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November 22, 2013

Mr. David Sinegal
Sinegal Estate Winery
2125 Inglewood Avenue
St. Helena, CA 94574

Subject: ***Focused Traffic Analysis for the Proposed Sinegal Estate Winery - Located at 2125 Inglewood Avenue in St. Helena (Napa County)***

Dear Mr. Sinegal:

This report provides a focused traffic analysis for the use permit modification for the proposed Sinegal Estate Winery project located at 2125 Inglewood Avenue in Napa County (see Figure 1 for Project Vicinity Map). The existing winery on the site (William Jaeger Winery) was approved in 1982 with an annual production capacity of 13,200 gallons. The winery had been operating as the Wolfe Family Winery until being obtained by the Sinegal Estate. This study reflects our discussions with County Planning staff regarding the project analysis approach and other adjacent approved/pending projects in the study area. The analysis will also evaluate the temporary effects of cave spoils as part of overall construction impacts and associated truck trips. Some of the key issues evaluated in this study include the following:

- Existing and future weekday PM and weekend mid-day peak hour operations on Inglewood Avenue at the planned Sinegal Estate Winery Project Driveway and State Route 29 intersections;
- Near-term (Year 2015) traffic conditions reflecting other approved/pending projects in the study area;
- Project trip generation relative to any increases related to proposed winery production, employment, and/or visitors;
- Project site circulation and vehicle access at State Route 29 project driveway on Inglewood Avenue;
- Cumulative year 2030 (no project) conditions along State Route 29 based on the Napa County General Plan Update EIR;
- Temporary construction impacts associated with cave spoils/truck trips.

The following sections outline existing and future traffic conditions with and without the proposed Sinegal Estate Winery project. Where necessary, measures have been recommended to ensure acceptable traffic flow, circulation, and/or fair share contribution to regional cumulative traffic improvements along State Route 29. I trust that this report responds to your needs. Please review this information and call me with any questions or comments.

Sincerely,

Peter J. Galloway

Peter J. Galloway, Transportation Planner
OMNI-MEANS, Ltd. Engineers & Planners

Cc: Mr. Bill Schaeffer, Cello-Maudru
Mr. Mark Phillips, Dickenson, Peatman & Fogarty

Attachments: Appendices
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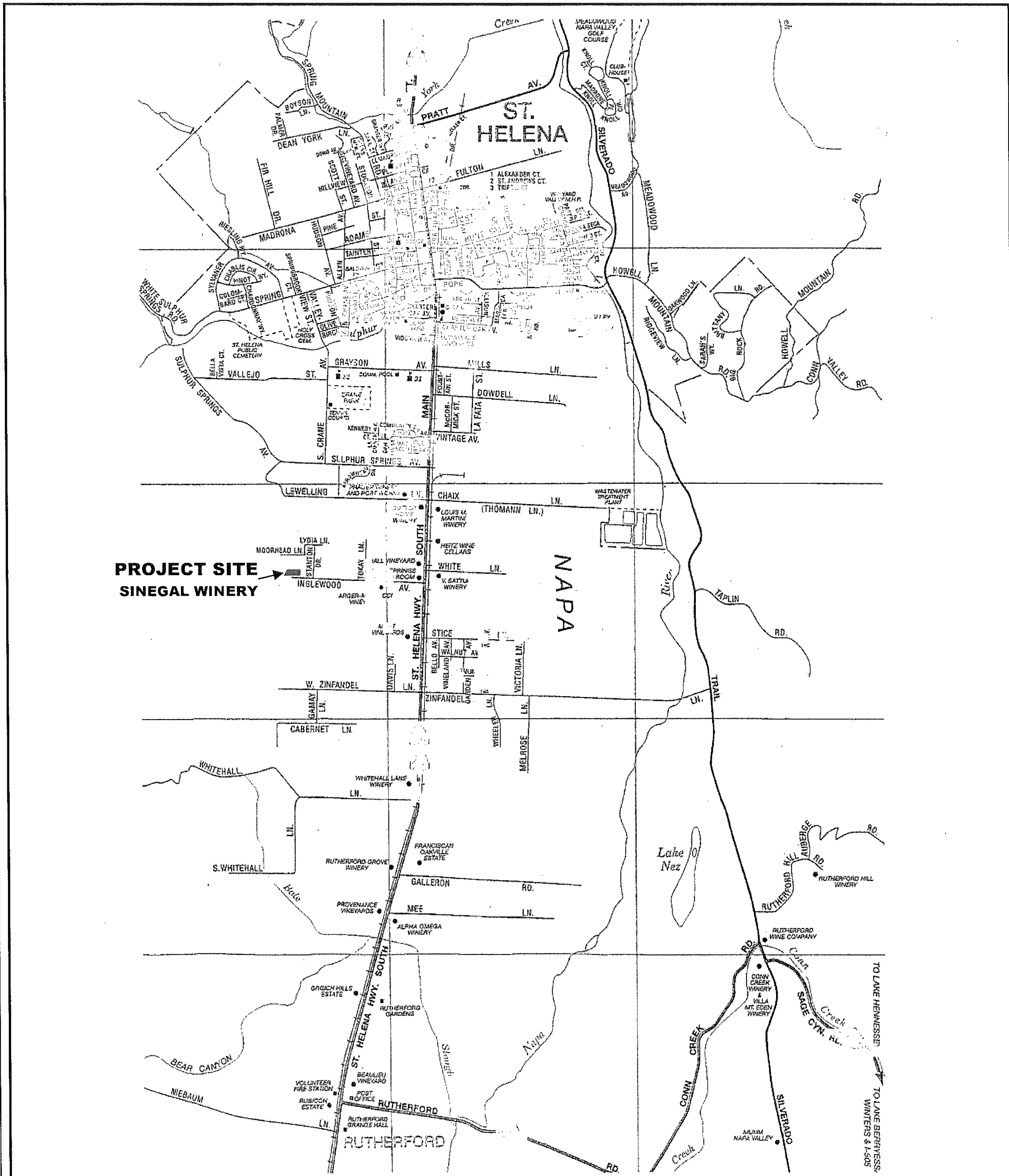

Project Vicinity Map

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figure 1

1. EXISTING TRAFFIC CONDITIONS

Roadways

The proposed Sinegal Estate Winery project site is located at 2125 Inglewood Avenue at the far west end of the roadway. Inglewood Avenue intersects State Route 29 approximately east of the project site. State Route 29 (St. Helena Highway and/or SR-29) the primary north-south facility through the Napa Valley. A brief description of each roadway follows:

State Route 29 extends in a northwest-southeast direction between St. Helena and Rutherford in the project study area. Classified as a two-lane rural arterial roadway, SR-29 provides access northwest to St. Helena, and Calistoga then turns north to Middletown and beyond. To the southeast, the highway provides access to Rutherford, Yountville, Napa, and American Canyon. In the immediate project site area SR-29 functions as a two-lane rural arterial road with two 12-foot travel lanes, a 12-foot two-way-left-turn-lane (TWLTL), and wide 8-10 foot shoulders (striped each side) at its driveway intersection. The speed limit on SR-29 is 45 mph in the project area.

Inglewood Avenue extends west from SR-29 and would provide direct access to the project site. A two-lane local street, Inglewood Avenue provides access to commercial-retail businesses/offices within the first 300 feet of SR-29. In this segment the roadway is approximately 30-34 feet in width. Extending further west the roadway narrows to approximately 24-26 feet and provides access to residential and agricultural areas including the recently approved Sand Point Winery. The roadway ends in a cul-de-sac that provides secondary access to the Flora Springs Winery driveway as well as direct access to the Sinegal Estate Winery about 0.65 of a mile west of SR-29.

Existing Roadway/Intersection Volumes

SR-29 acts as the primary north-south regional route through the Napa Valley and provides direct access to the project site via Inglewood Avenue. Based on the most recent Caltrans daily traffic counts conducted along SR-29 (south of Oakville Grade Road), SR-29 has a current annual average daily traffic volume of 22,300 vehicles.[1] During the peak month, the roadway carries 24,100 ADT. Based on Napa County roadway segment level-of-service (LOS) thresholds, these volumes are approaching the roadway capacity and represent LOS F conditions for a two-lane rural arterial roadway.[2] This would certainly be true of the peak month season (which likely occurs during the summer-fall season), and can result in northbound congestion approaching St. Helena. As the northbound flow approaches the traffic signal at Pope Avenue, vehicle queues can extend all the way back towards the project area. Field observations made during peak weekday/weekend data collection at the Inglewood Avenue/SR-29 intersection indicate relatively stable-flow conditions in both directions during the weekday PM peak hour with moderate vehicle congestion/platoons during the weekend mid-day peak hour.

As a part of this study, intersection turning movement counts were conducted at the Inglewood Avenue/SR-29 intersection during a weekday PM peak commute period (4-6 PM) and the Saturday afternoon peak period (1-3 PM).[3] Proposed winery visitor activity is expected to be highest during a

[1] *Caltrans, 2012 Traffic Volumes Book, State Route 29 average annual daily traffic (AADT) and peak month average daily traffic (ADT).*
[2] *Napa County Baseline Data Report, Table 11-1; Napa County Roadway Segment Daily LOS Volume Thresholds, Transportation and Circulation, November 2005.*
[3] *Omni-Means Engineers & Planners, Weekday PM peak period (4:00-6:00 p.m.) and weekend mid-day peak period (1:00-3:00 p.m.) intersection turning movement counts, SR-29/Project Driveway, July 13 & 17, 2013.*

Saturday afternoon. In addition, vehicle traffic on Inglewood Avenue at the proposed project's driveway was also observed during the same time periods. However, with the proposed project's driveway located at the far west end of Inglewood Avenue, there was little or no east-west through-traffic on the roadway at this location during the same time periods. From these peak period counts, the "peak hour" of traffic flow was derived to calculate existing vehicle delay. These counts indicate a weekday PM peak hour flow of 1,674 vehicles and a Saturday afternoon peak hour flow of 1,636 vehicles on SR-29. The counted peak hour volumes are somewhat lower than the expected typical day peak hour flow based on Caltrans data. To simulate "typical" peak conditions as indicated by Caltrans data, the volumes counted as a part of this analysis were increased by 19.5% These volumes reflect a two-way SR 29 operation that would be categorized as in the Level of Service (LOS) "E" range. Based on Caltrans count data, the peak hour volumes would be about 9% of the daily total or about 2,000 peak hour vehicles on a typical day.

Average daily traffic (ADT) volumes were also collected on Inglewood Avenue to determine its current carrying capacity and operations.[4] ADT counts on Inglewood Avenue were conducted just west of existing commercial business activity adjacent to SR-29 (Gas Station/Office buildings) to gauge actual residential and/or winery traffic related to the roadway's use. The County classifies Inglewood Avenue as a two-lane local street with a carrying capacity of 1,067 ADT (for LOS A operations).[5] Based on collected ADT data, Inglewood Avenue is currently carrying operating at LOS A with709 daily vehicle trips.

It is noted that construction for the undergrounding of utilities is occurring along segments of SR-29 in the project study area. Based on the Caltrans website, this construction work is currently taking place between Mee Lane and Sulphur Springs Road on SR-29 and can require lane closures, flagmen, and cause moderate to severe traffic delays. With the Inglewood Avenue/SR-29 intersection located within the construction zone, overall vehicle flow on SR-29 was not significantly affected by construction activities during recorded count periods.

Existing weekday PM peak hour and weekend mid-day peak hour intersection volumes have been shown in Figure 2.

Project Driveway/Access Operations

Where Inglewood Avenue intersects SR-29 the highway has two travel lanes, paved shoulders, and a standard two-way-left-turn-lane (TWLTL). The TWLTL facilitates left-turn access primarily to commercial and or winery driveways on the east and west side of SR-29 near Inglewood Avenue. The Sinegal Estate Winery planned driveway access would be located on the north side of Inglewood Avenue approximately 275 east of the cul-de-sac (and existing Sinegal Estate residential driveway). The existing residence traffic activity is very low. During this study's peak period counts, no vehicle trips in/out of the driveway occurred during the weekday PM and weekend mid-day peak hour (representing the single family dwelling). However, to provide an existing baseline for analysis, trips that would be generated by a single home residence were calculated and added to Inglewood Avenue at the planned winery driveway.[6]

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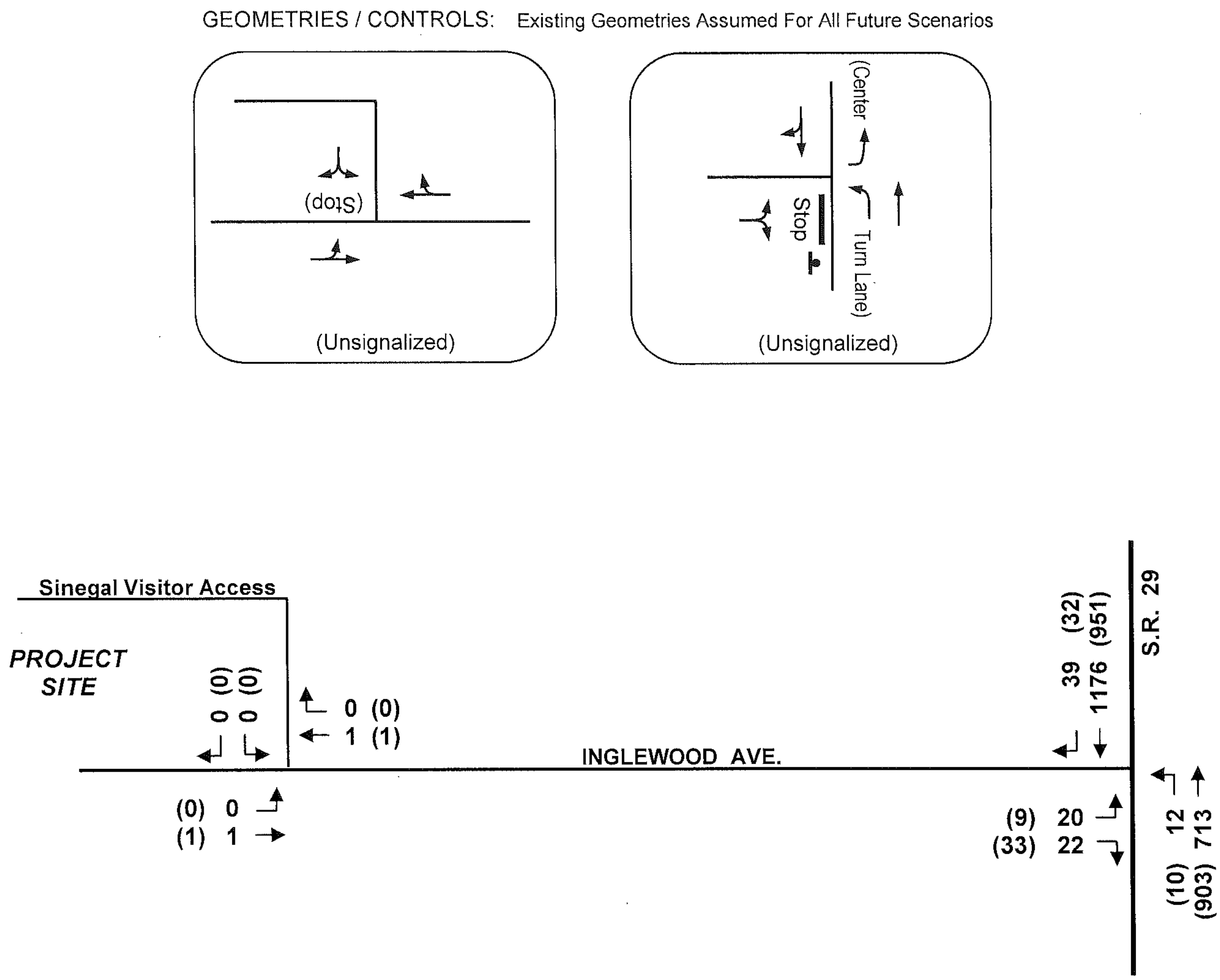
[4] *Baymetrics Traffic Resources. Average daily traffic (ADT) counts on Inglewood Avenue, August 13-14, 2013.*
[5] *Napa County Baseline Data Report, Table 11-1, Napa County Roadway Segment Daily LOS Volume Thresholds, November, 2005.*
[6] *Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition, Resort Hotel (#330), Based on 0.37 trips/room (= 2 peak hour trips) during both weekday PM and weekend mid-day peak hour, 2012.*



NOT TO SCALE

Existing Weekday P.M. and (Weekend Mid-day)
Peak Hour Volumes

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figure 2

Existing Intersection Operation

Intersection operation is one of the primary factors in evaluating the carrying capacity of a roadway network. Traffic conditions are measured by Level of Service (LOS), which applies a letter ranking to successive levels of intersection performance. LOS 'A' represents optimum conditions with free-flow travel and no congestion. LOS 'F' represents severe congestion with long delays at the approaches. For intersections with minor street stop control, the LOS reflects the delays experienced by the minor street approach. (LOS definitions and calculation worksheets are provided in the Appendix).

The project study intersection at SR-29 is an unsignalized, minor-street stop-sign controlled intersection. Based on the Highway Capacity Manual (*HCM 2010*) operations methodology for unsignalized intersections, existing weekday PM peak and weekend mid-day peak hour existing (no project) level-of-service has been shown in Table 1. As calculated, during the weekday PM peak hour the Inglewood SR-29 intersection is operating at LOS D (25.6 seconds of delay). During the weekend (Saturday) mid-day peak hour, the same outbound turning movements are operating at LOS C (20.4 seconds of delay).

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria, the Inglewood Avenue/SR-29 intersection was evaluated for signalization.[7] The peak hour warrants are one of several standards to help determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour warrants does not necessarily mean a signal should be installed. The Inglewood Avenue/SR-29 intersection does not qualify for signalization under the peak hour warrants using existing volumes (the warrant graphs are provided in the Appendix).

TABLE 1
EXISTING AND NEAR-TERM (NO PROJECT) CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
WEEKDAY PM PEAK AND WEEKEND MID-DAY PEAK HOUR

#	Intersection	Control Type	Wkdy. PM LOS/Delay Existing (No Project)	Wkdy. PM LOS/Delay Near-Term (No Project)	Wknd. Mid-Day LOS/Delay Existing (No Project)	Wknd. Mid-Day LOS/Delay Near-Term (No Project)
1	Inglewood Ave./SR-29	Stop	D 25.6 secs.	D 31.6 secs.	C 20.4 secs.	C 24.1 secs.
2.	Sinegal Driveway/Inglewood Ave.	Stop	A <5.0 secs.	A <5.0 secs.	A <5.0 secs.	A <5.0 secs.

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. Stated LOS refers to the minor street (stop-sign) controlled movement.

Vehicle Speeds/Sight Distance

The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on Inglenook Avenue and vehicles turning in/out of the winery driveway access. The required vehicle visibility or "corner sight distance" is a function of the travel speeds on Inglewood Avenue. Caltrans design standards indicate that for appropriate corner sight distance, "a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the cross road and the driver of an approaching vehicle in the right lane of the main highway." [8] Based on radar surveys conducted as a part of this study, the "critical" vehicle speeds (85% of all surveyed vehicles travel at or below the critical speed) along Inglewood Avenue at the proposed project driveway were observed to be approximately 25 miles per hour (mph) or less during the weekday PM peak period and the Saturday afternoon peak period. Based on Caltrans design standards, these

[7] *California Manual on Uniform Traffic Control Devices (CAMUTCD), Chapter 4C, Peak hour signal warrant (#3), 2012.*
[8] *Caltrans, Highway Design Manual, Sixth Edition, July 1, 20009.*

vehicle speeds require a sight distance of about 150 feet, measured along the travel lanes on Inglewood Avenue. [9]

The proposed Sinegal Estate winery project driveway intersection is located on a straight section of Inglewood Avenue. Field observations indicate vehicle sight distances to the east and west are in excess of the 150 feet needed for the measured vehicle speeds.

2. NEAR-TERM (NO PROJECT) CONDITIONS

Near-Term (Approved/Pending Projects)

Near-term (no project) conditions represent a reasonable period of time in which the proposed and/or pending project could be approved and/or constructed. Based on discussions with County staff, a two-year period to the year 2015 has been established for near-term (no project) conditions representing all approved/pending projects within the study area. In addition, recent approved/pending projects within the Town of Yountville are included in the overall project list. To generate near-term (no project) conditions, approved and pending projects provided by both Napa County, City of St. Helena, and Town of Yountville Planning staff for other recent traffic analyses in the area have been used.[10] [11] To the best of our knowledge, these approved/pending projects are either new wineries or existing wineries applying for use permit modifications to increase production, employees, visitors, and/or marketing events. These projects are located both north and south of the project site off of State Route 29, in the City of St. Helena, or east of the project site off northern crossroad(s) that connect SR-29 with Silverado Trail and are described as follows:

<u>Town of Yountville</u>	
Stewart Mixed-Use 6572 Washington St. Yountville, CA 94599	Wine Tasting Rm.: 2,350 square feet Bookstore: 1,420 square feet Café: 690 square feet Apartment: One Bedroom
<u>City of St. Helena:</u>	
Crocker & Starr Winery 700 Dowdell Lane St. Helena, CA 94574	Production: 25,000 gallons per year Visitors: 16 visitors/day Employees: 7 full-time, 3 part-time
Hunter Subdivision North Adams Street St. Helena, CA	76 Single-Family Dwelling Units 11 Multi-Family Dwelling Units
<u>Napa County:</u>	
Raymond Winery 849 Zinfandel Lane St. Helena, CA 94575	Production: 1,500,000 gallons per year Visitors: 500 visitors/day Employees: 90 full-time

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[9] *Omni-Means Engineers & Planners, Field observations on Inglewood Avenue 275 feet east of cul-de-sac (proposed project driveway), July 13 & 17, 2013.*
10 Mr. Greg Desmond, Interim Planning Director, City of St. Helena, Personal communication; Crocker & Starr Winery project, April 12, 2013.
[11] *Ms. Linda St. Clair, Planner III, Planning, Building, and Environmental Services Department, Personal communication, Yountville Hill Winery Use Permit Modification (dated 6-6-12), April 15, 2013.*

Kelham Winery 360 Zinfandel Lane St. Helena, CA 94575	Production: 75,000 gallons per year Visitors: 140 visitors/week Employees: 6 full-time
The Ranch Winery 105 Zinfandel Lane St. Helena, CA 94575	Production: 12,500,000 gallons per year Visitors: 15 visitors/week Employees: 85 full-time
Del Dotto Family Winery 1455 St. Helena Hwy. St. Helena, CA 94575	Production: 48,000 gallons per year Visitors: 15 visitors/week Employees: 5 full-time
Whitehall Lane Winery 1563 St. Helena Hwy. St. Helena, CA 94575	Production: 50,000 gallons Visitors: 500 visitors/week Employees: 5 full-time
The Sullivan Family Estate 1090 Galleron Road St. Helena, CA 04575	Production: 22,500 gallons per year Visitors: 7 visitors/week Employees: 4 full-time
Franciscan Winery 1178 Galleron Road St. Helena, CA 94575	Production: 1,200,000 gallons per year Visitors: 3,500 visitors/week Employees: 65 full-time
Flynnville Winery 1184 Maple Lane Calistoga, CA 94515	Production: 300,000 gallons per year Visitors: 500 visitors/day Employees: 30 full-time
Martini Winery 254 St. Helena Hwy. St. Helena, CA 94575	Production: 2,000,000 gallons per year Visitors: 1,400 visitors (+296 trade visitors)/week Employees: 54 full-time
Yountville Hill Winery 7400 St. Helena Hwy. Oakville, CA 94562	Production: 100,000 gallons per year Visitors: 285 visitors/day Employees: 19 full-time
Sandpoint Winery 1919 Inglewood Ave. St. Helena, CA 94574	Production: 30,000 gallons per year Visitors: 42 visitors/week Employees: 3 full-time

Near-Term (No Project) Trip Generation

Near-term (approved/pending) projects' weekday PM hour, weekend mid-day peak hour, and daily traffic volumes have been taken directly from previous transportation analyses performed for those projects and these include the following:

- *Omni-Means Engineers & Planners, Updated Traffic Study for the Proposed Raymond Winery Use Permit Application (#P11-00156), Napa County, Draft Report, April 5, 2013;*
- *Omni-Means Engineers & Planners, Focused Trip Generation Analysis for the Proposed Crocker & Starr Winery Project at 700 Dowdell Lane (APN 009-120-059), City of St. Helena, Draft Report, April 12, 2013;*

- *Omni-Means Engineers & Planners, Focused Traffic Analysis for the Proposed Flynnville Winery Project, Located at State Route 29/Maple Lane in Napa County, January 15, 2013:*
- *Omni-Means Engineers & Planners, Updated Focused Traffic Analysis for the Proposed Louis M. Martini Winery Master Plan—Located at 254 St. Helena Highway (SR-29) in St. Helena (Napa County), May 16, 2013.*
- *Urban Planning Partners, Inc., Hunter Residential Subdivision Project Draft EIR, City of St. Helena, May 29, 2012.*

For all approved/pending winery projects, daily and peak hour trip generation was calculated using employee peaking factors, auto occupancy rates for visitors, and production ratios based on recent winery research conducted by the Napa County Conservation, Development, and Planning Department. For approved development in the Town of Yountville, peak hour trip generation was based on the Institute of Transportation Engineers (ITE) trip research for specialty retail and residential uses.[12] For pending residential development in the City of St. Helena, volume projections were taken directly from the traffic section prepared for the DEIR. Near-term projects would generate 238 weekday PM peak hour trips and 241 mid-day weekend peak hour trips on SR-29 at Inglewood Avenue. On a daily basis, near-term projects would generate 1,066 ADT and 1,071 ADT on a weekday and weekend, respectively.

Near-term (no project) daily and peak hour volumes for the weekday and weekend have been added to existing intersection volumes on State Route 29 based on previous transportation analyses conducted in the area. Near-term (no project) volumes for weekday PM peak hour and weekend mid-day peak hour have been shown in Figure 3.

Near-Term (No Project) Intersection/Roadway Operation

With near-term (no project) volumes, study intersection LOS has been calculated and is shown in Table 1. During the weekday PM peak hour, the Inglewood Avenue/SR-29 intersection would be operating at LOS D (31.6 seconds). LOS operation during the mid-day weekend peak would be at LOS C (24.1 seconds). Near-term (no project) intersection LOS would represent minor increases in vehicle delay for outbound traffic from the Inglewood Avenue of 4-5 seconds (all referenced intersection LOS refers to the stop-sign controlled outbound [eastbound] turning movements from Inglewood Avenue.

Based on CAMUTCD peak hour signal warrant criteria (Warrant #3), the Inglewood Avenue/SR-29 intersection would not qualify for signalization with near-term (no project) volumes.

AADT volumes on SR-29 would increase from 22,300 to 22,563 vehicle under near-term (no project) conditions. Based on Napa County roadway thresholds, this would continue to represent LOS F conditions as under existing conditions. ADT volumes on Inglewood Avenue would increase from 709 vehicles to 734 vehicles and the roadway would continue to operate at LOS A.

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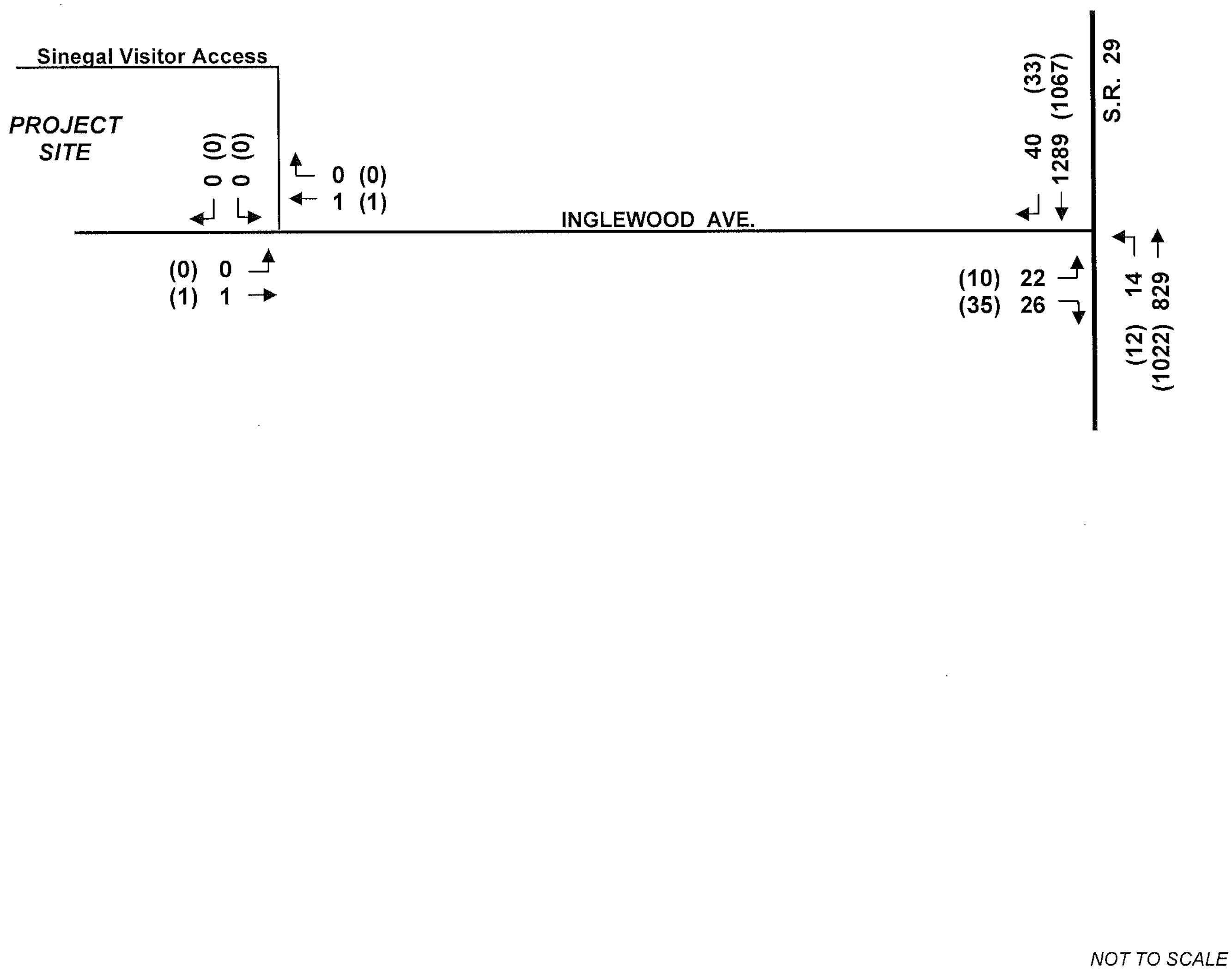
[12] *Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition, Specialty Retail (#826) and Apartment (#210) uses, 2012.*



Near Term Approved/Pending Development
Weekday P.M. and (Weekend Mid-day) Peak Hour Volumes

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figure 3

3. Napa County Significance Criteria

The County of Napa's significance criteria has been based on a review of the Napa County Transportation and 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 intersection operation:

Intersections

- The County shall seek to maintain a Level of Service D or better at all 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;

4. Proposed Project Impacts

Project Components

The proposed Sinegal Estate winery project would consist of modifications to wine production, employment, visitation tours/tasting, and small marketing events throughout the year. The project applicant's use permit plan indicates there would be a maximum of six full-time employees. (However, their marketing plan would include three full-time employees as part of the initial winery operation). In addition, there would be temporary construction impacts due to existing cave modifications from the removal of cave spoils (truck trips). Proposed project components can be described as follows: [13]

• Production	Annual:	60,000 gallons
• Employees:	Weekday:	6 full-time
	Weekend:	3 full-time
• Visitors:	Weekday:	14 visitors
	Weekend:	21 visitors

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[13] *Project Statement; Sinegal Estate, 2125 Inglewood Avenue, St Helena, Ca, Modification of Use Permit, 2013.*

- Trucks: Weekday: 2 trucks per day
  Weekend: 2 trucks per day

Daily operations for the proposed Sinegal Estate Winery project would involve an all on-site winery operation with a maximum annual production of 60,000 gallons (24,300 cases). All fruit (60,000 gallons of production) would be processed on-site during the year with the majority occurring during the harvest/crush season. Visitors (by appointment only) are expected; an average of 14 daily visitors on a typical weekday and 21 daily visitors on a Saturday. Marketing plans indicate there would no more than 60 visitors per week with a maximum of 21 daily visitors. Visitor hours would be limited between 10:00 a.m. – 6:00 p.m. Employment is expected to be six full-time employees (6 weekday and 3 weekend). Winery operations for staff would occur between 8:00 a.m. – 5:00 p.m.

The proposed project's marketing plan can be described as follows:

<u>Winery Marketing Plan</u>

- Daily visitation by prior appointment will be limited to an average of 60 guests per week with a maximum of 21 on the busiest day;
- 48 small events per year with no more than 10 guests;
- six events per year with no more than 30 guests;
- two events per year with no more than 60 guests and participation in the Auction Napa Valley.

Special event activity would be scheduled to minimize the arrival of guests between the weekday PM peak period (4:00-6:00 p.m.) and all event activity would be concluded by 10:00 p.m.

Project Trip Generation/Distribution

The proposed project's weekday and weekend peak hour and daily traffic volumes have been calculated and are shown in Table 3. Overall trip generation calculations have been based on employee peaking factors and auto occupancy rates for event visitors based on recent winery research conducted by the Napa County Conservation, Development, and Planning Department and existing driveway volumes.[14] Based on production, employment, and visitor activity, the project would be expected to generate 30 daily weekday trips with 11 PM peak hour trips (4 in, 7 out). During a typical weekend, the project would be expected to generate 24 daily trips with 7 mid-day peak hour trips (4 in, 3 out).

During the six-week harvest crush season, the proposed project is expected to generate an average of 35 daily trips. This daily trip total would represent 21 visitors, 3 full-time and 3 part-time employees on-site during weekend periods, 60,000 gallons of wine production, and 300 tons of grapes (on-haul). Based on the largest marketing event attendance of 60 persons (twice per year), there would total generation of 63event trips.

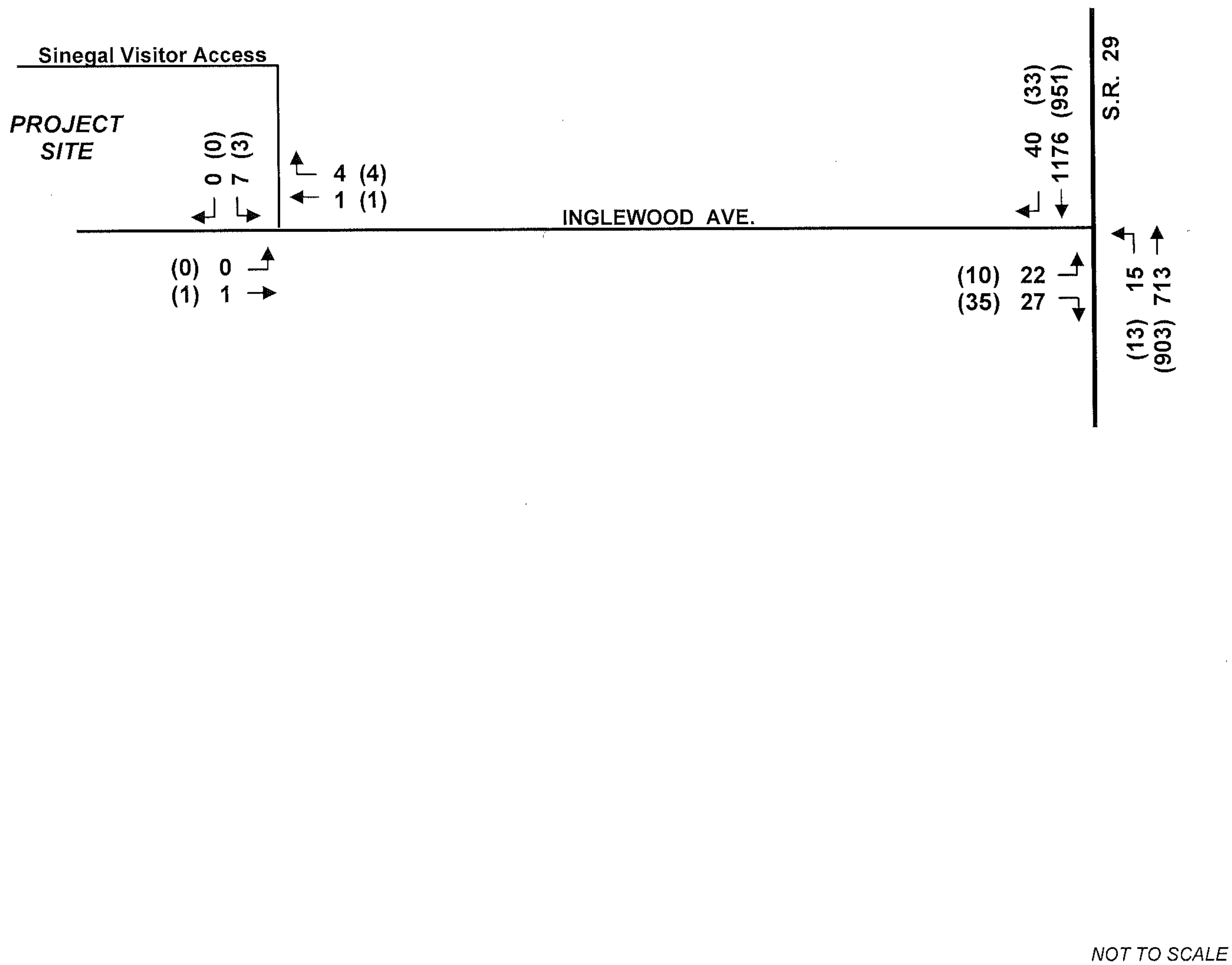
To determine traffic conditions with the proposed project, the calculated project trips were added to existing volumes. Based on observed turning percentages, the project trips were distributed 25% to/from the north and 75% to/from the south on State Route 29. Existing plus project and near-term plus project volumes have been shown in Figure 4 and 5.

[14]*County of Napa, Conservation, Development, and Planning Department, "Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2012.*

TABLE 3
PEAK HOUR AND DAILY TRIP GENERATION:
PROPOSED SINEGAL ESTATE WINERY PROJECT

Weekday Daily Traffic:		
14 visitors/2.6 persons per vehicle x 2 one-way trips	=	11 daily trips
6 full time employees x 3.05 one-way trips	=	18 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
60,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	1 daily trips
Total Weekday Daily Trips	**=**	**30 daily trips**
Weekday PM Peak Hour Traffic:		
(11 daily visitor trips + 1 daily truck trips) x 0.38 peak	=	5 peak hour trips
6 full time employees x 1 trip/employee	=	6 peak hour trips
0 part-time employees/2	=	0 peak hour trips
Total Weekday PM Peak Hour Trips	**=**	**11 trips (4 in, 7 out)**
Weekend (Saturday) Daily Traffic:		
21 visitors/2.8 persons per vehicle x 2 one-way trips	=	15 daily trips
3 full time employees x 3.05 one-way trips	=	9 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
Total Weekend (Saturday) Daily Trips	**=**	**24 daily trips**
Weekend (Saturday) Peak Hour Traffic:		
15 daily visitor trips x 0.25 peak	=	4 peak hour trips
3 full time employees x 1 trip/employee	=	3 peak hour trips
0 part-time employees/2	=	0 peak hour trips
Total Weekend (Saturday) Peak Hour Trips	**=**	**7 trips (4 in, 3 out)**
Weekend (Saturday) Daily Harvest/Crush Traffic:		
21 visitors/2.8 persons per vehicle x 2 one-way trips	=	15 daily trips
3 full time employees x 3.05 one-way trips	=	9 daily trips
3 part-time employees x 1.90 one-way trips	=	6 daily trips
60,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	1 daily trips
300 annual ton grapes (on-haul)/144 trucks/day x 2 o-w trips	=	4 daily trips
Total Weekend (Saturday) Daily Harvest/Crush Trips	**=**	**35 daily trips**
Largest Marketing Event – Additional Traffic		
6 event staff x 2 one-way trips per person	=	12 event trips
60 visitors / 2.8 visitors per vehicle x 2 o-w trips	=	43 event trips
4 trucks x 2 one-way trips	=	8 event trips
Total Largest Event Marketing Trips:	**=**	**63 event trips**

Source: Production, employee, and visitor data provided by Mr. Eric Sklar (project applicant) and Mr. Lester Hardy (Attorney), project representative, August, 2013. Daily and peak hour calculations based on County of Napa, Conservation, Development, and Planning Department, "Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2012.



Existing + Project Weekday P.M. and (Weekend Mid-day)
Peak Hour Volumes

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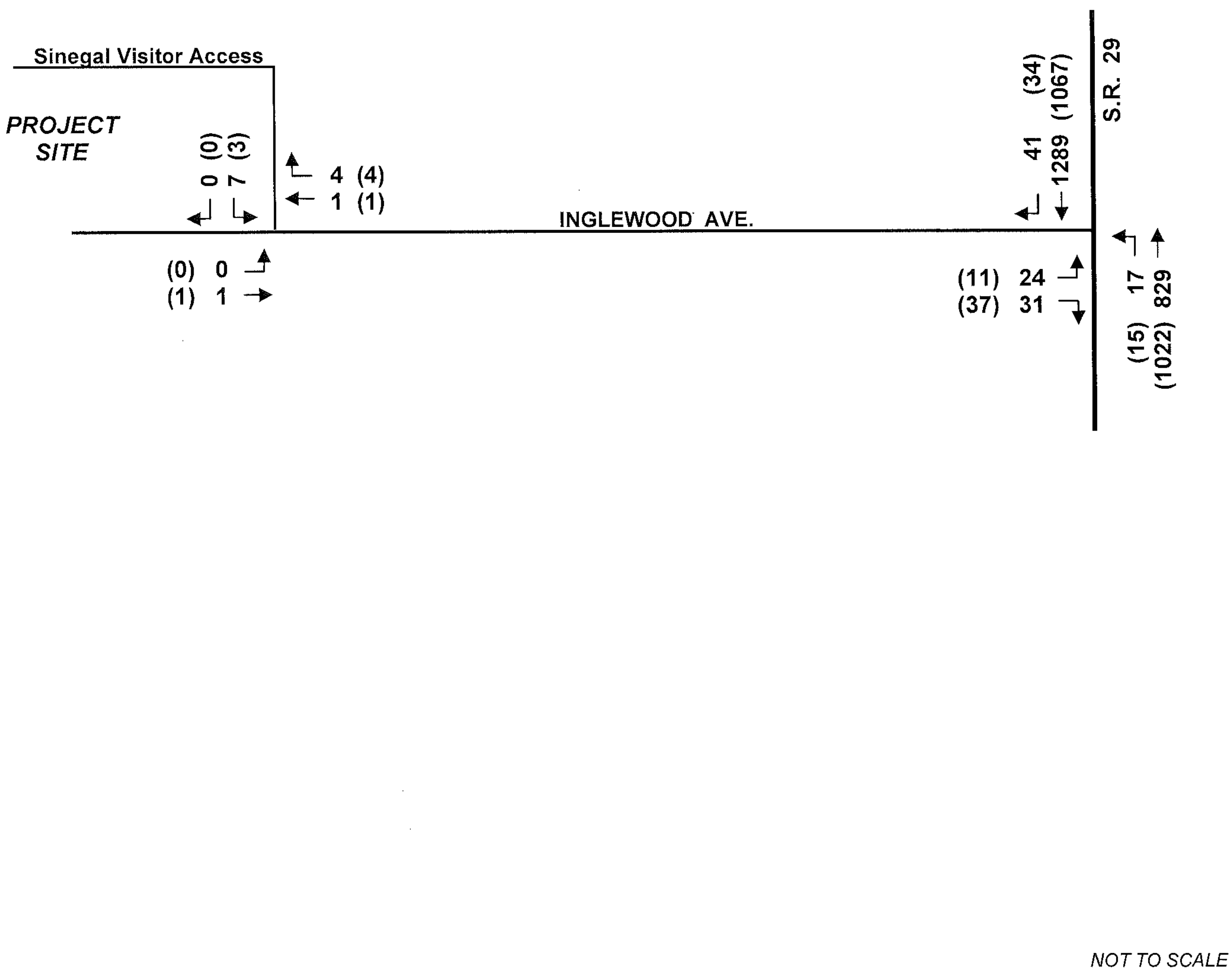
figure 4



Near Term + Project Weekday P.M. and (Weekend Mid-day) Peak Hour Volumes

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figure 5

Project Effects on Roadway/Intersection Operation

A. Existing Plus Project Conditions

The project would be expected to add approximately 23 daily trips south of the site and 7 daily trips north of the site on State Route 29. This would represent an addition of less than 1 percent (0.001) to the daily volumes on the highway. The combined existing plus project volume of 22,330 daily trips would remain at LOS F operating conditions for a two-lane rural arterial roadway based on established County thresholds. Inglewood Avenue would notice an increase of 30 daily trips from proposed project activity and would continue to operate at LOS A conditions with 739 ADT.

During the peak winery activity periods, the project would generate 11weekday PM peak hour and seven (7) Saturday mid-day peak hour trips. Weekday PM peak hour and weekend mid-day peak hour intersection levels of service were evaluated with proposed project traffic and are shown in Table 4.

With existing plus project traffic volumes, the two project study intersections would continue to operate at acceptable levels (LOS D or better) during both the weekday PM peak hour and weekend mid-day peak hour periods. At shown in Table 4, intersection LOS would remain unchanged from existing conditions with proportional increases in overall vehicle delay.

B. Near-Term Plus Project Conditions

With near-term plus project conditions, daily traffic volumes on State Route 29 would increase to 22,593 ADT. Again, this would represent LOS F conditions for a two-lane, rural arterial roadway based on County thresholds. However, the existing continuous two-way-left-turn-lane on SR-29 improves overall vehicle delay and adds some additional capacity to the roadway. ADT on Inglewood Avenue would increase from 734 to 764 vehicles with proposed project traffic. This would be well within the LOS A carrying capacity of 1,067 ADT based on County thresholds.

Both driveway study intersections would operate at acceptable levels (LOS C or better) during both the weekday PM peak hour and weekend mid-day peak hour under near-term with project conditions.

TABLE 4
EXISTING PLUS PROJECT AND NEAR-TERM PLUS PROJECT CONDITIONS:
INTERSECTION LEVELS-OF-SERVICE
WEEKDAY PM PEAK AND WEEKEND MID-DAY PEAK HOUR

#	Intersection	Control Type	Wkdy. PM LOS/Delay		Wknd. Mid-Day LOS/Delay	
			Existing + Project	Near-Term + Project	Existing + Project	Near-Term + Project
1	Inglewood Ave./SR-29	Stop	D 26.8 secs.	D 33.4 secs.	C 20.6 secs.	C 24.5 secs.
2	Sinegal Driveway/Inglewood Ave.	Stop	A 8.6 secs.	A 8.6 secs.	A 8.5 secs.	A 8.5 secs.

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. Stated LOS refers to the minor street (stop-sign) controlled movement.

5. SITE ACCESS/DESIGN PARAMETERS

Sight Distance

As noted in the discussion of existing conditions, vehicle sight distances to the east and the west of the proposed project driveway are well in excess of the minimum sight distances needed for the vehicle speeds of 25 mph or less. Based on field observations conducted in the vicinity of the Sinegal Estate Winery driveway, vehicle speeds at the proposed driveway observed to be 25 miles per hour or less (mph).[15] It is noted that only two (2) vehicles were observed on Inglewood Avenue at the proposed driveway entrance due to the location being so close to the end of the roadway. Based on Caltrans design standards, these vehicle speeds require a stopping sight distance of 150 feet, measured along the travel lanes on Inglewood Avenue.[16]

The Sinegal Estate winery access driveway intersection is located on a straight section of Inglewood Avenue approximately 275 feet east from the end of the roadway. Field observations indicate sight distances to the east and west are in excess of the 150 feet needed for the observed vehicle speeds.

Project Access and Circulation

Based on the Sinegal Estate Winery site plan, the winery driveway (improved) would be located off Inglewood Avenue approximately 275 feet east of its terminus. The driveway would extend northwest from Inglewood Avenue for approximately 475 feet before extending west 800 feet to parking and winery facilities located mid-parcel (see Figures 6 and 7--Project Site Plans). Essentially, the project driveway would extend around the eastern and northern borders of the Estate's existing vineyard(s) to the winery buildings and new parking area. The project driveway would have a minimum width of 18-feet to provide for two-way travel and comply with County standards. The new parking area would consist of eight (8) perpendicular parking spaces plus one (1) ADA parking space. There would be a vehicle turnaround area created in front of the existing winery building for visitors to exit out the same driveway access. This turnaround area would also accommodate Napa County standards for emergency/fire trucks.

The proposed project driveway would not require a right-turn lane or taper based on Caltrans design guidelines. However, vehicle turning radius at the proposed project driveway should be large enough to accommodate large vehicle and truck turning movements to/from the east on Inglewood Avenue (the project applicant's civil engineer would confirm this design feature).

The Napa County Transportation & Planning Agency (NCTPA) in cooperation with Napa County and local City agencies is developing bicycle routes as outlined in the Napa Countywide Bicycle Plan.[17] The plan encourages new developments to incorporate bicycle friendly design. State Route 29 has wide striped shoulder areas (unofficial Class II bike lanes) in both directions. Some visitors may utilize bicycles to access the proposed project. The project would provide bicycle racks for visitors to the proposed winery.

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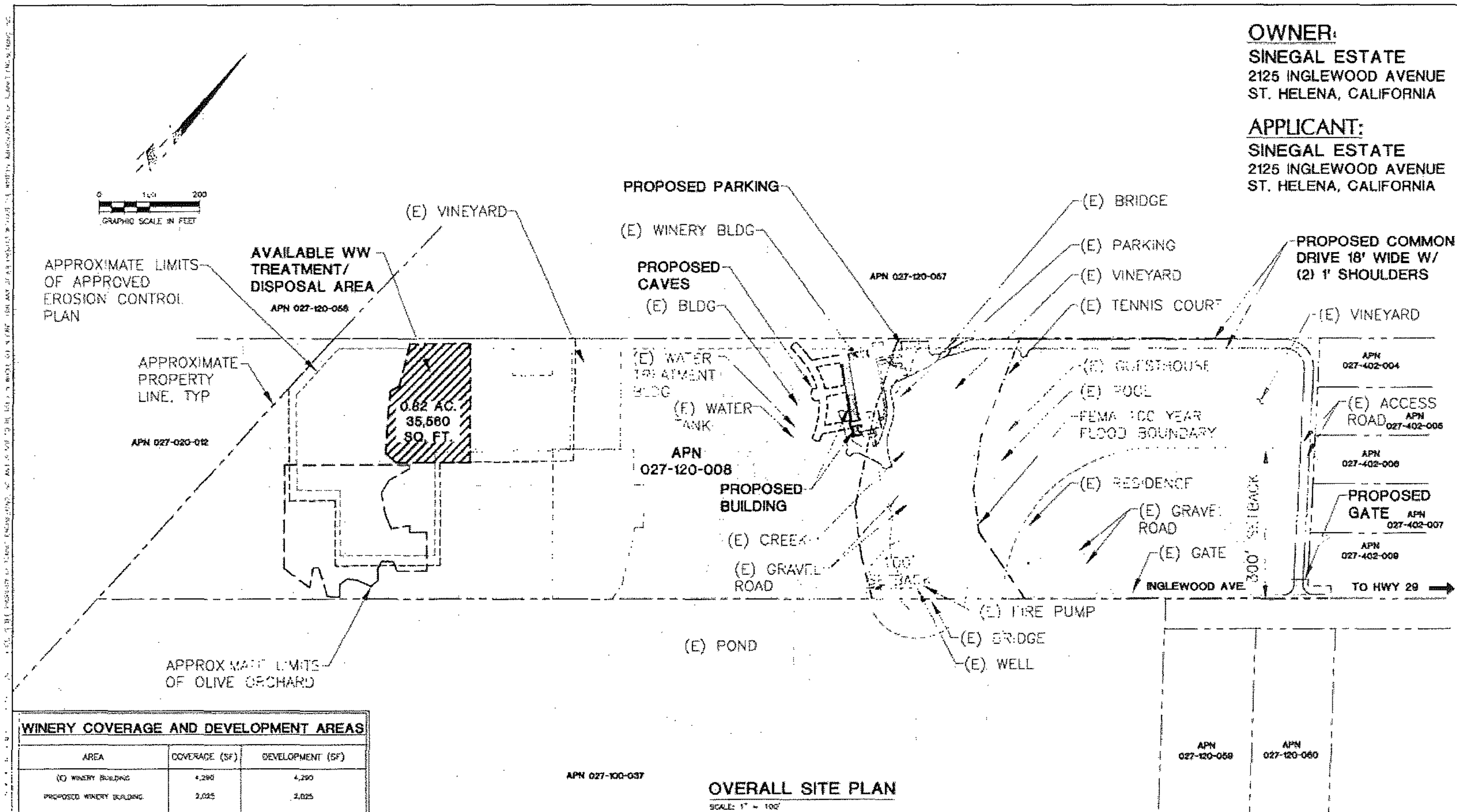
[15] *Omni-Means Engineers & Planners, Field observations on Inglewood Avenue 275 east of cul-de-sac (proposed project driveway), July 13 & 17, 2013.*
[16] *Caltrans, Ibid....*
[17] *Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.*



OWNER:
SINEGAL ESTATE
2125 INGLEWOOD AVENUE
ST. HELENA, CALIFORNIA

APPLICANT:
SINEGAL ESTATE
2125 INGLEWOOD AVENUE
ST. HELENA, CALIFORNIA

WINERY COVERAGE AND DEVELOPMENT AREAS

AREA	COVERAGE (SF)	DEVELOPMENT (SF)
(E) WINERY BUILDING	4,290	4,290
PROPOSED WINERY BUILDING	2,025	2,025
GARBAGE & RECYCLING	210	210
COVERED CRUSH PADS	710	710
PAVED PARKING AREAS FOR EMPLOYEE EXCLUSIVE USE	0	0
TOTAL DEVELOPMENT AREA (SF)		7,235
ABOVE GROUND WASTEWATER DISPOSAL	150	–
PAVING	31,971	–
TOTAL COVERAGE (SF)	39,356	
TOTAL COVERAGE (AC)	0.90	
TOTAL PARCEL (AC)	25.82	
PERCENT COVERAGE	3.5%	

NOTES:

1. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DETAILS AND SQUARE FOOTAGE BREAKDOWN OF THE PRODUCTION AND HOSPITALITY BUILDINGS.
2. FIRE STORAGE IS CURRENTLY PROVIDED BY THE EXISTING POND AND SERVES THE WINERY VIA A FIRE PUMP.
3. FEMA 100 YEAR FLOOD ZONE REPRESENTS AN APPROXIMATE ZONE A AREA. SEE SHEET UP5–SECTIONS AND BASE FLOOD ELEVATION STUDY FOR CALCULATED FLOOD LIMITS.

SHEET INDEX

UP1 OVERALL SITE PLAN
UP2
UP4

SUMMIT

SINEGAL ESTATE
2125 INGLEWOOD AVENUE
ST. HELENA, CALIFORNIA
APN 027-120-008

USE PERMIT APPLICATION
OVERALL SITE PLAN

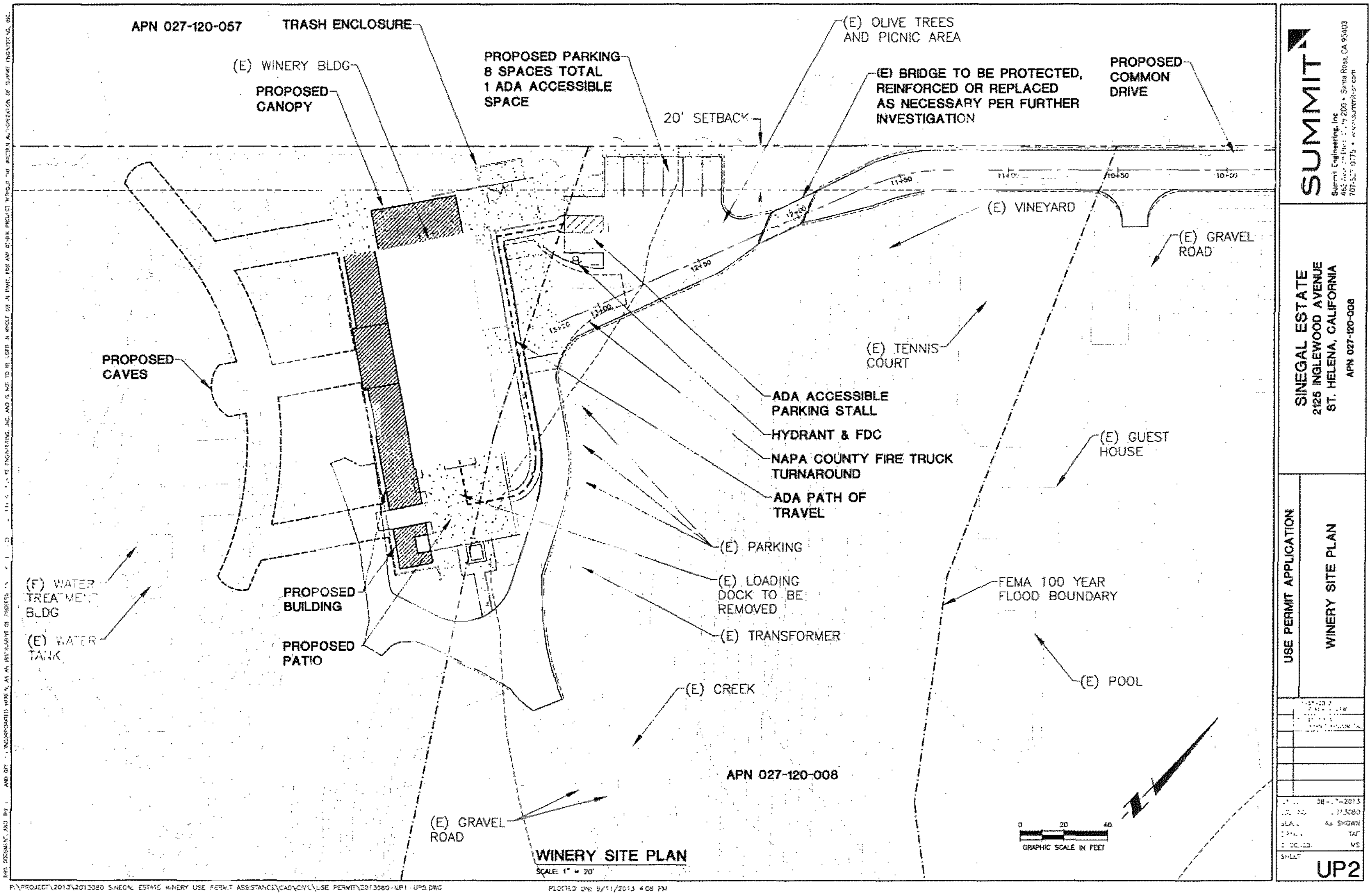
UP1

Project Site Plan

North

omni-means

figure 6



Project Site Plan

North

omni-means

figure 7

Marketing Events

With regard to larger special event traffic, these events would only occur two times annually. The largest event (60 visitors) would be an all day event on a weekend. This event would involve visitors arriving and departing throughout the entire day. The event would be scheduled to ensure that the majority of visitor arrivals and/or departures would not coincide with the Saturday afternoon peak hour background traffic flows on SR-29.

Based on standard auto occupancy rates, the largest special event (60 people) would generate up to 63 trips (32 in, 31 out). As noted, these events are typically of sufficient duration in length that the inbound and outbound trips occur in separate hours, thus the number of trips on the street network at one time are half of the total volume. These events are usually held outside of typical peak traffic periods (throughout the entire day or later than 6:00 p.m.) and therefore generally do not impact peak hour operations during the weekday/weekend peak periods.

Construction Activity

With regard to construction activity, the contractor responsible for cave construction has estimated a 5-month schedule during which time approximately 4,000 cubic yards of cave spoils would be hauled off-site.[18] The total amount of cave spoils required to be removed from the site would be 13,200 cubic yards. However, removal of cave spoils would be done over a phased period. The first 4,000 cubic yards would be removed in the first year of construction and the remaining balance removed after five years (2019) or beyond. The initial 5-month construction period with the removal of 4,000 cubic yards would be considered the most concentrated period related to potential truck impacts.

Based on a 5-month construction schedule, the spoils quantity would equate to approximately 38 cubic yards per day or <u>two (2) trucks each day</u>. However, the contractor estimates that there would be specific periods during the 5-month schedule where off-haul of cave spoils would be accelerated. During these periods (approximately 8.5 days), there would be 24 truck loads per day or three (3) trucks per hour. This would equate to six (6) truck trips during the weekday PM and/or weekend mid-day peak hours.

Since trucks represent a potential higher traffic impact (due to their greater length and slower acceleration characteristics), a Passenger Car Equivalent (PCE) factor of 1.5 was applied to the truck trips.[19] The proposed project's PCE generation increase over existing levels would therefore be approximately nine (9) vehicle trips during the weekday and weekend peak hours. Volumes of this magnitude would not measurably affect traffic flows on SR-29 during the weekday or weekend peak periods (the project applicant's civil engineer should confirm the adequacy of truck turning paths at the Inglewood Avenue/SR-29 intersection). However, residents and businesses located on Inglewood Avenue would notice a temporary increase in truck traffic during the construction period. It is recommended that during periods of accelerated construction activity that signs be installed on Inglewood Avenue alerting residents to the duration period and that trucks are entering/exiting the roadway.

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[18] *Mr. Bill Schaeffer, Project Manager, Cello and Maudru Construction Company, Cave spoils construction estimates for proposed Sinegal Estate Winery project (13,200 cubic yards), November 21, 2103.*
[19] *Transportation Research Board (TRB), Highway Capacity Manual 2000, Truck passenger car equivalents (pce), 2000.*

6. CUMULATIVE CONDITIONS

Cumulative Year 2030 Projections

Model Forecast

Cumulative (Year 2030) volume projections on State Route 29 (SR-29) were derived from the Napa County Transportation & Planning Agency's traffic volume forecasts in the Napa County General Plan Update EIR. The forecast increase in volume-to-capacity (v/c) ratio from Year 2003 to Year 2030 on SR-29 in the project vicinity between Zinfandel Lane and Chaix Lane was applied to the provided Year 2003 peak hour two-way volume (1,943 trips) on SR-29, yielding a volume of 3,759 weekday PM peak hour trips on SR-29 in Year 2030.

The projected PM peak hour cumulative volume on SR-29 represents a large (100%) increase compared to the existing (Year 2013) peak hour counted volume of 1,889 trips on SR-29 at Inglewood Avenue. With projected cumulative forecasts, the existing daily volume on SR-29 would increase from 22,300 trips to 44,375 daily trips.

Historical Data

For comparison, average annual daily traffic volumes on SR-29 between Zinfandel Lane and Chaix Lane over the previous twenty years were reviewed. The average annual daily traffic (AADT) on SR-29 in 1992 was 17,200 trips. By comparison, the AADT on SR-29 in 2012 was 22,300 trips. Daily volumes were highest in the year 2007, reaching 24,500 AADT. Daily volumes on SR-29 have since declined and are lower today than they were in 1996. Increases in daily volumes between year 1992 and the highest year of 2007 equates to an annual increase of 2.6% per year on SR-29. Applying the same annual increase to the current ADT on SR-29 of 22,300 results in about 31,666 ADT in year 2030 (2.6% per year added for 17 years).

Cumulative volumes based on historical data are approximately 71% of the model forecast volumes on SR-29. The difference between the model numbers and historical growth trends indicates volumes are not increasing to the model's forecasted levels. However, in order to proactively address potential traffic volumes under cumulative conditions, the County has adopted several measures identified in the General Plan to improve the street network and also reduce vehicle trips.

In order to identify weekend cumulative conditions, the General Plan Update provides a ratio of weekday to weekend peak hour volumes on key streets within the valley. Several segments on SR-29 in the vicinity of the project were shown to have an average ratio of 0.76-0.80, indicating weekend peak hour volumes are expected to be about 80% of weekday volumes. Therefore the future weekend peak hour volumes would be expected to remain roughly in the same ratio as the existing volumes and lower than the weekday volume projections.

Cumulative Operating Conditions

The County's forecasted transportation model volumes on SR-29 under Year 2030 conditions are very tenuous given that the highway is essentially at or near capacity today. A more reasonable projection based on historical growth suggests that SR-29 would continue to operate near capacity levels with increased congestion during peak times of the day with longer peak periods during the day typically at unacceptable conditions (LOS E-F) for all minor street approaches and/or driveways at SR-29. Again, the presence of the existing two-way-left-turn-lane improves overall vehicle delays from minor street/driveways and as some additional capacity to the roadway.

Additional improvements to the street network are anticipated and have been included in the General Plan's Improved 2030 Network model. As noted, the County has also adopted several measures identified in the General Plan to reduce vehicle trips through public transit and Transportation Demand Management (TDM) strategies: "The project should support programs to reduce single occupant vehicle use and encourage alternative travel modes."

- In keeping with the policy, the winery project will provide bicycle racks for visitors who may arrive by bike. The project should also promote the use of public transportation and carpooling of employees (by adjusting work schedules, etc.) to facilitate the use of other transportation modes.

7. SUMMARY AND CONCLUSIONS

Daily and Peak Hour Operations

The proposed Sinegal Estate Winery project would generate 30 net new daily trips during the weekday and weekend periods (respectively). The project traffic would represent an increase of less than 1% (0.001) over the existing SR-29 volume of 22,300 average daily traffic (ADT). The project study intersection of Inglewood Avenue/SR-29 would continue to operate at LOS D or better under existing plus project and near-term plus project conditions during both weekday and weekend peak hour conditions. The proposed Sinegal Estate Winery Driveway/Inglewood Avenue would operate at LOS A during both the weekday and weekend peak hours.

Daily volumes on SR-29 would continue to operate at or near capacity with 22,563 ADT (near-term no project) and 22,593 ADT with near-term plus project volumes but are aided with the presence of the continuous two-way-left-turn-lane. ADT volumes on Inglewood Avenue would be well within the County's threshold of LOS A (1,067 vehicles) with 764 vehicles under near-term plus project conditions.

Based on standard auto occupancy rates, the largest special event (60 people) would generate up to 63 trips (32 in, 31 out). As noted, these events are typically of sufficient duration in length that the inbound and outbound trips occur in separate hours, thus the number of trips on the street network at one time are half of the total volume. These events are usually held outside of typical peak traffic periods (throughout the entire day or later than 6:00 p.m.) and therefore generally do not impact peak hour operations during the weekday/weekend peak periods.

Vehicle Sight Distance

Vehicle sight distances to the east and west at the proposed project driveway location on Inglewood Avenue are in excess of the minimum sight distances needed for the observed vehicle speeds (25 mph or less). Based on Caltrans design standards, these vehicle speeds require a stopping sight distance of 150 feet, measured along the travel lanes on Inglewood Avenue and current sight distance measurements are 275 feet or more.[20]

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[20] *Caltrans, Ibid....*

Vehicle Circulation/Site Access

Based on the Sinegal Estate Winery site plan, the winery driveway (improved) would be located off Inglewood Avenue approximately 275 feet east of its terminus. The driveway would extend northwest from Inglewood Avenue for approximately 475 feet before extending west 800 feet to parking and winery facilities located mid-parcel (see Figures 6 and 7--Project Site Plans). Essentially, the project driveway would extend around the eastern and northern borders of the Estate's existing vineyard(s) to the winery buildings and new parking area. The project driveway would have a minimum width of 18-feet to provide for two-way travel and comply with County standards. The new parking area would consist of eight (8) perpendicular parking spaces and one (1) ADA space. There would be a vehicle turnaround area created in front of the existing winery building for visitors to exit out the same driveway access. The vehicle turnaround area would also be designed to accommodate Napa County emergency vehicles (fire truck) based on the County's minimum design standards.

The proposed project driveway would not require a right-turn lane or taper based on Caltrans design guidelines. However, vehicle turning radius at the proposed project driveway should be large enough to accommodate large vehicle and truck turning movements to/from the east on Inglewood Avenue (the project applicant's civil engineer would confirm this design feature).

The Napa County Transportation & Planning Agency (NCTPA) in cooperation with Napa County and local City agencies is developing bicycle routes as outlined in the Napa Countywide Bicycle Plan.[21] The plan encourages new developments to incorporate bicycle friendly design. State Route 29 has wide striped shoulder areas (unofficial Class II bike lanes) in both directions. Some visitors may utilize bicycles to access the proposed project. The project would provide bicycle racks for visitors to the proposed winery.

Construction Activity

With regard to construction activity, the contractor responsible for cave construction has estimated a 5-month schedule during which time approximately 4,000 cubic yards of cave spoils would be hauled off-site.[22] The total amount of cave spoils required to be removed from the site would be 13,200 cubic yards. However, removal of cave spoils would be done over a phased period. The first 4,000 cubic yards would be removed in the first year of construction and the remaining balance removed after five years (2019) or beyond. The initial 5-month construction period with the removal of 4,000 cubic yards would be considered the most concentrated period related to potential truck impacts.

Based on a 5-month construction schedule, the spoils quantity would equate to approximately 38 cubic yards per day or <u>two (2) trucks each day</u>. However, the contractor estimates that there would be specific periods during the 5-month schedule where off-haul of cave spoils would be accelerated. During these periods (approximately 8.5 days), there would be 24 truck loads per day or three (3) trucks per hour. This would equate to six (6) truck trips during the weekday PM and/or weekend mid-day peak hours.

Since trucks represent a potential higher traffic impact (due to their greater length and slower acceleration characteristics), a Passenger Car Equivalent (PCE) factor of 1.5 was applied to the truck trips.[23] The proposed project's PCE generation increase over existing levels would therefore be approximately nine (9) vehicle trips during the weekday and weekend peak hours. Volumes of this magnitude would not measurably affect traffic flows on SR-29 during the weekday or weekend peak periods (the project applicant's civil engineer should

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[21] *Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.*
[22] *Mr. Bill Schaeffer, Project Manager, Cello and Maudru Construction Company, Cave spoils construction estimates for proposed Sinegal Estate Winery project (4,000 cubic yards), November 21, 2103.*
[23] *Transportation Research Board (TRB), Highway Capacity Manual 2000, Truck passenger car equivalents (pce), 2000.*

confirm the adequacy of truck turning paths at the Inglewood Avenue/SR-29 intersection). However, residents and businesses located on Inglewood Avenue would notice a temporary increase in truck traffic during the construction period. It is recommended that during periods of accelerated construction activity that signs be installed on Inglewood Avenue alerting residents to the duration period and that trucks are entering/exiting the roadway.

Cumulative Year 2030 Conditions

As noted under cumulative model forecasts, the County's forecasted transportation model volumes on SR-29 under Year 2030 conditions are very tenuous given that the highway is essentially at or near capacity today. A more reasonable projection based on historical growth suggests that SR-29 would continue to operate near capacity levels with increased congestion during peak times of the day with longer peak periods during the day typically at unacceptable conditions (LOS E-F) for all minor street approaches and/or driveways at SR-29. The proposed project would be adding less than one percent (0.001) to ADT volumes on SR-29.

APPENDIX

Level of Service Definitions

Level of Service Calculations

Signal Warrant Sheets

Average Daily Traffic (ADT) Counts (Inglewood Ave.)

Weekday and Weekend Existing Intersection Counts(Inglewood Ave./SR-29)

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 secs.	≤ 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.	>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	>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.	>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.	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.	> 50.0	> 50.0

References: 1. Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000,

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	20	22	12	713	1176	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	24	13	775	1278	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2101	1299	1321			
vC1, stage 1 conf vol	1299					
vC2, stage 2 conf vol	801					
vCu, unblocked vol	2101	1299	1321			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	88	98			
cM capacity (veh/h)	251	197	523			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	46	13	775	1321
Volume Left	22	13	0	0
Volume Right	24	0	0	42
cSH	220	523	1700	1700
Volume to Capacity	0.21	0.02	0.46	0.78
Queue Length 95th (ft)	19	2	0	0
Control Delay (s)	25.6	12.1	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	25.6	0.2		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	9	33	10	903	951	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	36	11	982	1034	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2054	1051	1068			
vC1, stage 1 conf vol	1051					
vC2, stage 2 conf vol	1003					
vCu, unblocked vol	2054	1051	1068			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	87	98			
cM capacity (veh/h)	295	276	652			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	46	11	982	1068
Volume Left	10	11	0	0
Volume Right	36	0	0	35
cSH	280	652	1700	1700
Volume to Capacity	0.16	0.02	0.58	0.63
Queue Length 95th (ft)	14	1	0	0
Control Delay (s)	20.4	10.6	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.4	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	22	26	14	829	1289	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	28	15	901	1401	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2354	1423	1445			
vC1, stage 1 conf vol	1423					
vC2, stage 2 conf vol	932					
vCu, unblocked vol	2354	1423	1445			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	83	97			
cM capacity (veh/h)	218	167	469			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	52	15	901	1445
Volume Left	24	15	0	0
Volume Right	28	0	0	43
cSH	187	469	1700	1700
Volume to Capacity	0.28	0.03	0.53	0.85
Queue Length 95th (ft)	27	3	0	0
Control Delay (s)	31.6	12.9	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	31.6	0.2		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	10	35	12	1022	1067	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	38	13	1111	1160	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2315	1178	1196			
vC1, stage 1 conf vol	1178					
vC2, stage 2 conf vol	1137					
vCu, unblocked vol	2315	1178	1196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	98			
cM capacity (veh/h)	253	232	584			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	49	13	1111	1196
Volume Left	11	13	0	0
Volume Right	38	0	0	36
cSH	237	584	1700	1700
Volume to Capacity	0.21	0.02	0.65	0.70
Queue Length 95th (ft)	19	2	0	0
Control Delay (s)	24.1	11.3	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.1	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1	1	4	7	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	4	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	5				4	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5				4	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1616				1018	1081

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1	5	8
Volume Left	0	0	8
Volume Right	0	4	0
cSH	1616	1700	1018
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	22	27	15	713	1176	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	29	16	775	1278	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2108	1300	1322			
vC1, stage 1 conf vol	1300					
vC2, stage 2 conf vol	808					
vCu, unblocked vol	2108	1300	1322			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	85	97			
cM capacity (veh/h)	251	197	523			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	53	16	775	1322
Volume Left	24	16	0	0
Volume Right	29	0	0	43
cSH	218	523	1700	1700
Volume to Capacity	0.24	0.03	0.46	0.78
Queue Length 95th (ft)	23	2	0	0
Control Delay (s)	26.8	12.1	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	26.8	0.2		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1	1	4	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	4	3	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	5				4	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5				4	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1616				1018	1081

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1	5	3
Volume Left	0	0	3
Volume Right	0	4	0
cSH	1616	1700	1018
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	10	35	13	903	951	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	38	14	982	1034	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2061	1052	1070			
vC1, stage 1 conf vol	1052					
vC2, stage 2 conf vol	1010					
vCu, unblocked vol	2061	1052	1070			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	86	98			
cM capacity (veh/h)	293	275	652			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	49	14	982	1070
Volume Left	11	14	0	0
Volume Right	38	0	0	36
cSH	279	652	1700	1700
Volume to Capacity	0.18	0.02	0.58	0.63
Queue Length 95th (ft)	16	2	0	0
Control Delay (s)	20.6	10.6	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.6	0.2		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1	1	4	7	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	4	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	5				4	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5				4	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1616				1018	1081

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1	5	8
Volume Left	0	0	8
Volume Right	0	4	0
cSH	1616	1700	1018
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	24	31	17	829	1289	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	34	18	901	1401	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2361	1423	1446			
vC1, stage 1 conf vol	1423					
vC2, stage 2 conf vol	938					
vCu, unblocked vol	2361	1423	1446			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	80	96			
cM capacity (veh/h)	217	167	469			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	60	18	901	1446
Volume Left	26	18	0	0
Volume Right	34	0	0	45
cSH	185	469	1700	1700
Volume to Capacity	0.32	0.04	0.53	0.85
Queue Length 95th (ft)	33	3	0	0
Control Delay (s)	33.4	13.0	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	33.4	0.3		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1	1	4	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	4	3	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	5				4	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5				4	3
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1616				1018	1081

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1	5	3
Volume Left	0	0	3
Volume Right	0	4	0
cSH	1616	1700	1018
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

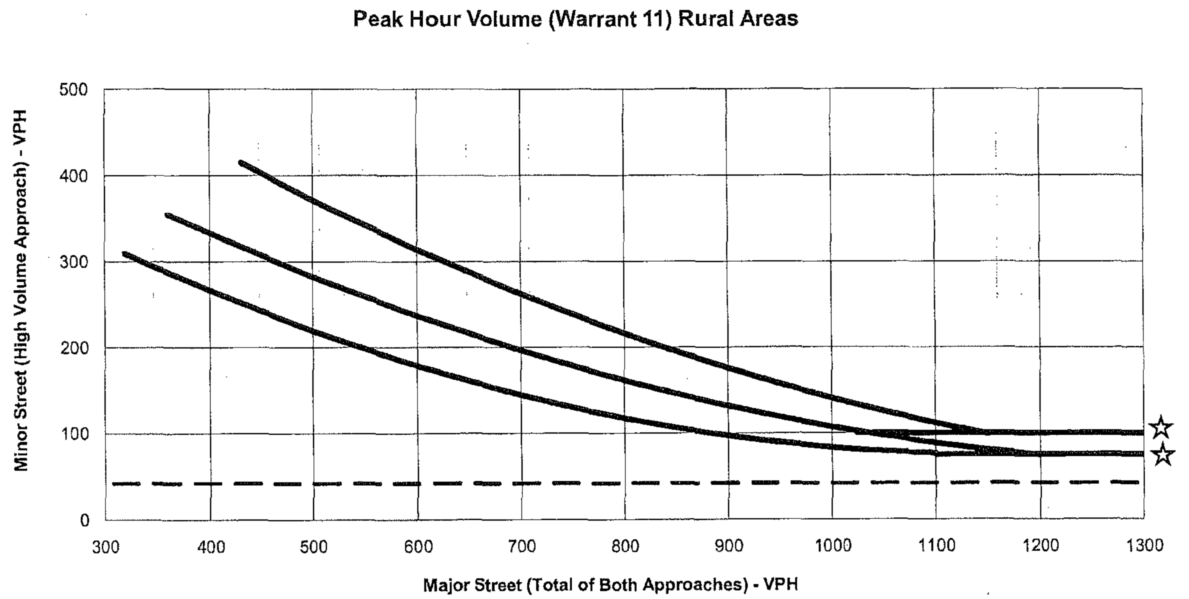
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	11	37	15	1022	1067	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	40	16	1111	1160	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2322	1178	1197			
vC1, stage 1 conf vol	1178					
vC2, stage 2 conf vol	1143					
vCu, unblocked vol	2322	1178	1197			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	83	97			
cM capacity (veh/h)	251	232	583			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	52	16	1111	1197
Volume Left	12	16	0	0
Volume Right	40	0	0	37
cSH	236	583	1700	1700
Volume to Capacity	0.22	0.03	0.65	0.70
Queue Length 95th (ft)	21	2	0	0
Control Delay (s)	24.5	11.3	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.5	0.2		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
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*

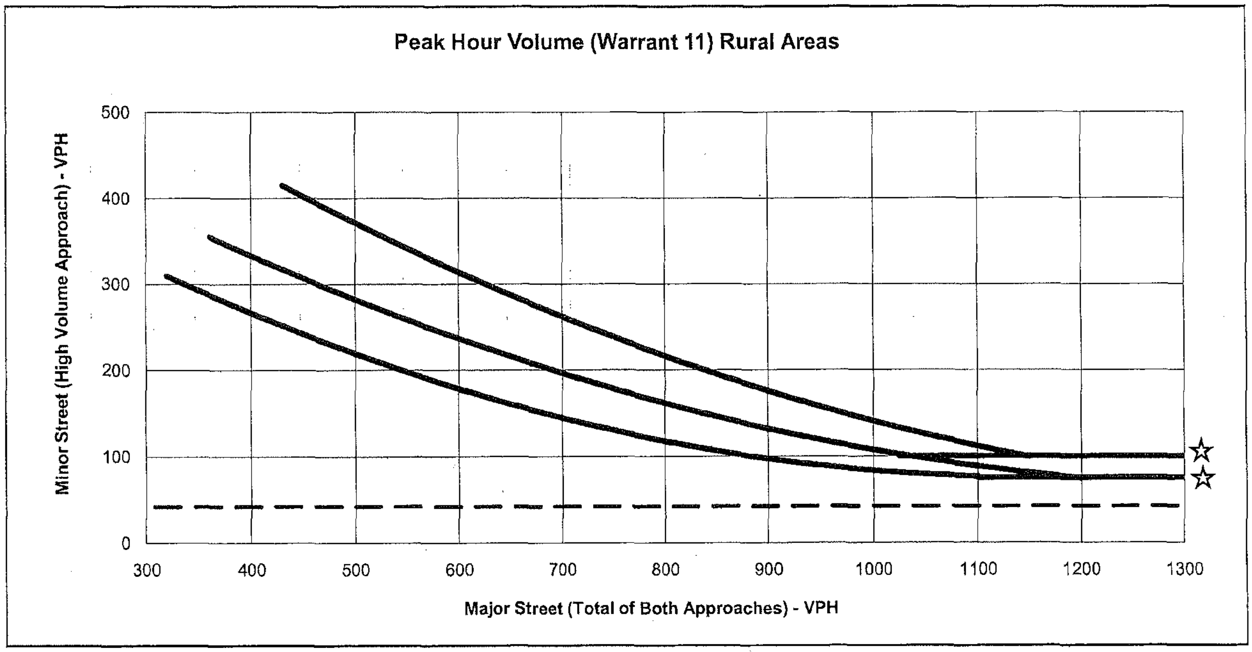


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	PM Weekday Existing Conditions
Minor St. Volume:	42
Major St. Volume:	1940
Warrant Met?:	NO

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*

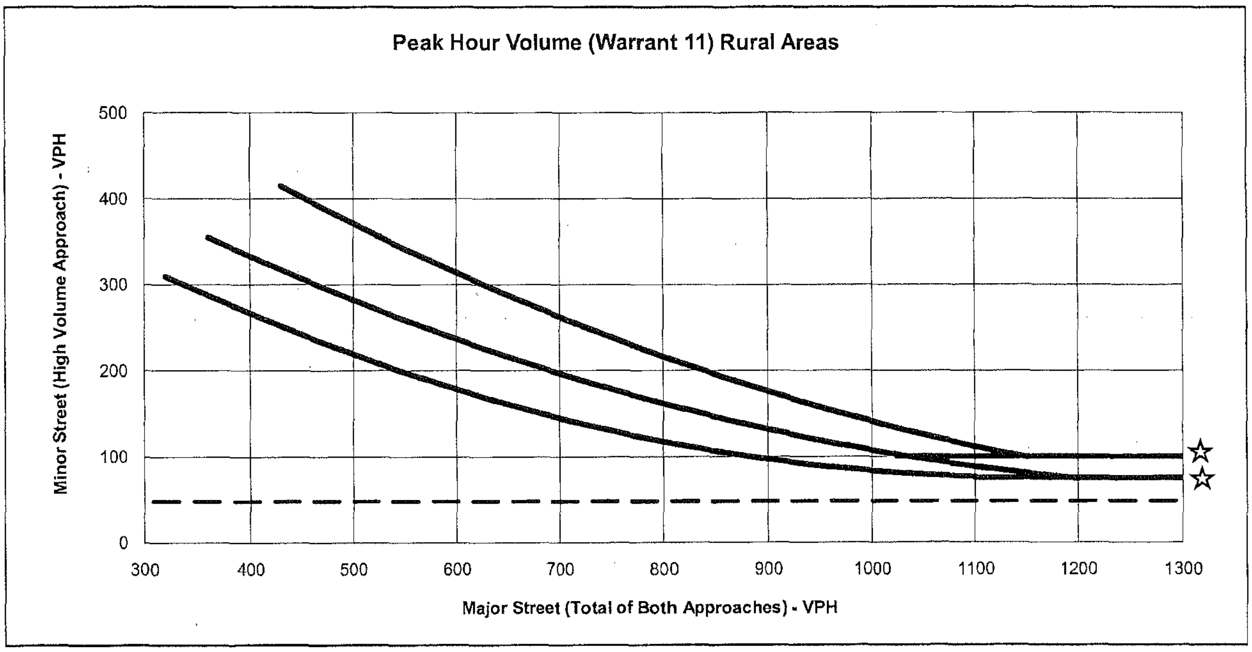


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	MD Weekend Existing Conditions
Minor St. Volume:	42
Major St. Volume:	1896
Warrant Met?:	NO

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*

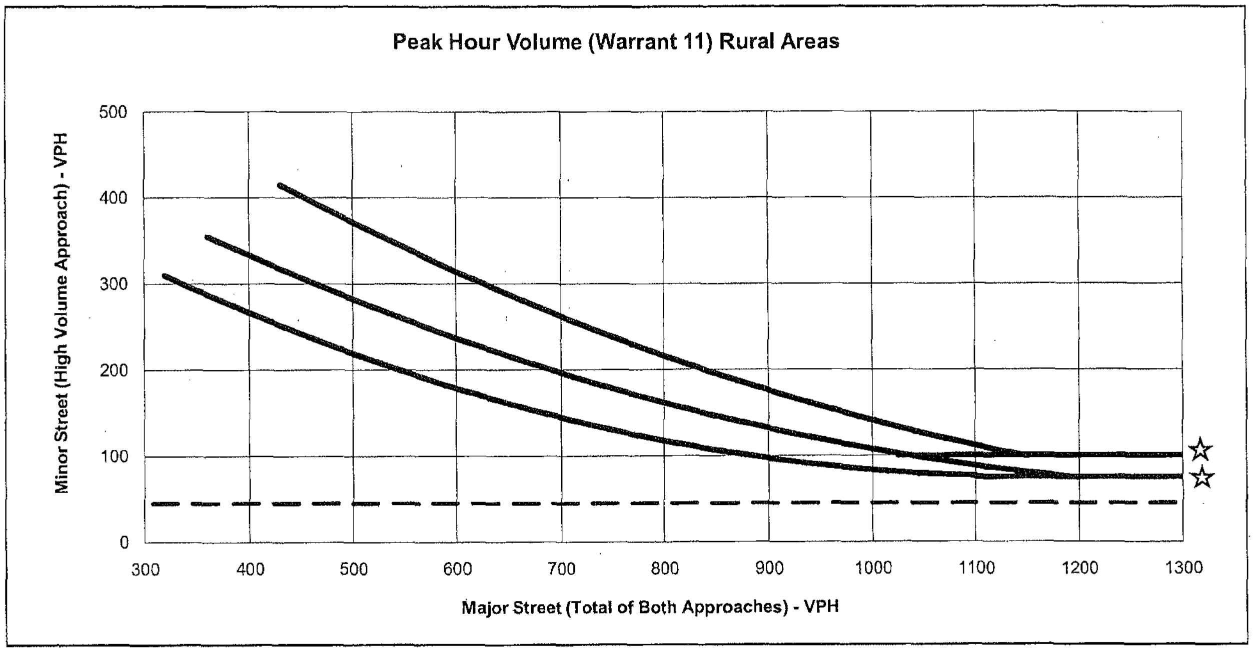


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	PM Weekday Near-Term (NP) Conditions
Minor St. Volume:	48
Major St. Volume:	2172
Warrant Met?:	NO

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*

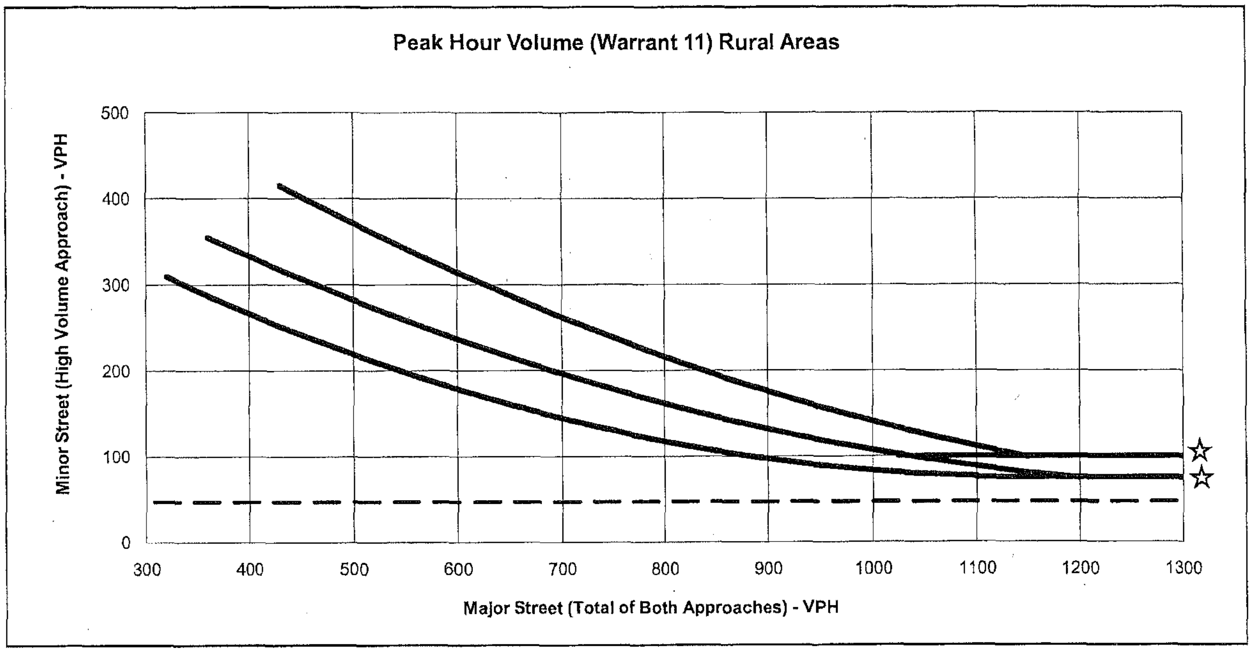


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	MD Weekend Near-Term (NP) Conditions
Minor St. Volume:	45
Major St. Volume:	2134
Warrant Met?:	NO

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*

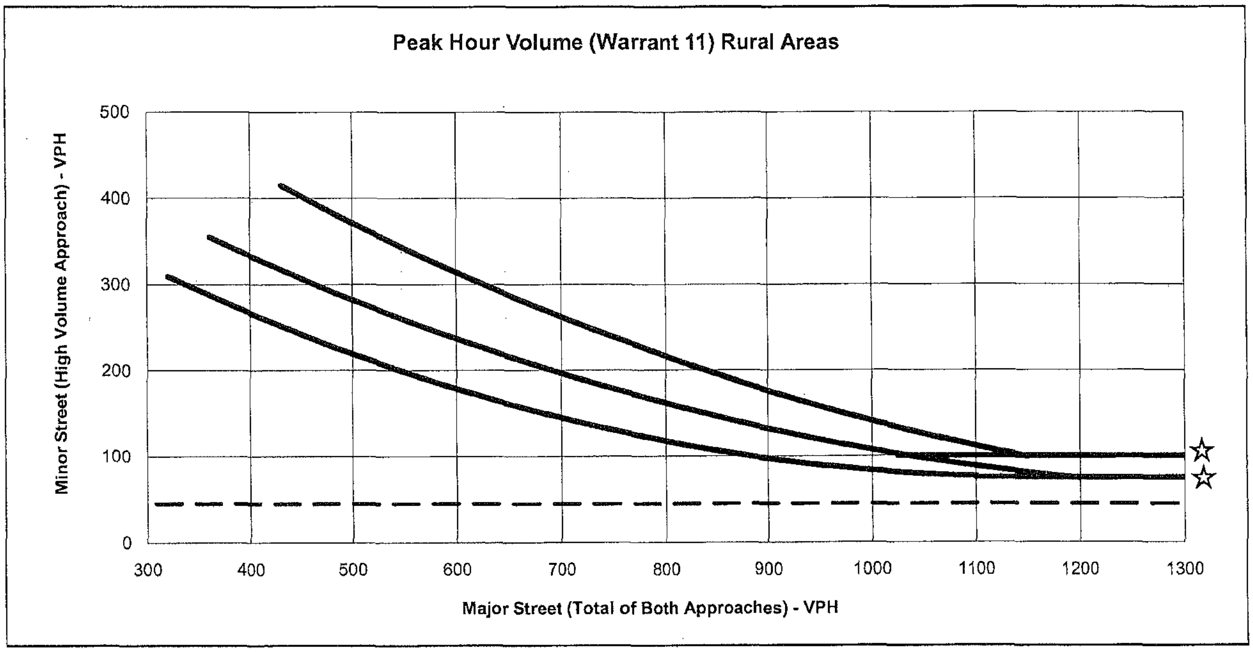


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	PM Weekday Exist+Project Conditions
Minor St. Volume:	47
Major St. Volume:	1943
Warrant Met?:	NO

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*

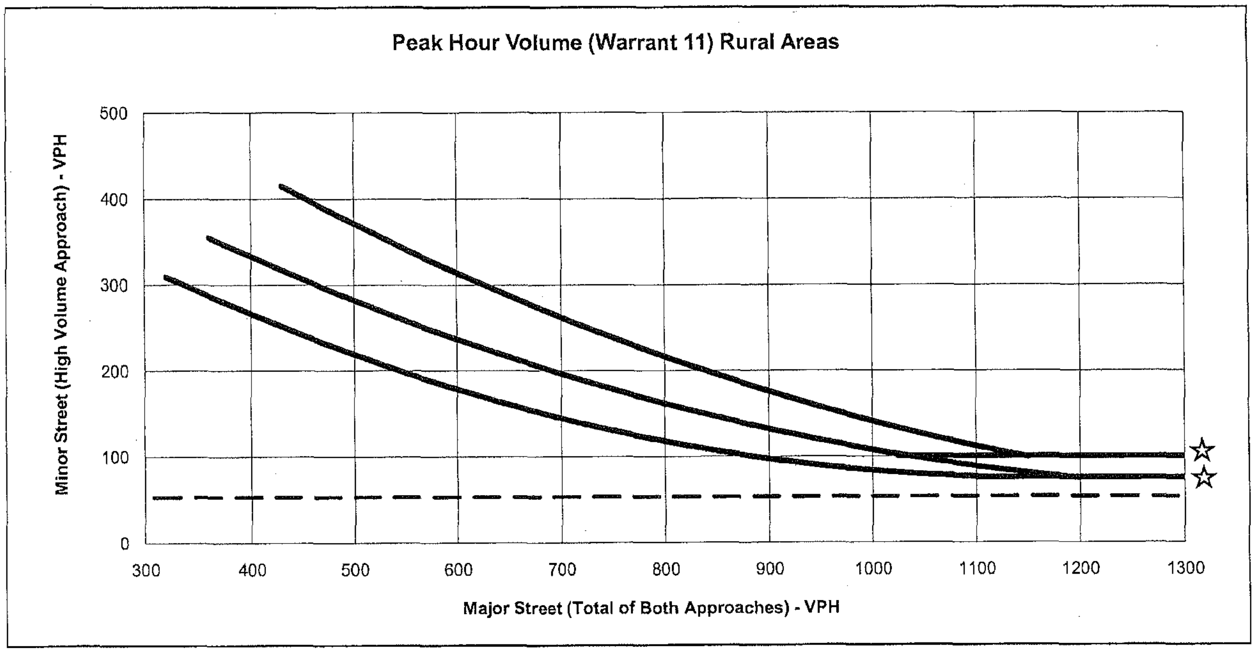


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	MD Weekend Exist+ Project Conditions
Minor St. Volume:	45
Major St. Volume:	1899
Warrant Met?:	NO

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*

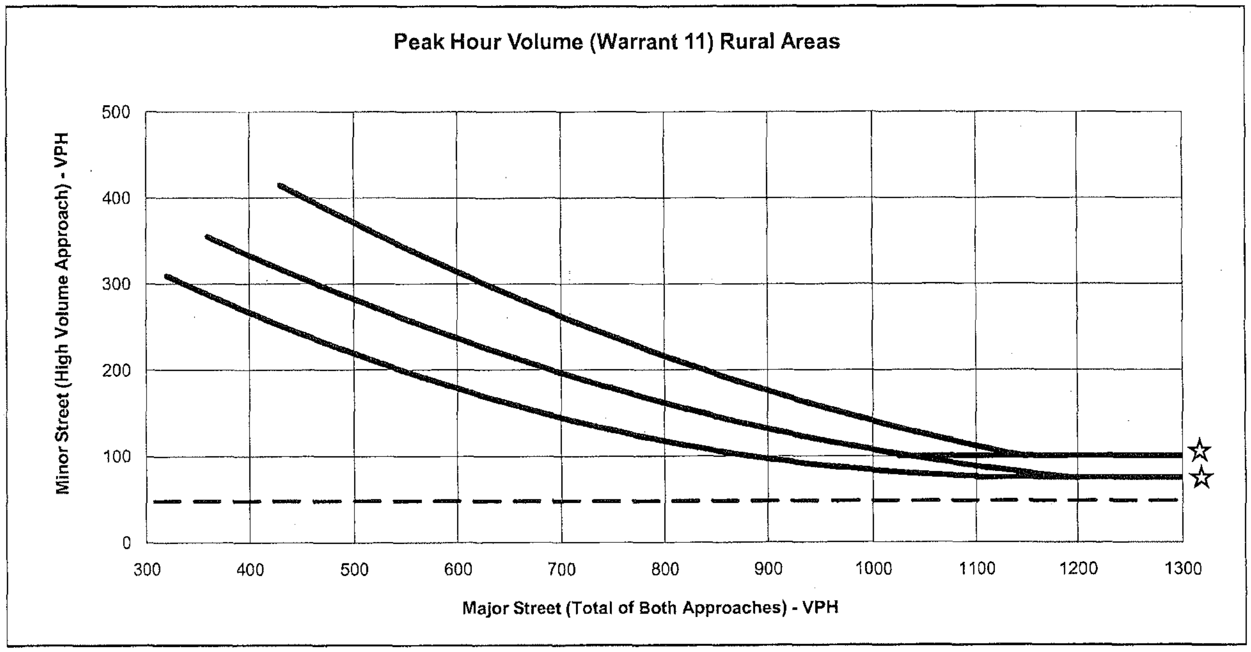


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Inglewood Avenue / SR-29
Scenario:	PM Weekday NT+Project Conditions
Minor St. Volume:	53
Major St. Volume:	2175
Warrant Met?:	NO

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:	Inglewood Avenue / SR-29
Scenario:	MD Weekend NT+Project Conditions
Minor St. Volume:	48
Major St. Volume:	2137
Warrant Met?:	NO

BAYMETRICS

WINERY PROJECT IN NAPA COUNTY

Date	*13-Aug-13*		*Tuesday*		*14-Aug-13*		*Wednesday*	
Location	On Inglewood Av, west of SR-29 prior to the commercial driveways							
Direction	*EB*		*WB*		*EB*		*WB*	
Time	15 MIN	60 MIN	15 MIN	60 MIN	15 MIN	60 MIN	15 MIN	60 MIN
1200	1	0	3	0	1	0	2	0
1215	0	0	0	0	0	0	0	0
1230	0	0	0	0	0	0	1	0
1245	0	1	0	3	0	1	0	3
100	1	1	1	1	0	0	0	1
115	0	1	0	1	0	0	0	1
130	0	1	1	2	0	0	0	0
145	0	1	0	2	0	0	0	0
200	0	0	1	2	0	0	0	0
215	0	0	0	2	0	0	0	0
230	0	0	0	1	0	0	1	1
245	0	0	0	1	0	0	0	1
300	0	0	0	0	0	0	0	1
315	1	1	2	2	0	0	0	1
330	0	1	0	2	0	0	2	2
345	0	1	0	2	0	0	0	2
400	0	1	0	2	0	0	0	2
415	1	1	0	0	1	1	0	2
430	1	2	1	1	0	1	0	0
445	0	2	2	3	0	1	0	0
500	2	4	0	3	0	1	0	0
515	0	3	1	4	1	1	1	1
530	2	4	0	3	2	3	0	1
545	0	4	4	5	1	4	0	1
600	3	5	1	6	0	4	1	2
615	0	5	4	9	0	3	1	2
630	0	3	1	10	0	1	3	5
645	4	7	9	15	7	7	4	9
700	4	8	11	25	3	10	11	19
715	3	11	3	24	2	12	5	23
730	4	15	8	31	5	17	12	32
745	6	17	6	28	7	17	2	30
800	9	22	4	21	8	22	6	25
815	3	22	3	21	7	27	6	26
830	4	22	8	21	3	25	6	20
845	7	23	2	17	3	21	3	21
900	4	18	12	25	8	21	8	23
915	2	17	6	28	3	17	4	21
930	5	18	6	26	4	18	10	25
945	2	13	9	33	7	22	7	29
1000	4	13	8	29	11	25	9	30
1015	9	20	3	26	15	37	12	38
1030	8	23	8	28	6	39	7	35
1045	7	28	3	22	10	42	7	35
1100	6	30	5	19	8	39	5	31
1115	8	29	11	27	5	29	6	25
1130	9	30	10	29	8	31	11	29
1145	4	27	7	33	4	25	6	28
1200	6	27	7	35	7	24	12	35
1215	10	29	12	36	7	26	13	42
1230	6	26	3	29	4	22	5	36
1245	4	26	5	27	6	24	6	36
1300	4	24	7	27	14	31	7	31
1315	7	21	5	20	8	32	10	28
1330	6	21	5	22	12	40	4	27
1345	8	25	4	21	8	42	4	25
1400	11	32	6	20	4	32	8	26
1415	5	30	4	19	8	32	4	20
1430	4	28	5	19	7	27	4	20
1445	10	30	4	19	4	23	11	27
1500	12	31	9	22	10	29	7	26
1515	18	44	3	21	19	40	1	23
1530	11	51	5	21	5	38	8	27
1545	3	44	5	22	13	47	2	18
1600	5	37	6	19	8	45	4	15
1615	8	27	3	19	6	32	5	19
1630	7	23	2	16	5	32	8	19
1645	4	24	7	18	5	24	4	21
1700	5	24	3	15	9	25	4	21
1715	5	21	4	16	3	22	6	22
1730	3	17	7	21	5	22	4	18
1745	4	17	4	18	5	22	6	20
1800	5	17	1	16	1	14	5	21
1815	2	14	3	15	7	18	4	19
1830	1	12	2	10	2	15	1	16
1845	1	9	3	9	5	15	1	11
1900	5	9	1	9	3	17	4	10
1915	1	8	5	11	5	15	4	10
1930	4	11	1	10	0	13	0	9
1945	1	11	0	7	0	8	0	8
2000	0	6	3	9	0	5	1	5
2015	2	7	0	4	1	1	2	3
2030	2	5	2	5	2	3	3	6
2045	7	11	3	8	1	4	3	9
2100	2	13	2	7	0	4	1	9
2115	0	11	3	10	1	4	4	11
2130	2	11	1	9	0	2	5	13
2145	0	4	1	7	1	2	0	10
2200	0	2	1	6	1	3	2	11
2215	0	2	1	4	0	2	2	9
2230	1	1	3	6	0	2	3	7
2245	0	1	0	5	0	1	1	8
2300	0	1	1	5	0	0	0	6
2315	0	1	1	5	2	2	2	6
2330	1	1	3	5	1	3	0	3
2345	1	2	0	5	0	3	0	2
TOTAL	328	N/A	330	N/A	355	N/A	354	N/A
AM		23		33		27		32
NOON		32		36		42		42
PM		51		22		47		27
EVEN		13		10		5		13

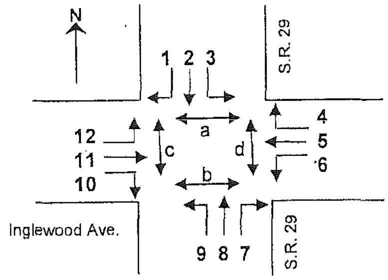
Tel: (510) 232-1271 Fax: (510) 232-1272

Intersection Volume Worksheet

Sinegal Winery Project

Inglewood Avenue / S.R. 29

Counts: August 7 & 10, 2013
Weather: Clear



A = Adult
T = Teen
C = Child
B = Bike

Weekday PM

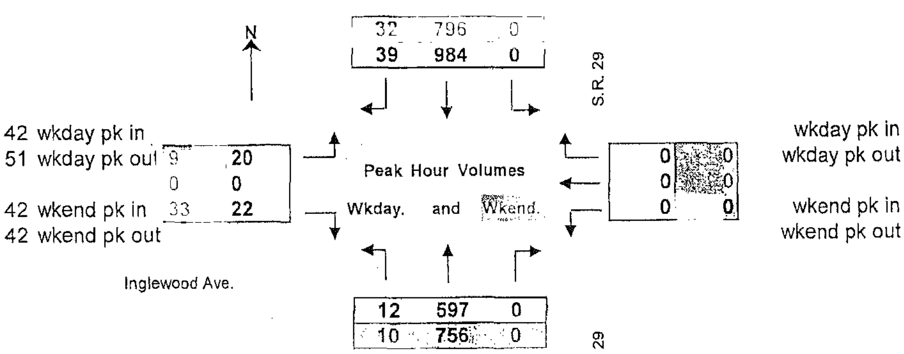
	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. & Bicy. a - b / c - d
4:00-4:15	7	241						153	4	5		4	414		0
4:15-4:30	8	203						158	4	6		3	382		0 - 0 / 0 - 1AB
4:30-4:45	17	323						133	3	4		5	485		0
4:45-5:00	7	217						153	1	7		8	393	1674	0 - 0 / 2A - 0
5:00-5:15	13	211						125	3	2		2	356	1616	0
5:15-5:30	13	161						135	1	2		2	314	1548	0 - 0 / 1AB - 0
5:30-5:45	5	193						161	1	5		4	369	1432	0
5:45-6:00	20	192						175	2	1		3	393	1432	0
PeakHour:															
4:00-5:00	39	984	0	0	0	0	0	597	12	22	0	20	1674	1674	0 - 0 / 0 - 0
												phf =	0.91		0 - 0 / 0 - 0

Weekend Afternoon

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. & Bicy. a - b / c - d
1:00-1:15	12	162						128	3	3		2	310		0 - 0 / 0 - 2AB
1:15-1:30	9	163						159	6	8		4	349		0
1:30-1:45	10	195						209	5	12		1	432		0
1:45-2:00	2	151						150	4	4		0	311	1402	0
2:00-2:15	9	166						211	3	5		1	395	1487	0 - 0 / 1A,2AB - 0
2:15-2:30	8	207						173	3	13		2	406	1544	0
2:30-2:45	7	195						193	3	4		2	404	1516	0
2:45-3:00	8	228						179	1	11		4	431	1636	0
PeakHour:															
2:00-3:00	32	796	0	0	0	0	0	756	10	33	0	9	1636	1636	0 - 0 / 1A,2AB - 2AB
												phf =	0.95		0 - 0 / 3 - 2

wkday pk in 1023
wkday pk out 617

wkend pk in 828
wkend pk out 765



wkday pk in 609
wkday pk out 1006

wkend pk in 766
wkend pk out 829

OMNI-MEANS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	20	22	12	597	984	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	24	13	649	1070	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1766	1091	1112			
vC1, stage 1 conf vol	1091					
vC2, stage 2 conf vol	675					
vCu, unblocked vol	1766	1091	1112			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	91	98			
cM capacity (veh/h)	316	261	628			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	46	13	649	1112
Volume Left	22	13	0	0
Volume Right	24	0	0	42
cSH	285	628	1700	1700
Volume to Capacity	0.16	0.02	0.38	0.65
Queue Length 95th (ft)	14	2	0	0
Control Delay (s)	20.1	10.9	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.1	0.2		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	9	33	10	756	796	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	36	11	822	865	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1726	883	900			
vC1, stage 1 conf vol	883					
vC2, stage 2 conf vol	843					
vCu, unblocked vol	1726	883	900			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	90	99			
cM capacity (veh/h)	357	345	755			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	46	11	822	900
Volume Left	10	11	0	0
Volume Right	36	0	0	35
cSH	348	755	1700	1700
Volume to Capacity	0.13	0.01	0.48	0.53
Queue Length 95th (ft)	11	1	0	0
Control Delay (s)	16.9	9.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	16.9	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		