity (veh/h)	55	71	259	18	68	494	623			968		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	246	1	55	610	1122
Volume Left	96	0	55	0	1
Volume Right	149	1	0	0	47
cSH	105	494	623	1700	968
Volume to Capacity	2.34	0.00	0.09	0.36	0.00
Queue Length 95th (ft)	545	0	7	0	0
Control Delay (s)	695.6	12.3	11.3	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	695.6	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	84.4		
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

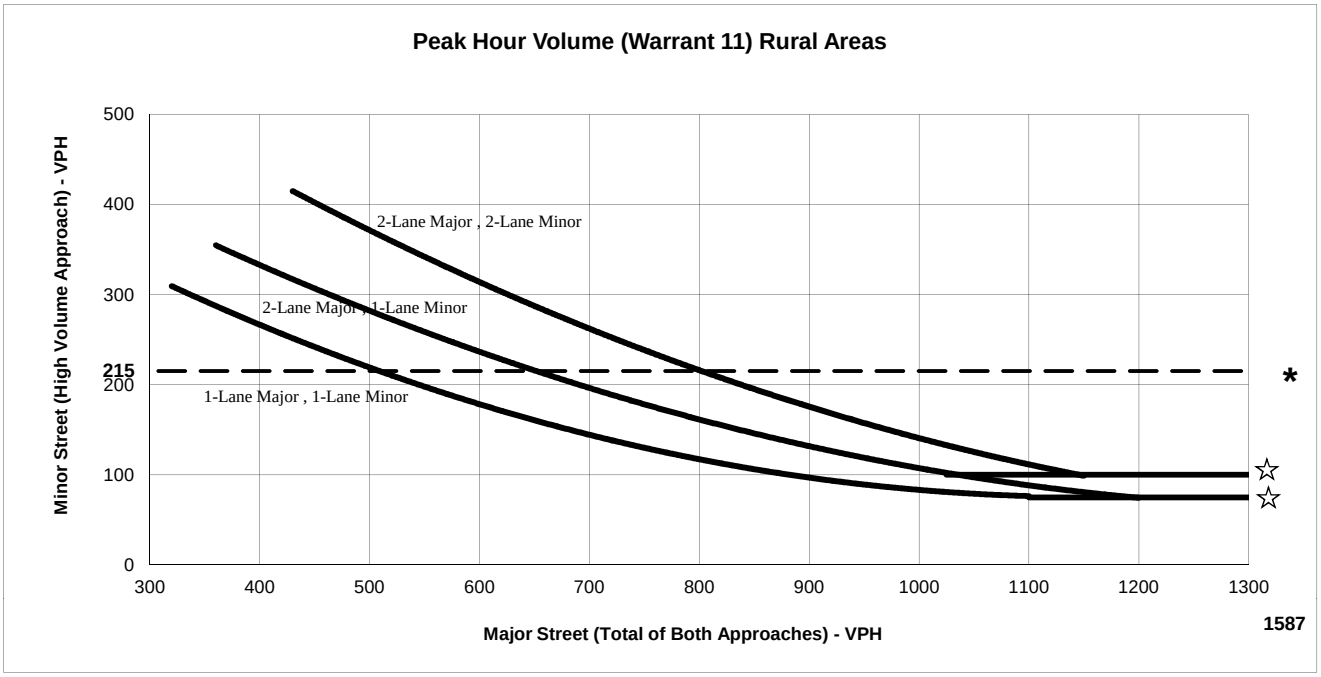
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	1	92	2	0	0	83	607	1	0	656	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	1	97	2	0	0	87	639	1	0	691	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1535	1536	722	1633	1567	639	753			640		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1535	1536	722	1633	1567	639	753			640		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	77	96	100	100	90			100		
cM capacity (veh/h)	87	104	427	57	100	476	857			944		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	208	2	87	640	753
Volume Left	111	2	87	0	0
Volume Right	97	0	0	1	62
cSH	139	57	857	1700	944
Volume to Capacity	1.50	0.04	0.10	0.38	0.00
Queue Length 95th (ft)	355	3	8	0	0
Control Delay (s)	317.3	70.2	9.7	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	317.3	70.2	1.2		0.0
Approach LOS	F	F			

Intersection Summary			
Average Delay	39.7		
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

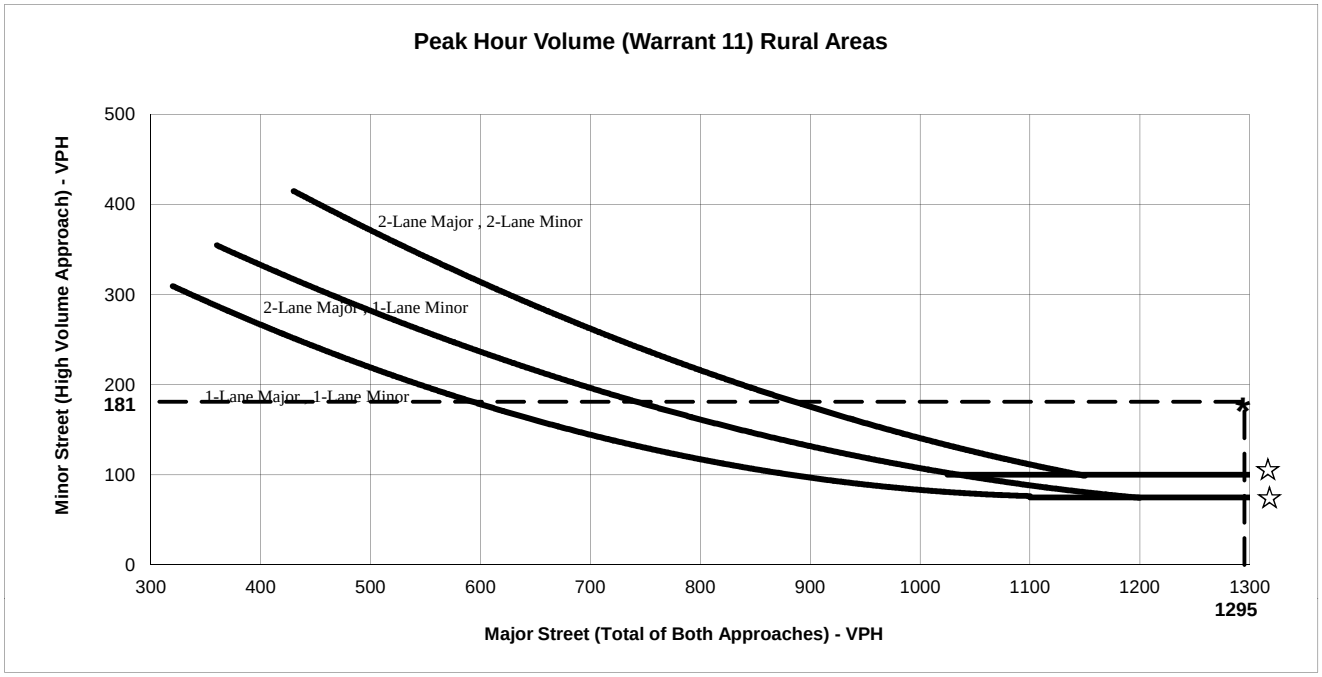


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Weekday Peak Hour Conditions
Minor St. Volume:	215
Major St. Volume:	1587
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

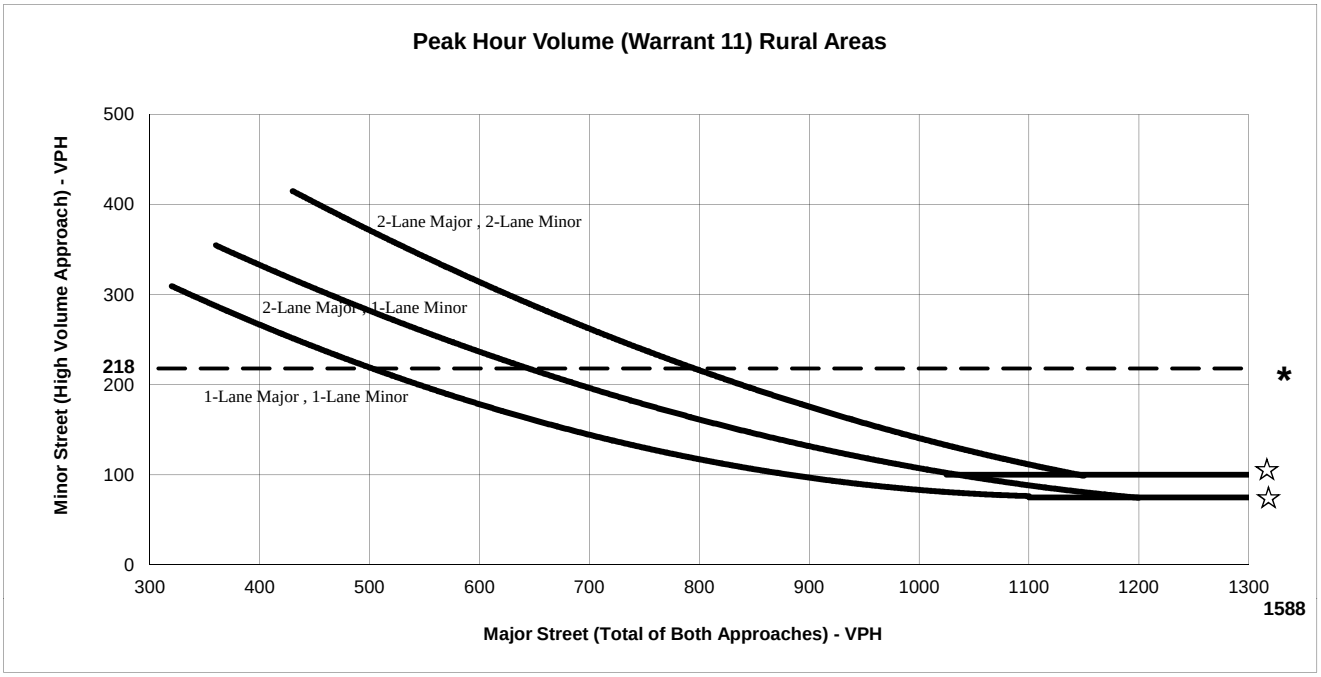


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Saturday Peak Hour Conditions
Minor St. Volume:	181
Major St. Volume:	1295
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

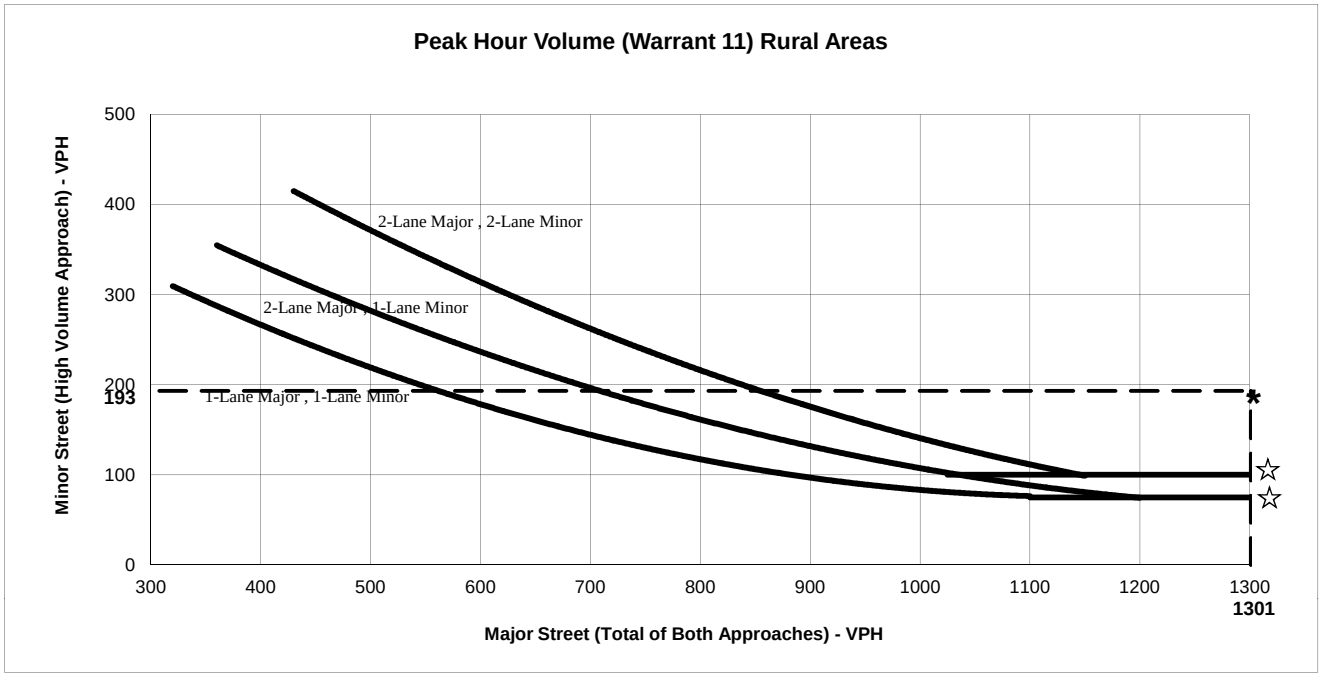


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing With Current Use Permit Weekday Peak Hour Conditions
Minor St. Volume:	218
Major St. Volume:	1588
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

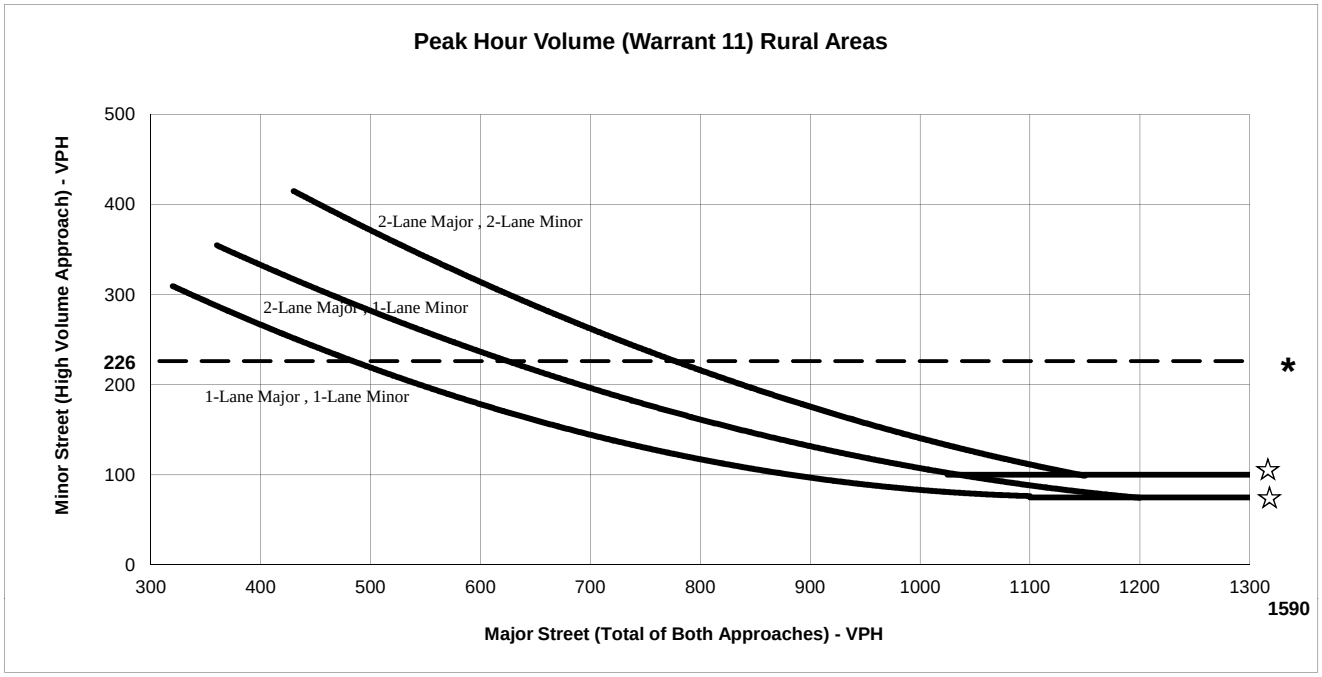


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing With Current Use Permit Saturday Peak Hour Conditions
Minor St. Volume:	193
Major St. Volume:	1301
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

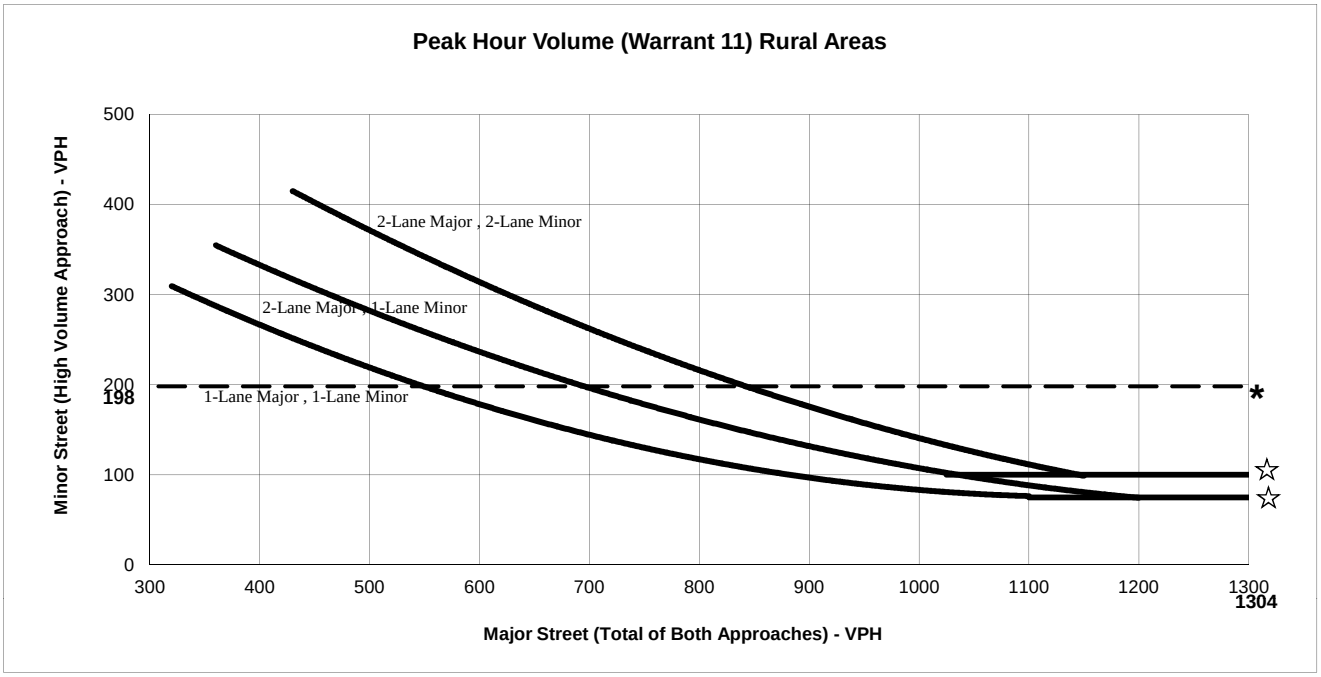


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Plus Project Weekday Peak Hour Conditions
Minor St. Volume:	226
Major St. Volume:	1590
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

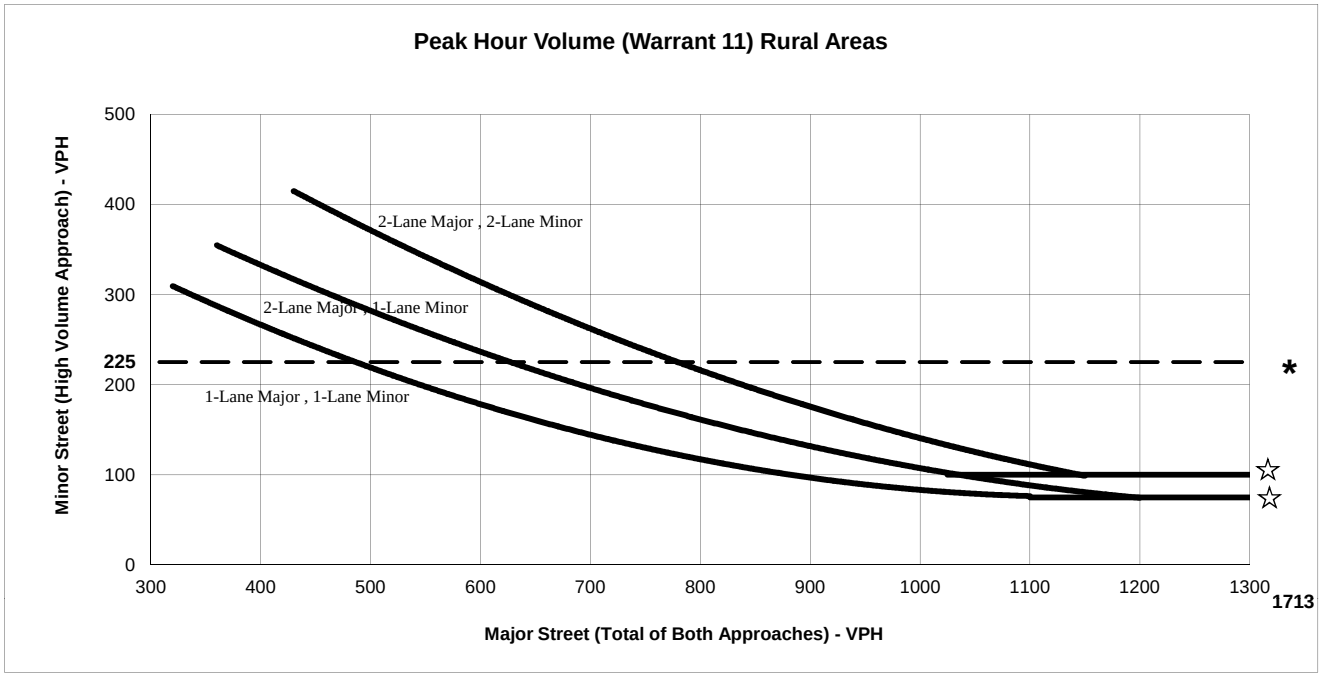


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Plus Project Saturday Peak Hour Conditions
Minor St. Volume:	198
Major St. Volume:	1304
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

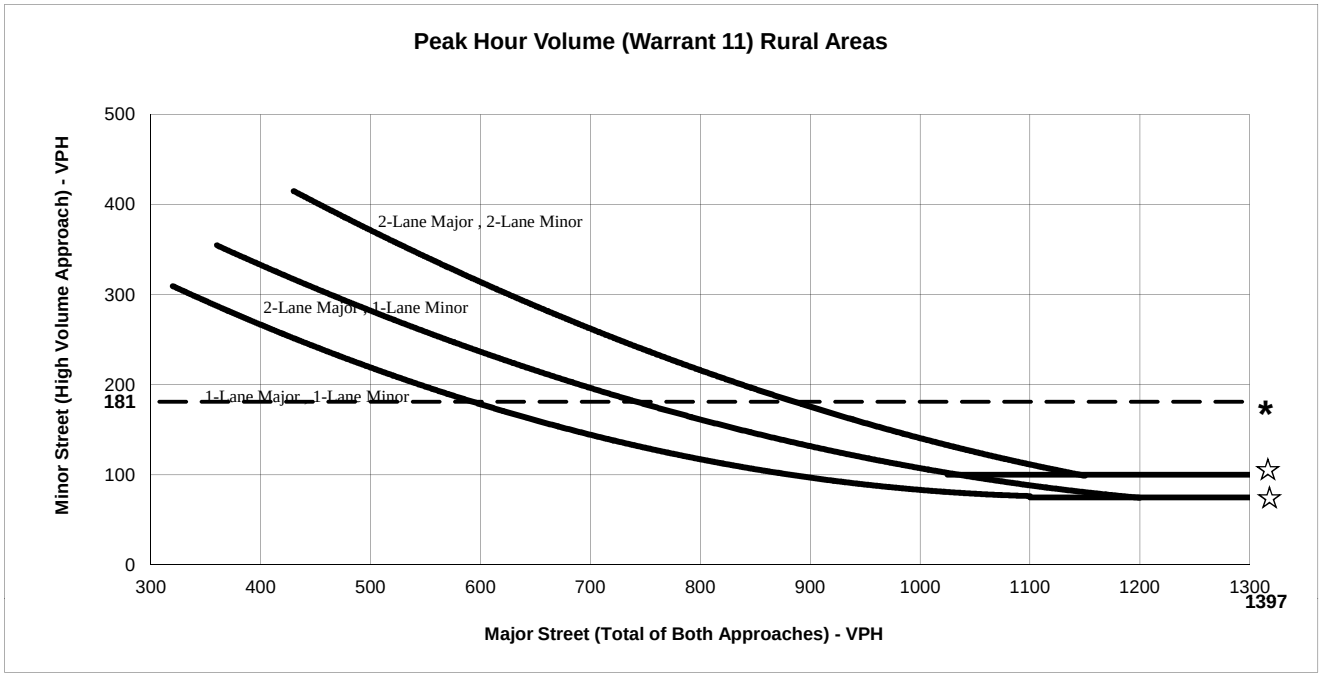


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Weekday Peak Hour Conditions
Minor St. Volume:	225
Major St. Volume:	1713
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

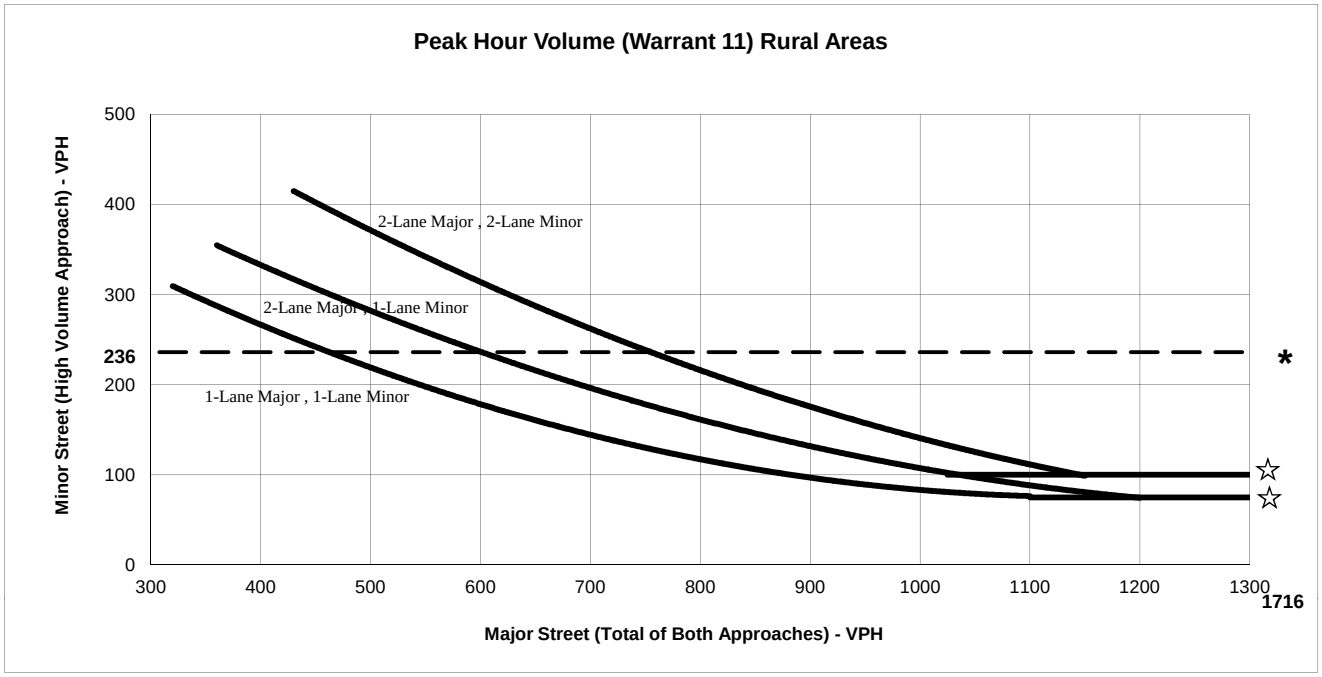


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Saturday Peak Hour Conditions
Minor St. Volume:	181
Major St. Volume:	1397
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

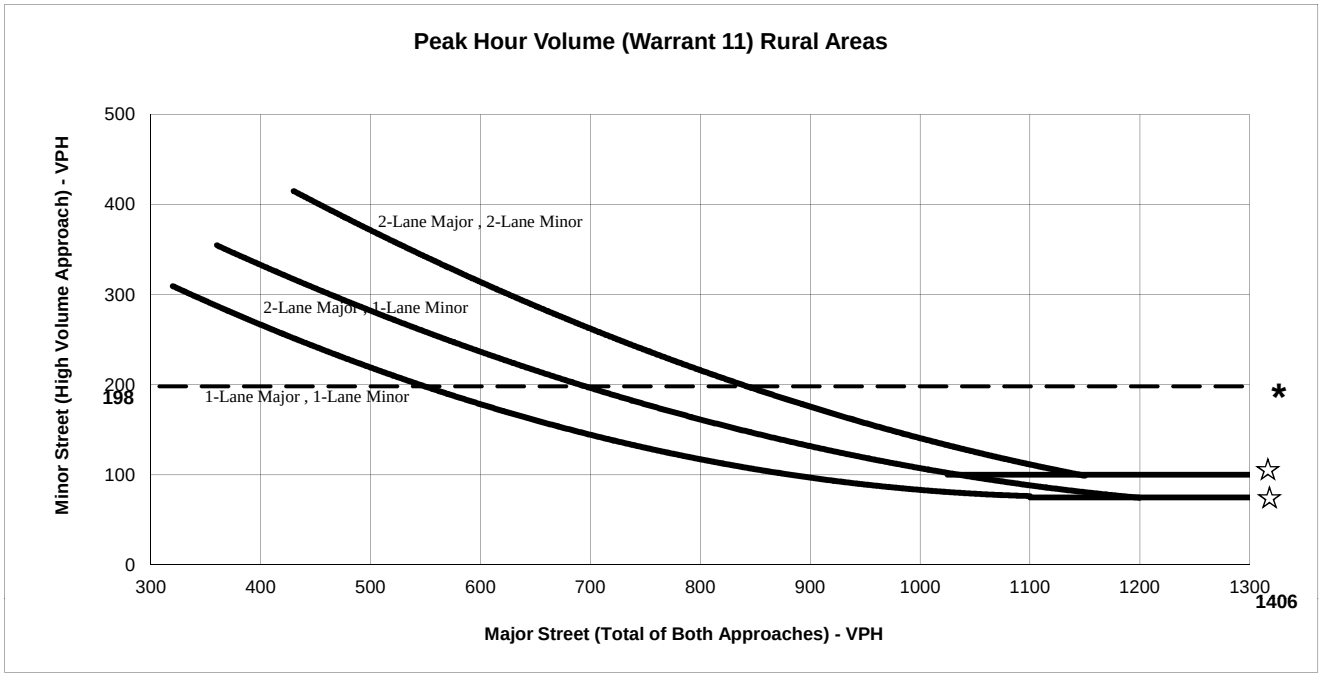


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Plus Project Weekday Peak Hour Conditions
Minor St. Volume:	236
Major St. Volume:	1716
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Plus Project Saturday Peak Hour Conditions
Minor St. Volume:	198
Major St. Volume:	1406
Warrant Met?:	Yes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1562		539	1863			1849	
Volume (vph)	84	1	130	0	0	1	50	578	0	1	916	42
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	88	1	137	0	0	1	53	608	0	1	964	44
RTOR Reduction (vph)	0	104	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	122	0	0	0	0	53	608	0	0	1007	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.8			9.8		38.6	38.6			38.6	
Effective Green, g (s)		9.8			9.8		38.6	38.6			38.6	
Actuated g/C Ratio		0.17			0.17		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		252			271		369	1275			1265	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.08					0.10				c0.54	
v/c Ratio		0.48			0.00		0.14	0.48			0.80	
Uniform Delay, d1		21.0			19.3		3.1	4.2			6.2	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.2	0.3			3.6	
Delay (s)		22.5			19.3		3.3	4.5			9.7	
Level of Service		C			B		A	A			A	
Approach Delay (s)		22.5			19.3			4.4			9.7	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1839	
Flt Permitted		0.83			0.65		0.31	1.00			1.00	
Satd. Flow (perm)		1433			1218		584	1862			1839	
Volume (vph)	97	1	83	2	0	0	76	559	1	0	605	54
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	103	1	88	2	0	0	81	595	1	0	644	57
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	128	0	0	2	0	81	596	0	0	696	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7		31.2	31.2			31.2	
Effective Green, g (s)		8.7			8.7		31.2	31.2			31.2	
Actuated g/C Ratio		0.18			0.18		0.65	0.65			0.65	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		260			221		380	1213			1198	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.09			0.00		0.14					
v/c Ratio		0.49			0.01		0.21	0.49			0.58	
Uniform Delay, d1		17.6			16.1		3.4	4.3			4.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.3	0.3			0.7	
Delay (s)		19.1			16.1		3.7	4.6			5.4	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.1			16.1			4.5			5.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1562		537	1863			1849	
Volume (vph)	85	1	132	0	0	1	50	578	0	1	916	43
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	89	1	139	0	0	1	53	608	0	1	964	45
RTOR Reduction (vph)	0	104	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	125	0	0	0	0	53	608	0	0	1008	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9		38.4	38.4			38.4	
Effective Green, g (s)		9.9			9.9		38.4	38.4			38.4	
Actuated g/C Ratio		0.18			0.18		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		256			275		366	1271			1261	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.09					0.10				c0.54	
v/c Ratio		0.49			0.00		0.14	0.48			0.80	
Uniform Delay, d1		20.9			19.1		3.2	4.2			6.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.2	0.3			3.6	
Delay (s)		22.4			19.1		3.3	4.5			9.9	
Level of Service		C			B		A	A			A	
Approach Delay (s)		22.4			19.1			4.4			9.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1837	
Flt Permitted		0.83			0.64		0.31	1.00			1.00	
Satd. Flow (perm)		1433			1200		570	1862			1837	
Volume (vph)	103	1	89	2	0	0	79	559	1	0	605	57
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	110	1	95	2	0	0	84	595	1	0	644	61
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	142	0	0	2	0	84	596	0	0	700	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.8			8.8		29.7	29.7			29.7	
Effective Green, g (s)		8.8			8.8		29.7	29.7			29.7	
Actuated g/C Ratio		0.19			0.19		0.64	0.64			0.64	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		271			227		364	1189			1173	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.10			0.00		0.15					
v/c Ratio		0.52			0.01		0.23	0.50			0.60	
Uniform Delay, d1		17.0			15.3		3.6	4.5			4.9	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.8			0.0		0.3	0.3			0.8	
Delay (s)		18.8			15.3		3.9	4.8			5.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		18.8			15.3			4.7			5.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1635			1563		1770	1863			1849	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1563		534	1863			1849	
Volume (vph)	88	1	137	0	0	1	51	578	0	1	916	44
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	93	1	144	0	0	1	54	608	0	1	964	46
RTOR Reduction (vph)	0	102	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	136	0	0	0	0	54	608	0	0	1009	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.1			10.1		37.8	37.8			37.8	
Effective Green, g (s)		10.1			10.1		37.8	37.8			37.8	
Actuated g/C Ratio		0.18			0.18		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		263			282		361	1260			1250	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.09					0.10				0.55	
v/c Ratio		0.52			0.00		0.15	0.48			0.81	
Uniform Delay, d1		20.7			18.8		3.3	4.3			6.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.7			0.0		0.2	0.3			3.9	
Delay (s)		22.4			18.8		3.5	4.6			10.4	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.4			18.8			4.5			10.4	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1837	
Flt Permitted		0.83			0.65		0.29	1.00			1.00	
Satd. Flow (perm)		1435			1204		540	1862			1837	
Volume (vph)	105	1	92	2	0	0	81	559	1	0	605	58
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	112	1	98	2	0	0	86	595	1	0	644	62
RTOR Reduction (vph)	0	63	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	148	0	0	2	0	86	596	0	0	701	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.8			9.8		27.8	27.8			27.8	
Effective Green, g (s)		9.8			9.8		27.8	27.8			27.8	
Actuated g/C Ratio		0.21			0.21		0.61	0.61			0.61	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		308			259		329	1135			1120	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.10			0.00		0.16					
v/c Ratio		0.48			0.01		0.26	0.53			0.63	
Uniform Delay, d1		15.7			14.1		4.1	5.1			5.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.2			0.0		0.4	0.4			1.1	
Delay (s)		16.9			14.1		4.6	5.6			6.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		16.9			14.1			5.4			6.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

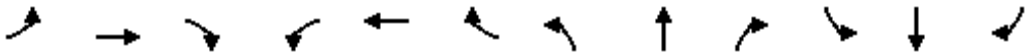
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1851	
Flt Permitted		0.87			1.00		0.26	1.00			1.00	
Satd. Flow (perm)		1452			1562		481	1863			1851	
Volume (vph)	88	1	136	0	0	1	52	586	0	1	1031	43
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	92	1	142	0	0	1	54	610	0	1	1074	45
RTOR Reduction (vph)	0	85	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	150	0	0	0	0	54	610	0	0	1118	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0		45.5	45.5			45.5	
Effective Green, g (s)		11.0			11.0		45.5	45.5			45.5	
Actuated g/C Ratio		0.17			0.17		0.71	0.71			0.71	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		248			266		339	1314			1306	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.10					0.11				0.60	
v/c Ratio		0.61			0.00		0.16	0.46			0.86	
Uniform Delay, d1		24.7			22.2		3.2	4.2			7.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.2			0.0		0.2	0.3			5.7	
Delay (s)		28.9			22.2		3.4	4.4			12.8	
Level of Service		C			C		A	A			B	
Approach Delay (s)		28.9			22.2			4.3			12.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1840	
Flt Permitted		0.83			0.65		0.29	1.00			1.00	
Satd. Flow (perm)		1433			1209		537	1862			1840	
Volume (vph)	97	1	83	2	0	0	78	607	1	0	656	55
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	1	87	2	0	0	82	639	1	0	691	58
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	126	0	0	2	0	82	640	0	0	745	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.8			8.8		32.7	32.7			32.7	
Effective Green, g (s)		8.8			8.8		32.7	32.7			32.7	
Actuated g/C Ratio		0.18			0.18		0.66	0.66			0.66	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		255			215		355	1230			1216	
v/s Ratio Prot								0.34			c0.40	
v/s Ratio Perm		c0.09			0.00		0.15					
v/c Ratio		0.49			0.01		0.23	0.52			0.61	
Uniform Delay, d1		18.3			16.8		3.4	4.3			4.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.3	0.4			0.9	
Delay (s)		19.8			16.8		3.7	4.7			5.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.8			16.8			4.6			5.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.26	1.00			1.00	
Satd. Flow (perm)		1453			1562		477	1863			1850	
Volume (vph)	92	1	143	0	0	1	53	586	0	1	1031	45
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	96	1	149	0	0	1	55	610	0	1	1074	47
RTOR Reduction (vph)	0	78	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	168	0	0	0	0	55	610	0	0	1120	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.5			11.5		46.7	46.7			46.7	
Effective Green, g (s)		11.5			11.5		46.7	46.7			46.7	
Actuated g/C Ratio		0.17			0.17		0.71	0.71			0.71	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		252			271		336	1314			1305	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.12					0.12				0.61	
v/c Ratio		0.67			0.00		0.16	0.46			0.86	
Uniform Delay, d1		25.6			22.6		3.2	4.3			7.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		6.6			0.0		0.2	0.3			5.8	
Delay (s)		32.1			22.6		3.5	4.5			13.1	
Level of Service		C			C		A	A			B	
Approach Delay (s)		32.1			22.6			4.4			13.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1677			1770		1770	1862			1839	
Flt Permitted		0.83			0.64		0.28	1.00			1.00	
Satd. Flow (perm)		1434			1185		519	1862			1839	
Volume (vph)	105	1	92	2	0	0	83	607	1	0	656	59
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	1	97	2	0	0	87	639	1	0	691	62
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	144	0	0	2	0	87	640	0	0	748	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.9			8.9		30.6	30.6			30.6	
Effective Green, g (s)		8.9			8.9		30.6	30.6			30.6	
Actuated g/C Ratio		0.19			0.19		0.64	0.64			0.64	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		269			222		334	1200			1185	
v/s Ratio Prot								0.34			c0.41	
v/s Ratio Perm		c0.10			0.00		0.17					
v/c Ratio		0.54			0.01		0.26	0.53			0.63	
Uniform Delay, d1		17.4			15.7		3.6	4.6			5.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.0			0.0		0.4	0.5			1.1	
Delay (s)		19.5			15.7		4.0	5.0			6.2	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.5			15.7			4.9			6.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group