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September 19, 2013

Mr. Eric Sklar
CS2 Wines, LLC
P.O. Box 47
Oakville, CA 94562

Subject: ***Focused Traffic Analysis for the Proposed Yountville Hill Winery - Located at 7400 St. Helena Highway (SR-29) in Napa County***

Dear Mr. Sklar:

This report provides a focused traffic analysis for the proposed Yountville Hill Winery project located at 7400 St. Helena Highway in Napa County (see Figure 1 for Project Vicinity Map). This study reflects our discussions with County Planning staff regarding the project analysis approach and other adjacent approved/pending projects in the study area. In addition, the analysis will build on previous work conducted by George W. Nickelson, P.E. with regard to winery access to/from State Route 29 and driveway access. Some of the key issues evaluated in this study include the following:

- Existing and future weekday PM and weekend mid-day peak hour operations at the Yountville Hill Winery Project Driveway intersection with State Route 29;
- Near-term (Year 2015) traffic conditions reflecting other approved/pending projects in the study area;
- Project trip generation from proposed winery production, employment, and/or visitors;
- Project site circulation and vehicle access at State Route 29 project driveways and truck circulation;
- Cumulative year 2030 (no project) conditions along State Route 29 based on the Napa County General Plan Update EIR.

The following sections outline existing and future traffic conditions with and without the proposed Yountville Hill 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. Lester Hardy, Attorney
Mr. George W. Nickelson, P.E.

Attachments: Appendices

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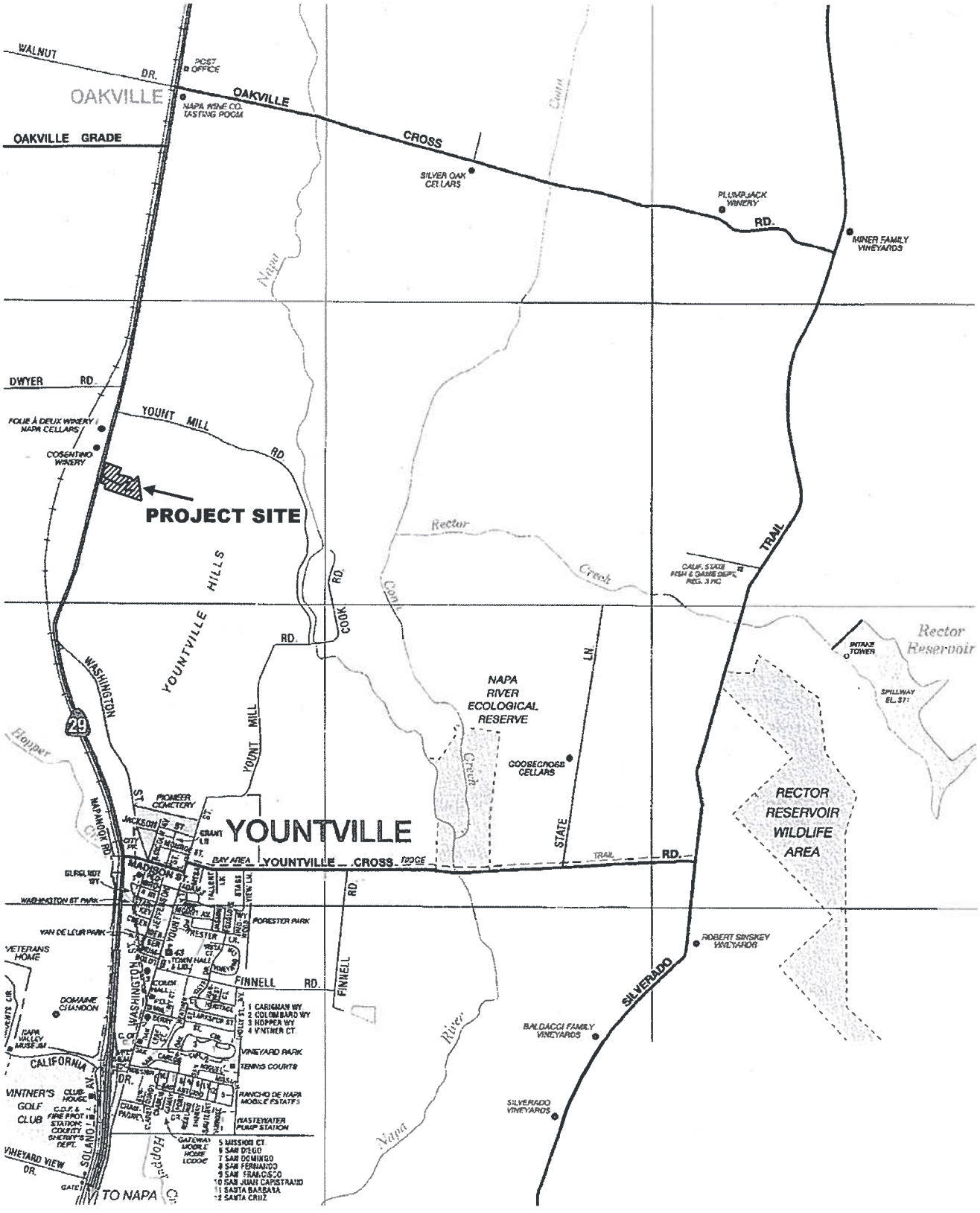

Project Vicinity Map

North

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figure 1

1. EXISTING TRAFFIC CONDITIONS

Roadways

The proposed Yountville Hill Winery project is located at 7400 State Route 29 (SR-29 or St. Helena Highway) on the northeast side of the highway. It is noted that SR-29 is primarily a north-south facility through the Napa Valley. However, SR-29 extends in a northwest-southeast direction immediately adjacent to the project site. A brief description of each roadway follows:

State Route 29 extends in a northwest-southeast direction between Yountville and Oakville in the project study area. Classified as a two-lane rural arterial roadway, SR-29 provides access northwest to Oakville, Rutherford, St. Helena, and Calistoga as well as southeast to 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 the project driveway intersection. The speed limit on SR-29 is 55 mph.

Yountville Hill Winery Driveway (existing configuration) extends east from SR-29 to provide access to the winery grounds and other parcels located in the project vicinity. The current driveway is paved with an 11-12 foot width and extends to an electronic access gate situated approximately 105 feet east of highway. Past the gate, the driveway continues east extending up a hill to an existing (former) Bed and Breakfast building. The driveway circles the building to create a one-way loop road that allows visitors to return via the same route. Prior to extending up the hill to the B&B building, a second driveway extends north approximately 360 feet to provide access to an existing residence.

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. 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 22,800 vehicles.[1] During the peak month, the roadway carries 24,800 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 typically occurs during the summer-fall season), and can result in southbound congestion approaching Yountville. As this heavy southbound flow approaches the traffic signal at Madison Avenue, vehicle queues can extend back towards the project area. Field observations made during peak weekday/weekend data collection at the SR-29/Project Driveway indicate relatively stable-flow conditions in both directions with occasional platoons/congestion in the southbound direction approaching Yountville.

As a part of this study, intersection turning movement counts were conducted on SR-29 at the proposed winery's access driveway during a weekday PM peak commute period (4-6 PM) and the Saturday afternoon peak period (1-3 PM).[3] (Winery visitor activity is expected to be highest during a Saturday afternoon). 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 1,755 vehicles and a Saturday afternoon peak hour

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[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.*

flow of 1,675 vehicles. 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 16.5% 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 2,050 peak hour vehicles on a typical day.

It is noted that construction for the undergrounding of utilities is occurring along segments of SR-29 northwest of the project site. 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 project site being located south of the construction area, overall vehicle flow on SR-29 was not significantly affected.

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

Project Driveway/Access Operations

At the Yountville Hill Winery site access intersection, SR-29 has two travel lanes, paved shoulders and a standard two-way-left-turn-lane (TWLTL). Just to the north of the project driveway, the TWLTL provides access to the Mustard's Grill restaurant driveway on the west side of SR-29. The distance between the north side of the project site driveway and the south side of the Mustard's Grill driveway is about 40-45 feet. Both driveways share the existing TWLTL on SR-29 that allows motorists to make left-turn movements into the driveways without interrupting through-traffic flow on the highway. This same TWLTL allows outbound motorists from the same driveways refuge on SR-29 when making a left-turn movement and merging into through-traffic. This is noted because all outbound traffic from both the proposed project driveway and Mustards Restaurant driveway must yield the right-of-way to any vehicle in the TWLTL.

The Yountville Hill Winery project site currently has a 4-room inn (not in operation) and an off-site residence that gains access via the site driveway. The existing residence traffic activity is very low. During this study's peak period counts, only two 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 4-room inn were calculated and added to the driveway.[4]

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).

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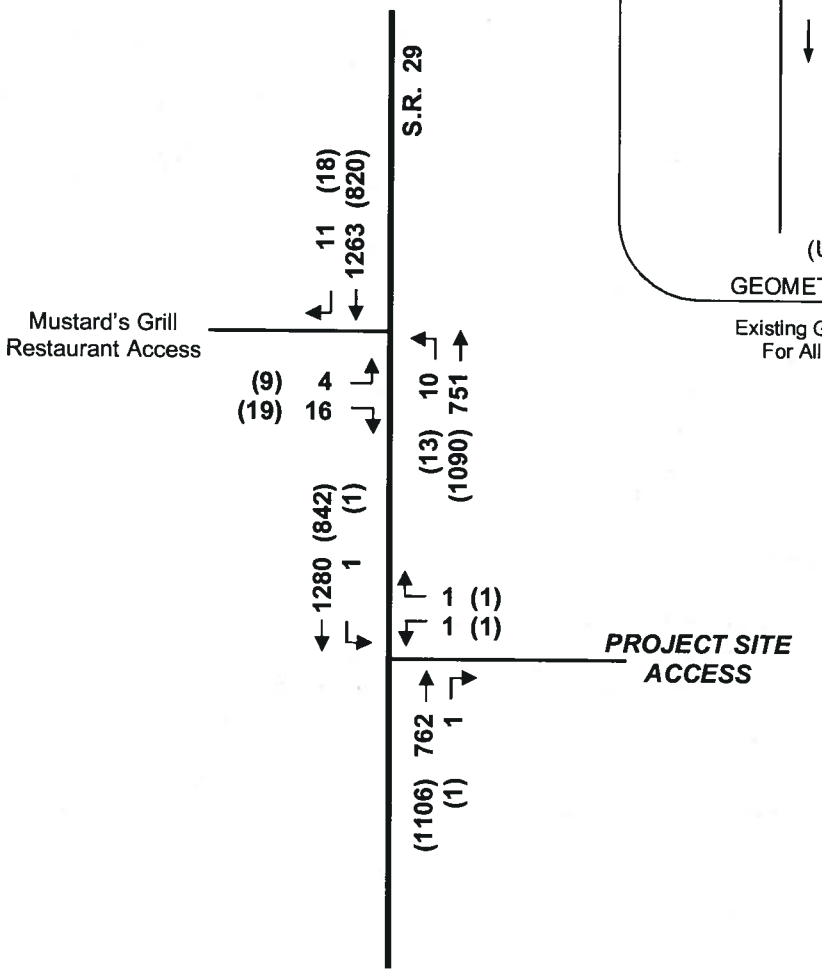
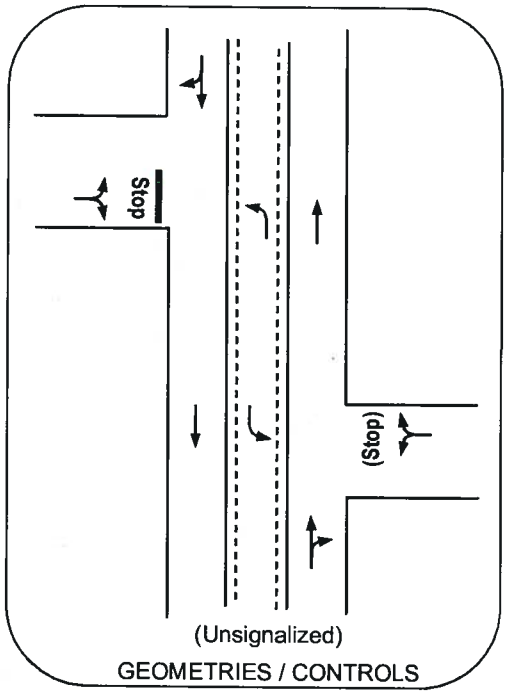
[4] *Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition, Resort Hotel (#330), Based on 0.37 trips/room (= 2 peak hour trips) during both weekday PM and weekend mid-day peak hour, 2012.*





Existing Geometries Assumed
For All Future Scenarios

NOT TO SCALE

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

North

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figure 2

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 Yountville Hill Project Driveway/SR-29 intersection is operating at LOS C (17.9 seconds delay) for the stop-sign controlled outbound turning movements onto SR-29. During the weekend (Saturday) mid-day peak hour, the same outbound turning movements are operating at LOS C (19.8 seconds of delay).

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

			Wkdy. PM LOS/Delay		Wknd. Mid-Day LOS/Delay	
#	Intersection	Control Type	Existing (No Project)	Near-Term (No Project)	Existing (No Project)	Near-Term (No Project)
1	Yountville Hill Driveway/SR-29	Stop	C 17.9 secs.	C 19.7 secs.	C 19.8 secs.	C 22.0 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.

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria, the Yountville Hill Project Driveway/SR-29 intersection was evaluated for signalization.[5] 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 Yountville Hill Project Driveway/SR-29 intersection does not qualify for signalization under the peak hour warrants using existing volumes (the warrant graphs are provided in the Appendix).

Vehicle Speeds/Sight Distance

The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on SR 29 and vehicles turning in/out of the winery access. The required vehicle visibility or "corner sight distance" is a function of the travel speeds on SR-29. 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." [6] 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 SR-29 at the proposed project driveway were observed to be approximately 49-54 miles per hour (mph) during the weekday PM peak period and the Saturday afternoon peak period. Based on Caltrans design standards, these vehicle speeds require a sight distance of about 450-500 feet, measured along the travel lanes on SR-29. [7]

The proposed Yountville Hill winery project driveway intersection is located on a straight section of SR-29. Field observations indicate sight distances to the north and south are well in excess of the 500 feet needed for the measured vehicle speeds. However, there is an existing shrub/low tree situated on the north side of project driveway that blocks sight distance to the north. This shrub would have to be removed if/when project approval is granted.

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[5] *California Manual on Uniform Traffic Control Devices (CAMUTCD), Chapter 4C, Peak hour signal warrant (#3), 2012.*
[6] *Caltrans, Highway Design Manual, Sixth Edition, July 1, 20009.*
[7] *George W. Nickelson, P.E., Radar speed surveys on State Route 29 at Yountville Hill Winery driveway(s), October 30 and November 5, 2009.*

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 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 and Town of Yountville Planning staff for other recent traffic analyses in the area have been used.[8] [9] 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:

Town of Yountville

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

City of St. Helena:

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

Napa County:

Raymond Winery 849 Zinfandel Lane St. Helena, CA 94575	Production: 1,500,000 gallons per year Visitors: 500 visitors/day Employees: 90 full-time
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

8 Mr. Greg Desmond, Interim Planning Director, City of St. Helena, Personal communication; Crocker & Starr Winery project, April 12, 2013.

9 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.

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 94575	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
Sinegal Estate Winery 2125 Inglewood Ave. St. Helena, CA 94575	Production: 60,000 gallons per year Visitors: 21 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.*

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.[10] Near-term projects would generate 202 weekday PM peak hour trips and 206 mid-day weekend peak hour trips on

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

SR-29 adjacent to the Yountville Hill Winery. On a daily basis, near-term projects would generate 845 ADT and 828 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 Yountville Hill Winery Driveway/SR-29 intersection would be operating at LOS C (19.7 seconds). LOS operation during the mid-day weekend peak would be similar at LOS C (22.0 seconds). Near-term (no project) intersection LOS would represent minor increases in vehicle delay for outbound traffic from the Yountville Hill winery driveway of 2-3 seconds (all referenced intersection LOS refers to the stop-sign controlled outbound turning movements from the project driveway).

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

AADT volumes on SR-29 would increase from 22,800 to 23,645 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.

3. NAPA COUNTY SIGNIFICANCE CRITERIA

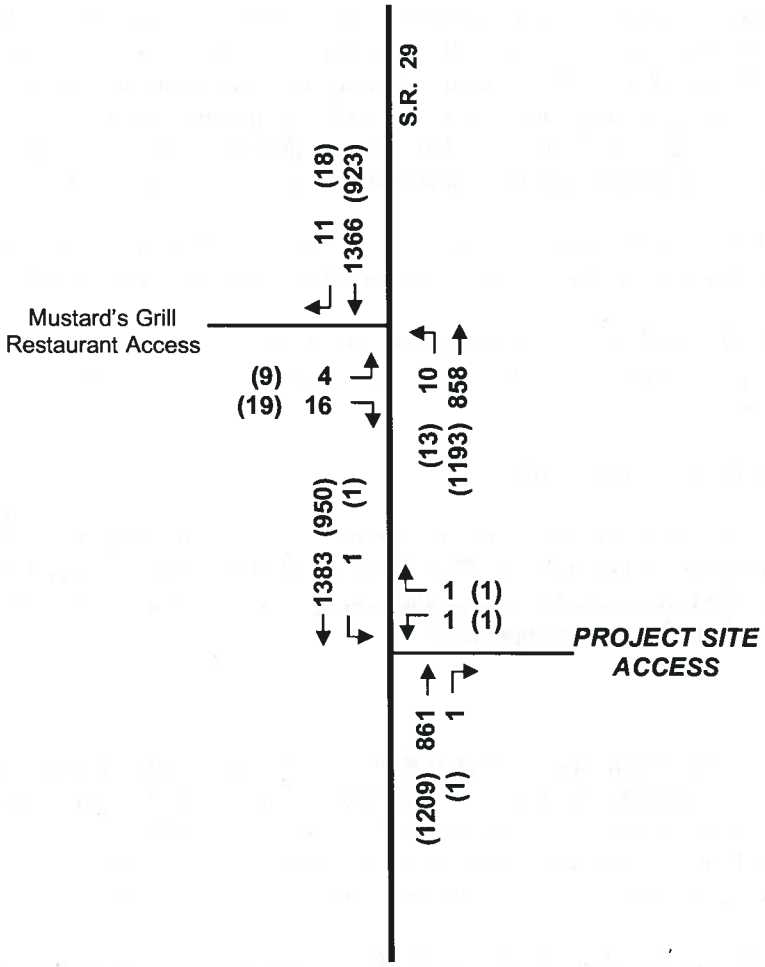
The County of Napa's significance criteria has been based on a review of the Napa County Transportation and Planning Agency and Napa County General Plan documentation on roadway and intersection operations. Specifically, the Circulation Element of the County's General Plan outlines the following significance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



NOT TO SCALE

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

North

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figure 3

- 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 Yountville Hill winery project would consist of wine production, full-time employees, visitation tours/tasting, and marketing events throughout the year. The project applicant's use permit application indicates there would be no part-time employees (except during Crush). Full-time employees would either work a weekday shift and/or combination of weekday/weekend shift. Proposed project components can be described as follows: [11]

• Production	Annual:	100,000 gallons
• Employees:	Weekday:	19 full-time
	Weekend:	8 full-time
• Visitors:	Weekday:	110 visitors
	Weekend:	285 visitors
• Trucks:	Weekday:	2 truck per day
	Weekend:	2 trucks per day

Daily operations for the proposed Yountville Hill Winery project would involve an all on-site winery operation with a maximum annual production of 100,000 gallons (40,500 cases). All fruit (100,000 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 110 daily visitors on a typical weekday and 285 daily visitors on a Saturday. Visitor hours would be limited between 10:00 a.m. – 6:00 p.m. Employment is expected to be a maximum of 19 full-time employees during weekday and/or weekend periods. Winery operations for staff would occur between 6:00 a.m. – 6:30 p.m. The employment shift hours would vary dependent on specific work applications; five production staff (6:00 a.m. – 3:00 p.m.), six administrative staff (8:00 a.m. – 5:00 p.m.), and eight hospitality staff (9:30 a.m. – 6:30 p.m.). The largest marketing event would involve 200 guests occurring on an annual basis. All new marketing events would only be held during off-peak hours.

Annual winery production would be estimated at 100,000 gallons. With regard to truck activity, the winery would generate approximately 4-5 deliveries on its busiest day (crush season).

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

[11] *Yountville Hill Winery, Winery Traffic Information/Trip Generation Sheet, Preliminary project data for production, employment, visitors, and marketing, Mr. Lester Hardy, Attorney, Personal communication, August, 2013.*

Napa County Conservation, Development, and Planning Department and existing driveway volumes.[12] It is noted that for peak hour traffic generation, only full time employees traveling to/from the site were included in project trip generation calculations. For the weekday PM peak hour, this included six administrative staff (production staff would be gone, hospitality staff still on-site). For the weekend mid-day peak hour, this included the eight hospitality staff (production and administrative staff would be gone). Based on production, employment, and visitor activity, the project would be expected to generate 145 daily weekday trips with 39 PM peak hour trips (16 in, 23 out). During a typical weekend, the project would be expected to generate 228 daily trips with 59 mid-day peak hour trips (30 in, 29 out).

During the six-week harvest crush season, the proposed project is expected to generate an average of 250 daily trips. This daily trip total would represent 285 visitors, 9 full-time and 4 part-time employees on-site during weekend periods, 100,000 gallons of wine production, and approximately 35 daily tons (on-haul) of grapes.

Based on the largest marketing event attendance of 200 persons (twice per year), there would total generation of 191event 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.

Project Effects on Roadway/Intersection Operation

A. Existing Plus Project Conditions

The project would be expected to add approximately 109 daily trips south of the site and 36 daily trips north of the site on State Route 29. This would represent an addition of less than 1 percent (0.006) to the daily volumes on the highway. The combined existing plus project volume of 22,945 daily trips would remain at LOS F operating conditions for a two-lane rural arterial roadway based on established County thresholds.

During the peak winery activity periods, the project would generate 39 weekday PM peak hour and 59 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.

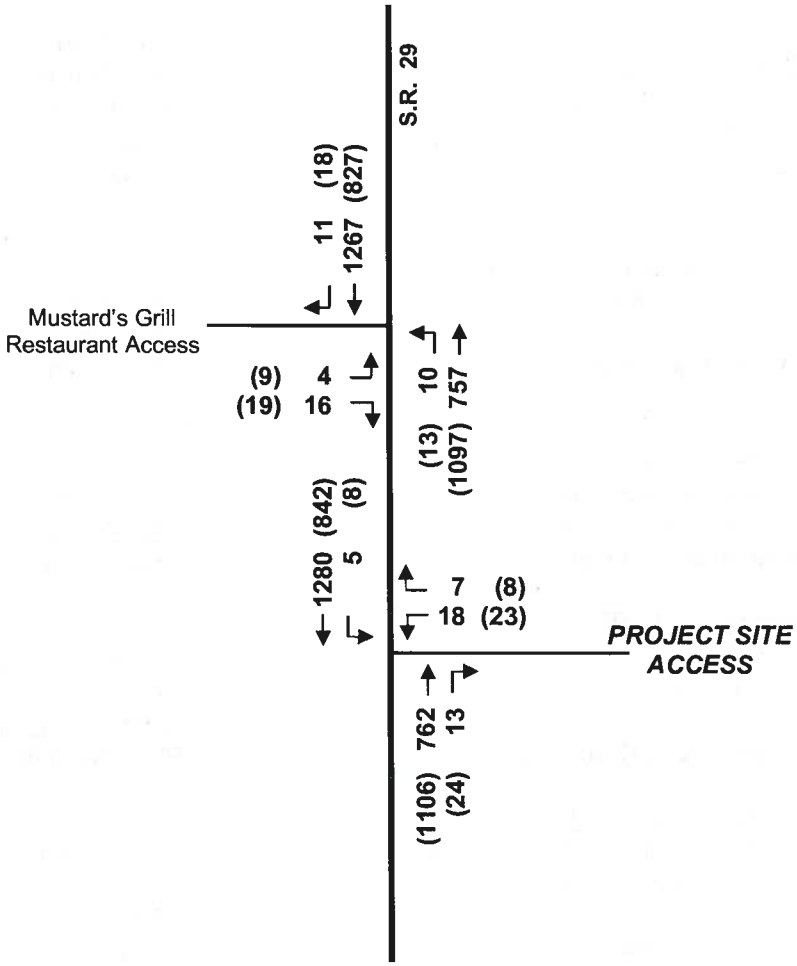
With existing plus project traffic volumes, the two project study intersections would continue to operate at acceptable levels (LOS C or better) during both the weekday PM peak hour and weekend mid-day peak hour periods. At shown in Table 4, intersection LOS would remain unchanged from existing conditions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

[12] *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 YOUNTVILLE HILL WINERY PROJECT

Weekday Daily Traffic:		
110 visitors/2.6 persons per vehicle x 2 one-way trips	=	85 daily trips
19 full time employees x 3.05 one-way trips	=	58 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
100,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	2 daily trips
Total Weekday Daily Trips	=	**145 daily trips**
Weekday PM Peak Hour Traffic:		
(85 daily visitor trips + 2 daily truck trips) x 0.38 peak	=	33 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	=	**39 trips (16 in, 23 out)**
Weekend (Saturday) Daily Traffic:		
285 visitors/2.8 persons per vehicle x 2 one-way trips	=	204 daily trips
8 full time employees x 3.05 one-way trips	=	24 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
Total Weekend (Saturday) Daily Trips	=	**224 daily trips**
Weekend (Saturday) Peak Hour Traffic:		
204 daily visitor trips x 0.25 peak	=	51 peak hour trips
8 full time employees x 1 trip/employee	=	8 peak hour trips
0 part-time employees/2	=	0 peak hour trips
Total Weekend (Saturday) Peak Hour Trips	=	**59 trips (30 in, 29 out)**
Weekend (Saturday) Daily Harvest/Crush Traffic:		
285 visitors/2.8 persons per vehicle x 2 one-way trips	=	204 daily trips
9 full time employees x 3.05 one-way trips	=	27 daily trips
4 part-time employees x 1.90 one-way trips	=	4 daily trips
20,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	1 daily trips
0 annual ton grapes (on-haul)/144 daily trucks x 2 o-w trips	=	0 daily trips
Total Weekend (Saturday) Daily Harvest/Crush Trips	=	**55 daily trips**
Largest Marketing Event – Additional Traffic		
6 event staff x 2 one-way trips per person	=	12 event trips
125 visitors / 2.8 visitors per vehicle x 2 o-w trips	=	89 event trips
4 trucks x 2 one-way trips	=	8 event trips
Total Largest Event Marketing Trips:	=	**109 event trips**

Source: Production, employee, and visitor data provided by Mr. Eric Sklar (project applicant) and Mr. Lester Hardy (Attorney),



NOT TO SCALE

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

North

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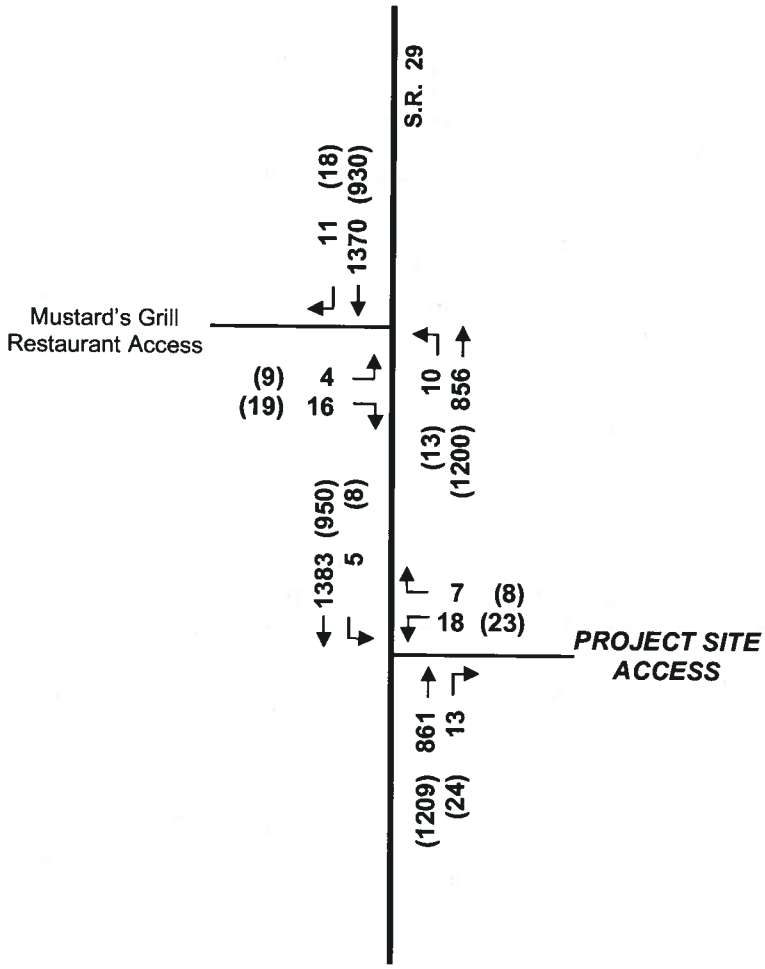
figure 4



NOT TO SCALE

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

North

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figure 5

B. Near-Term Plus Project Conditions

With near-term plus project conditions, daily traffic volumes on State Route 29 would increase to 23,873 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.

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

			Wkdy. PM LOS/Delay		Wknd. Mid-Day LOS/Delay	
#	Intersection	Control Type	Existing + Project	Near-Term + Project	Existing + Project	Near-Term + Project
1	Yountville Hill Driveway/SR-29	Stop	C 21.1 secs.	C 23.6 secs.	C 21.4 secs.	C 24.2 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, sight distances to the north and the south are well in excess of the minimum sight distances needed for the measured vehicle speeds. Based on radar surveys conducted in the vicinity of the proposed Yountville Hill Winery project, the "critical" vehicle speed (85% of all surveyed vehicles travel at or below the critical speed) along SR-29 at the winery were observed to be 49-54 miles per hour (mph).[13] Based on Caltrans design standards, these vehicle speeds require a stopping sight distance of 400-450 feet, measured along the travel lanes on SR-29.[14]

The Yountville Hill winery access intersection is located on a straight section of SR-29. Field observations indicate sight distances to the north and south are well in excess of the 450 feet needed for the measured vehicle speeds with the existing southerly and new northern driveway locations. However, a large shrub/tree (volunteer) would need to be removed on the north side of the driveway entrance to ensure unobstructed views to the north up SR-29.

Two-Way-Left-Turn-Lane-Operation

The proposed project's driveway intersects SR-29 at a point where a TWLTL exists. As shown on Figures 4 and 5, the driveway would have 5 inbound left-turns during a weekday PM peak hour and 8 inbound left turns during a Saturday afternoon peak hour. During these same periods, the inbound left turns counted at the Mustard's Grill driveway were 10 vehicles and 13 vehicles, respectively. Based on Caltrans guidelines for left turn queuing, the Mustard's Grill volumes would require a maximum of one vehicle storage during the

[13] *George W. Nickelson, P.E., Radar speed surveys on State Route 29 at Yountville Hill Winery driveway(s) October 30 and November 5, 2009*
[14] *Caltrans, Ibid....*

peak hours.[15] During the peak period counts, the actual observed left turn queues never exceeded one vehicle. The very low inbound left turn volumes at the project driveway would not be expected to significantly conflict with the left turns into Mustard's Grill.

Project Access and Circulation

Based on the Yountville Hill Winery site plan, a new driveway (improved) would extend to parking and winery facilities located on the hillside east of SR-29 (see Figure 6--Project Site Plan). The project driveway would have a minimum width of 20-feet to provide for two-way travel and comply with County standards. Approximately mid-way up the hillside, the driveway would provide access to a parking area and visitor entrance to the winery. The parking area would have a 25-foot drive aisle and multiple access points (three) from the driveway to allow for vehicle entry/exit and return to SR-29. Continuing up the hill, the driveway would terminate in a large cul-de-sac at the winery's visitor tasting room/office. There would be limited parking spaces at this building (two). This area would primarily be for project staff and/or ADA visitors not parking in the lower parking areas. The large cul-de-sac would allow vehicles to turn around and/or back out of parking spaces to exit the site.

The proposed project driveway has been evaluated for right-turn lane warrants. Caltrans guidelines suggest that the combination of northbound through volumes on SR-29 and the expected inbound right turn volumes would not warrant a separate right turn lane at the site driveway. However, the driveway would have inbound right turn volumes that would warrant a right turn taper (not a separate right turn lane). The right turn volume would just meet the minimum volume threshold during only the Saturday afternoon peak hour (with visitor activity at the maximum permitted levels).

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.[16] 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.

Marketing Events

With regard to special event traffic, the largest (200 visitors) event 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 (200 people) would generate up to 191 trips (96 in, 95 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.

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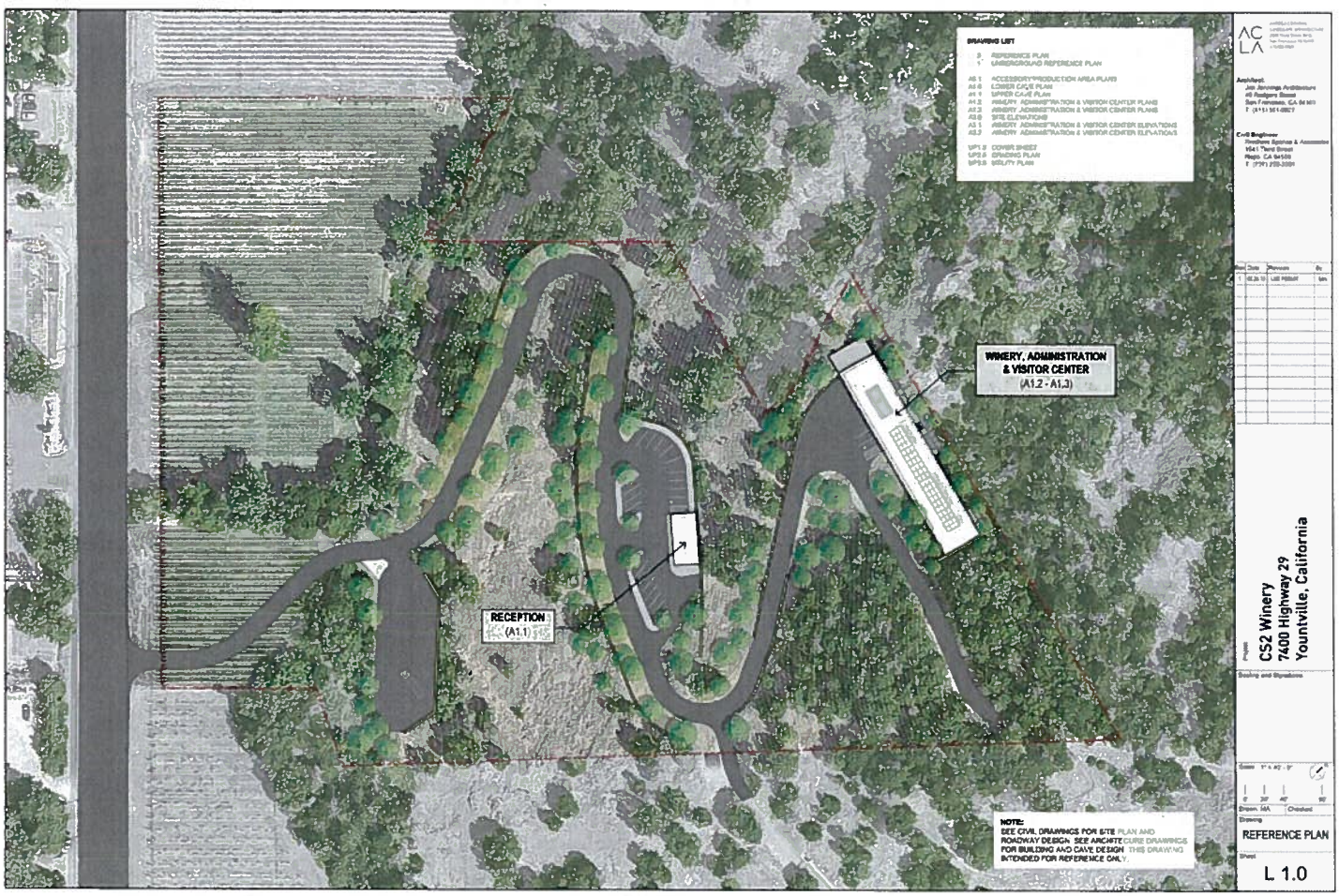
[15] *Caltrans, Guidelines for Reconstruction of Intersections, August 1985. The maximum peak hour northbound left-turn volume is 13 vehicles, requiring 1 vehicle storage calculated as follows: 13 hourly vehicles/60 x 2 minutes of storage = 0.43 or 1 vehicle.*

[16] *Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.*



Project Site Plan

North

omni-means

figure 6

Construction Impacts

With regard to construction impacts, the contractor responsible for cave construction has estimated an 18-month schedule during which time approximately 28,400 cubic yards of cave spoils would be hauled off-site. Based on an 18-month schedule, the spoils quantity would equate to approximately 75 cubic yards daily or 7-8 trucks each day. Truck volumes of this magnitude would not be measurably affect traffic flows on SR-29 during the weekday PM peak period.

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 Madison Street and Oakville Grade Road was applied to the provided Year 2003 peak hour two-way volume (2,017 trips) on SR-29, yielding a volume of 4,098 weekday PM peak hour trips on SR-29 in Year 2030.

The projected PM peak hour cumulative volume on SR-29 represents a large (200%) increase compared to the existing (Year 2013) peak hour counted volume of 2,042 trips on SR-29 at the project driveway. With projected cumulative forecasts, the existing daily volume on SR-29 would increase from 22,800 trips to 45,600 daily trips.

Historical Data

For comparison, average annual daily traffic volumes on SR-29 between Madison Street and Oakville Grade Road over the previous twenty years were reviewed. The average annual daily traffic (AADT) on SR-29 in 1992 was 15,500 trips. By comparison, the AADT on SR-29 2012 was 22,800 trips. Daily volumes were highest in the year 2007, reaching 26,500 AADT. Daily volumes on SR-29 have since declined and are lower today than they were in 2002. Increases in daily volumes between year 1992 and the highest year of 2007 equates to an annual increase of 4.5% per year on SR-29. Applying the same annual increase to the current ADT on SR-29 of 22,800 results in about 38,760 ADT in year 2030 (4.1% per year added for 17 years).

Cumulative volumes based on historical data are approximately 85% 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.

The County has identified other mitigation policies, including development of a traffic impact fee (TIF) to be developed in cooperation with the NCTPA (Mitigation Measure 4.4.1C). This would require new projects to pay their "fair share" of countywide traffic improvements they contribute the need for. Examples of such improvements could include transit/bicycle enhancements or possibly signalizing major cross street intersections along the SR-29 corridor. The concept is under development but presumably the fee would be applied on a "per trip" basis if/when implemented.

7. SUMMARY AND CONCLUSIONS

Daily and Peak Hour Operations

The proposed Yountville Hill Winery project would generate 145-224 net new daily trips during the weekday and weekend periods (respectively). The project traffic would represent an increase of less than 1% (0.006) over the existing SR-29 volume of 22,800 daily trips. All project study intersections would continue to operate at LOS C under existing plus project and near-term plus project conditions during both weekday and weekend peak hour conditions.

Daily volumes on SR-29 would continue to operate at or near capacity with 23,645 ADT (near-term no project) and 23,873 ADT with near-term plus project volumes but are aided with the presence of the continuous two-way-left-turn-lane.

Based on standard auto occupancy rates, the largest special event (200 people) would generate up to 191 trips (96 in, 95 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 north and the south on SR-29 are well in excess of the minimum sight distances needed for the measured vehicle speeds. Based on radar surveys conducted in the vicinity of the Yountville Hill Winery, the "critical" vehicle speed (85% of all surveyed vehicles travel at or below the critical speed) along SR-29 at the winery were observed to be 49-54 miles per hour (mph).[17] Based on Caltrans design standards, these vehicle speeds require a stopping sight distance of 400-450 feet, measured along the travel lanes on SR-29.[18]

The Yountville Hill winery access intersection is located on a straight section of SR-29. Field observations indicate sight distances to the north and south are well in excess of the 400-450 feet needed for the measured vehicle speeds at this driveway location. However, an existing shrub/tree just to the north side of the site's driveway should be removed to provide unobstructed views of vehicle traffic coming from the north on SR-29.

Vehicle Circulation/Site Access

Based on the Yountville Hill Winery site plan, a new driveway (improved) would extend in a winding fashion to parking and winery facilities located on the hillside east of SR-29 (see Figure 6--Project Site Plan). The project driveway would have a minimum width of 20-feet to provide for two-way travel and comply with County standards. Approximately mid-way up the hillside, the driveway would provide access to a large parking area and visitor entrance to the winery. The parking area would have a 25-foot drive aisle and multiple access points from the driveway (3) to allow for vehicle entry/exit and return to SR-29. Continuing up the hill, the driveway would terminate in a large cul-de-sac at the winery's visitor tasting room/office. Limited parking spaces would be provided in front of this building (two). This area would primarily be for project staff and/or visitors with ADA parking requirements. The large cul-de-sac would allow vehicles to turn around and/or back out of parking spaces to exit the site.

Based on design guidelines, the site's driveway would have inbound right turn volumes that would warrant a right turn taper (not a separate right turn lane), The right turn volume would just meet the minimum volume threshold for a taper during only the Saturday afternoon peak hour (with visitor activity at the maximum permitted levels).

The proposed project's driveway intersects SR-29 at a point where a TWLTL exists. As shown on Figures 4 and 5, the driveway would have 5 inbound left-turns during a weekday PM peak hour and 8 inbound left turns during a Saturday afternoon peak hour. During these same periods, the inbound left turns counted at the Mustard's Grill driveway were 10 vehicles and 13 vehicles, respectively. Based on Caltrans guidelines for left turn queuing, the Mustard's Grill volumes would require a maximum of one vehicle storage during the peak hours.[19] During the peak period counts, the actual observed left turn queues never exceeded one vehicle. The very low inbound left turn volumes at the project driveway would not be expected to significantly conflict with the left turns into Mustard's Grill.

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[17] *George W. Nickelson, P.E., Radar speed surveys on State Route 29 at Yountville Hill Winery driveway(s), October 30 and November 5, 2009*
[18] *Caltrans, Ibid....*
[19] *Caltrans, Guidelines for Reconstruction of Intersections, August 1985. The maximum peak hour northbound left-turn volume is 13 vehicles, requiring 1 vehicle storage calculated as follows: 13 hourly vehicles/60 x 2 minutes of storage = 0.43 or 1 vehicle.*

Construction Impacts

With regard to construction impacts, the contractor responsible for cave construction has estimated an 18-month schedule during which time approximately 28,400 cubic yards of cave spoils would be hauled off-site. Based on an 18-month schedule, the spoils quantity would equate to approximately 75 cubic yards daily or 7-8 trucks each day. Truck volumes of this magnitude would not be measurably affect traffic flows on SR-29 during the weekday PM peak period.

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 County has identified other mitigation policies, including development of a traffic impact fee (TIF) to be developed in cooperation with the NCTPA (Mitigation Measure 4.4.1C). This would require new projects to pay their "fair share" of countywide traffic improvements they contribute the need for. Examples of such improvements could include transit/bicycle enhancements or signalizing major cross street intersections along the SR-29 corridor. The concept is under development but presumably the fee would be applied on a "per trip" basis if/when implemented.

APPENDIX

- Level of Service Definitions
- Level of Service Calculations
- Turn Lane Warrant Graphs
- Signal Warrant Sheets

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.	≤ 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 secs.	>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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	1	762	1	1	1280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	828	1	1	1391
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	2222	829			829	
vC1, stage 1 conf vol	829					
vC2, stage 2 conf vol	1393					
vCu, unblocked vol	2222	829			829	
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 %	100	100			100	
cM capacity (veh/h)	227	371			802	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	829	1	1391
Volume Left	1	0	1	0
Volume Right	1	1	0	0
cSH	282	1700	802	1700
Volume to Capacity	0.01	0.49	0.00	0.82
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	17.9	0.0	9.5	0.0
Lane LOS	C		A	
Approach Delay (s)	17.9	0.0	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	1	1106	1	1	842
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1202	1	1	915
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	2120	1203			1203	
vC1, stage 1 conf vol	1203					
vC2, stage 2 conf vol	917					
vCu, unblocked vol	2120	1203			1203	
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 %	100	100			100	
cM capacity (veh/h)	272	225			580	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	1203	1	915
Volume Left	1	0	1	0
Volume Right	1	1	0	0
cSH	246	1700	580	1700
Volume to Capacity	0.01	0.71	0.00	0.54
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	19.8	0.0	11.2	0.0
Lane LOS	C		B	
Approach Delay (s)	19.8	0.0	0.0	
Approach LOS	C			

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		68.3%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	1	861	1	1	1383
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	936	1	1	1503
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Media type	TWLTL					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2442	936			937	
vC1, stage 1 conf vol	936					
vC2, stage 2 conf vol	1505					
vCu, unblocked vol	2442	936			937	
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 %	99	100			100	
cM capacity (veh/h)	200	321			73	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	937	1	1503
Volume Left	1	0	1	0
Volume Right	1	1	0	0
cSH	246	1700	731	1700
Volume to Capacity	0.01	0.55	0.00	0.88
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	19.7	0.0	9.9	0.0
Lane LOS	C		A	
Approach Delay (s)	19.7	0.0	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	1	1209	1	1	950
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1314	1	1	1033
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT					
Median storage veh)	5					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2349	1315			1315	
vC1, stage 1 conf vol	1315					
vC2, stage 2 conf vol	1035					
vCu, unblocked vol	2349	1315			1315	
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 %	100	99			100	
cM capacity (veh/h)	239	193			526	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	1315	1	1033
Volume Left	1	0	1	0
Volume Right	1	1	0	0
cSH	214	1700	526	1700
Volume to Capacity	0.01	0.77	0.00	0.61
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	22.0	0.0	11.9	0.0
Lane LOS	C		B	
Approach Delay (s)	22.0	0.0	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	7	762	13	5	1280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	8	828	14	5	1391
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	2238	835			842	
vC1, stage 1 conf vol	835					
vC2, stage 2 conf vol	1402					
vCu, unblocked vol	2238	835			842	
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	98			99	
cM capacity (veh/h)	224	367			793	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	27	842	5	1391
Volume Left	20	0	5	0
Volume Right	8	14	0	0
cSH	251	1700	793	1700
Volume to Capacity	0.11	0.50	0.01	0.82
Queue Length 95th (ft)	9	0	1	0
Control Delay (s)	21.1	0.0	9.6	0.0
Lane LOS	C		A	
Approach Delay (s)	21.1	0.0	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	23	8	1106	24	8	842
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	9	1202	26	9	915
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	2148	1215			1228	
vC1, stage 1 conf vol	1215					
vC2, stage 2 conf vol	933					
vCu, unblocked vol	2148	1215			1228	
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	96			98	
cM capacity (veh/h)	267	221			567	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	34	1228	9	915
Volume Left	25	0	9	0
Volume Right	9	26	0	0
cSH	254	1700	567	1700
Volume to Capacity	0.13	0.72	0.02	0.54
Queue Length 95th (ft)	11	0	1	0
Control Delay (s)	21.4	0.0	11.4	0.0
Lane LOS	C		B	
Approach Delay (s)	21.4	0.0	0.1	
Approach LOS	C			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	7	861	13	5	1383
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	8	936	14	5	1503
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	2457	943			950	
vC1, stage 1 conf vol	943					
vC2, stage 2 conf vol	1514					
vCu, unblocked vol	2457	943			950	
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	98			99	
cM capacity (veh/h)	197	318			723	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	27	950	5	1503
Volume Left	20	0	5	0
Volume Right	8	14	0	0
cSH	220	1700	723	1700
Volume to Capacity	0.12	0.56	0.01	0.88
Queue Length 95th (ft)	10	0	1	0
Control Delay (s)	23.6	0.0	10.0	0.0
Lane LOS	C		B	
Approach Delay (s)	23.6	0.0	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	23	8	1209	24	8	950
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	9	1314	26	9	1033
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	2377	1327			1340	
vC1, stage 1 conf vol	1327					
vC2, stage 2 conf vol	1050					
vCu, unblocked vol	2377	1327			1340	
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	95			98	
cM capacity (veh/h)	235	190			514	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	34	1340	9	1033
Volume Left	25	0	9	0
Volume Right	9	26	0	0
cSH	221	1700	514	1700
Volume to Capacity	0.15	0.79	0.02	0.61
Queue Length 95th (ft)	13	0	1	0
Control Delay (s)	24.2	0.0	12.1	0.0
Lane LOS	C		B	
Approach Delay (s)	24.2	0.0	0.1	
Approach LOS	C			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

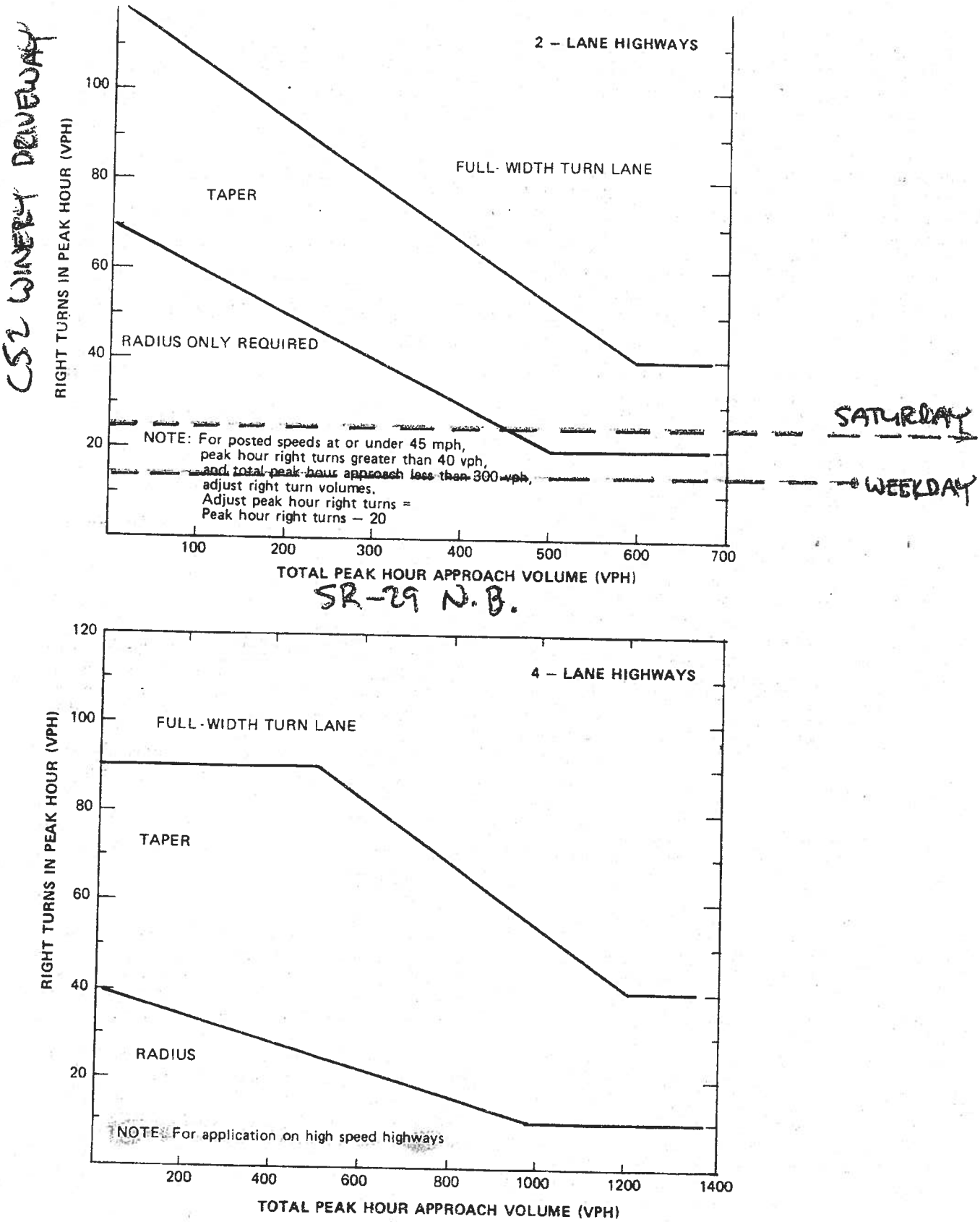
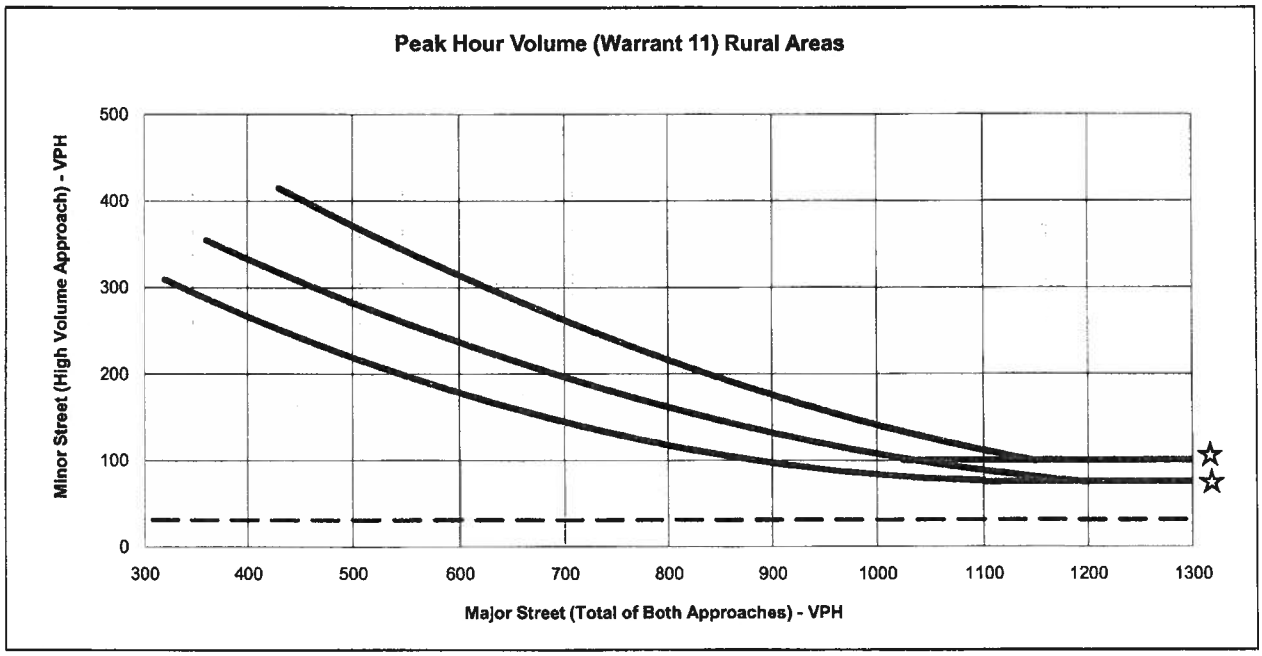


Figure 4-23. Traffic volume guidelines for design of right-turn lanes. (Source: Ref. *4-11*)

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*

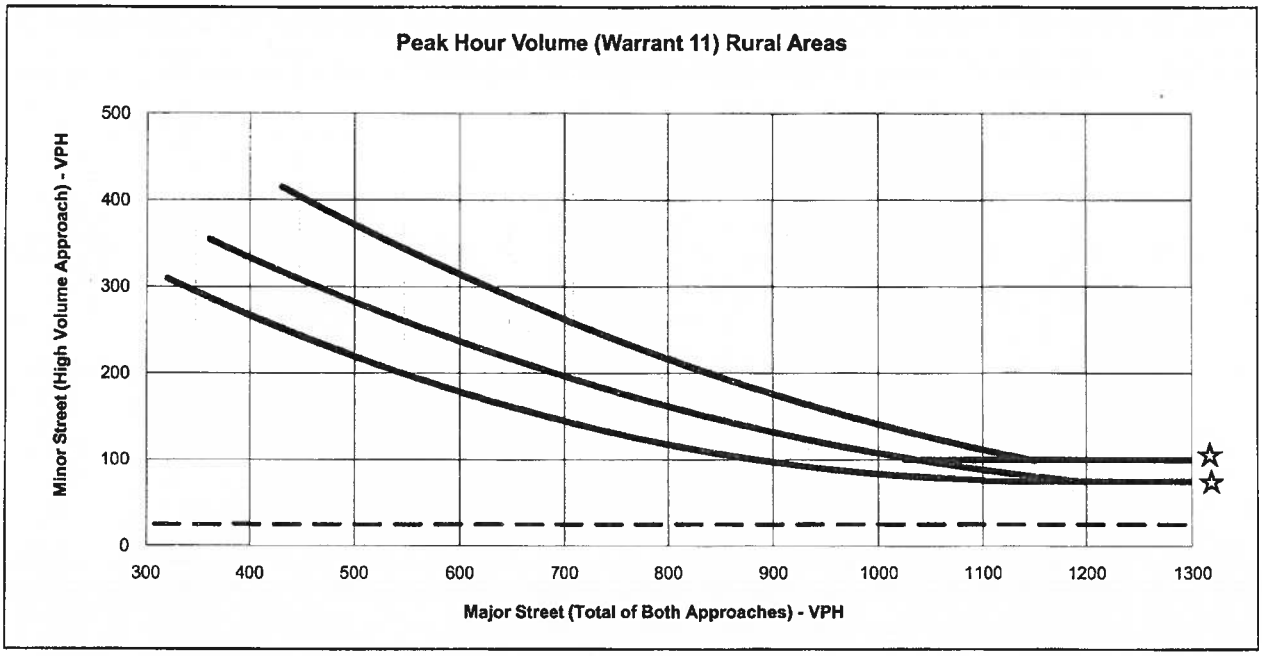


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Yountville Hill Winery / State Route 29
Scenario:	MD Weekend Near-Term plus Project
Minor St. Volume:	31
Major St. Volume:	2191
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:	Yountville Hill Winery / State Route 29
Scenario:	PM Weekday Near-Term plus Project
Minor St. Volume:	25
Major St. Volume:	2262
Warrant Met?:	NO

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ENGINEERS · PLANNERS

February 13, 2014

Mr. Eric Sklar
CS2 Wines, LLC
P.O. Box 47
Oakville, CA 94562

RE: Addendum Response Letter To Napa County Comments; Focused Traffic Analysis for the Proposed Yountville Hill Winery – Located at 7400 St. Helena Highway (SR-29) in Napa County (September 19, 2013)

Dear Mr. Sklar:

The following addendum letter is in response to Napa County staff comments on the focused traffic analysis performed for the proposed Yountville Hill Winery in Napa County. Specifically, Mr. Sean Trippi (Senior Planner with Napa County) has commented on our discussions relating to proposed project trip generation and actual project trip generation calculations found in Table 3 of the draft report.[i] Specifically, Mr. Trippi has noted our discussion of proposed project trip generation (page 12 of report) is not consistent with the actual trip generation shown in Table 3 (page 13 of the report). In response, we have the following clarifications/corrections for pages 12 and 13 of the draft report (attached):

- Page 12: 1st Paragraph—last sentence: "During a typical weekend, the project would be expected to generate 228 daily trips with 59 mid-day peak hour trips (30 in, 29 out)." This sentence is correct. However, Table 3 indicated a daily trip generation for a typical weekend Saturday of *224* trips. This has been corrected in Table 3 (attached);

- Page 12: 2nd Paragraph—first sentence: "During the six week harvest crush season, the proposed project is expected to generate and average of *250* daily trips. This sentence is incorrect. In addition, the weekend (Saturday) daily harvest/crush traffic calculation shown in Table 3 indicated *55* daily trips. This amount is also incorrect. The daily trip calculation for proposed project harvest/crush has been re-calculated and the text corrected. The proposed project would generate 241 daily trips during a Saturday harvest/crush season. Both text and Table 3 have been corrected (attached). As part of this new calculation, the correct amount of annual on-haul grapes (35 tons) has been included to correspond with text discussion.

We appreciate Mr. Trippi's review of our focused traffic analysis for the proposed Yountville Hill Winery project. We hope these corrections relating to overall trip generation will allow the environmental review to continue. It is noted that these corrections to daily project trip generation would not change our conclusions related to overall project impacts. Please call if you have any questions.

Sincerely,

OMNI-MEANS, Ltd.
Engineers & Planners

Peter J. Galloway
Project Manager/Transportation Planner

Cc: Mr. Sean Trippi, Senior Planner, Napa County
Mr. Lester Hardy, Attorney at Law, St. Helena
Mr. George Nickelson, P.E., Omni-Means

Enc. Page 12 & 13 (Corrected); Focused Traffic Analysis for the Proposed Yountville Hill Winery—Located at 7400 St. Helena Highway (SR-29) in Napa County (September 19, 2013).

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[i] *Mr. Sean Trippi, Senior Planner, Napa County, Planning, Building, and Environmental Services, Correspondence (email) to Mr. Lester Hardy, Attorney at Law, St. Helena, February 13, 2014.*

Napa County Conservation, Development, and Planning Department and existing driveway volumes.[12] It is noted that for peak hour traffic generation, only full time employees traveling to/from the site were included in project trip generation calculations. For the weekday PM peak hour, this included six administrative staff (production staff would be gone, hospitality staff still on-site). For the weekend mid-day peak hour, this included the eight hospitality staff (production and administrative staff would be gone). Based on production, employment, and visitor activity, the project would be expected to generate 145 daily weekday trips with 39 PM peak hour trips (16 in, 23 out). During a typical weekend, the project would be expected to generate 228 daily trips with 59 mid-day peak hour trips (30 in, 29 out).

During the six-week harvest crush season, the proposed project is expected to generate an average of 241 daily trips. This daily trip total would represent 285 visitors, 9 full-time and 4 part-time employees on-site during weekend periods, 100,000 gallons of wine production, and approximately 35 annual tons (on-haul) of grapes.

Based on the largest marketing event attendance of 200 persons (twice per year), there would total generation of 191event 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.

Project Effects on Roadway/Intersection Operation

A. Existing Plus Project Conditions

The project would be expected to add approximately 109 daily trips south of the site and 36 daily trips north of the site on State Route 29. This would represent an addition of less than 1 percent (0.006) to the daily volumes on the highway. The combined existing plus project volume of 22,945 daily trips would remain at LOS F operating conditions for a two-lane rural arterial roadway based on established County thresholds.

During the peak winery activity periods, the project would generate 39 weekday PM peak hour and 59 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 C 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.

[12] *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 YOUNTVILLE HILL WINERY PROJECT

Weekday Daily Traffic:		
110 visitors/2.6 persons per vehicle x 2 one-way trips	=	85 daily trips
19 full time employees x 3.05 one-way trips	=	58 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
100,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	2 daily trips
Total Weekday Daily Trips	=	**145 daily trips**
Weekday PM Peak Hour Traffic:		
(85 daily visitor trips + 2 daily truck trips) x 0.38 peak	=	33 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	=	**39 trips (16 in, 23 out)**
Weekend (Saturday) Daily Traffic:		
285 visitors/2.8 persons per vehicle x 2 one-way trips	=	204 daily trips
8 full time employees x 3.05 one-way trips	=	24 daily trips
0 part-time employees x 1.90 one-way trips	=	0 daily trips
Total Weekend (Saturday) Daily Trips	=	**228 daily trips**
Weekend (Saturday) Peak Hour Traffic:		
204 daily visitor trips x 0.25 peak	=	51 peak hour trips
8 full time employees x 1 trip/employee	=	8 peak hour trips
0 part-time employees/2	=	0 peak hour trips
Total Weekend (Saturday) Peak Hour Trips	=	**59 trips (30 in, 29 out)**
Weekend (Saturday) Daily Harvest/Crush Traffic:		
285 visitors/2.8 persons per vehicle x 2 one-way trips	=	204 daily trips
9 full time employees x 3.05 one-way trips	=	27 daily trips
4 part-time employees x 1.90 one-way trips	=	8 daily trips
20,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	=	1 daily trips
35 annual ton grapes (on-haul)/144 daily trucks x 2 o-w trips	=	1 daily trips
Total Weekend (Saturday) Daily Harvest/Crush Trips	=	**241 daily trips**
Largest Marketing Event – Additional Traffic		
6 event staff x 2 one-way trips per person	=	12 event trips
125 visitors / 2.8 visitors per vehicle x 2 o-w trips	=	89 event trips
4 trucks x 2 one-way trips	=	8 event trips
Total Largest Event Marketing Trips:	=	**109 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.