George W. Nickelson, P.E.

Traffic Engineering • Transportation Planning

October 27, 2009

Mr. Farhaad Virani
Farella, Braun & Martel, LLP
Russ Building
235 Montgomery Street
San Francisco, CA 94104

Subject: ***Traffic Analysis for Production and Visitor Increases at the Robert Sinskey Vineyards Winery on Silverado Trail***

Dear Mr. Virani:

The attached report summarizes our traffic analysis of the proposed winery expansion on Silverado Trail in Napa County (see Figure 1 for site location map). This scope of the analysis reflects our analyses of the project application and counts/field reviews of the winery traffic conditions.

Our analysis has determined that the proposed Sinskey Vineyards Winery would not significantly impact traffic conditions. The traffic generated by the proposed Winery project would have no measurable effects on traffic flows along Silverado Trail. The available sight distance along Silverado Trail would be adequate, and traffic increases at the access road intersection with Silverado Trail would not have a measurable effect on the intersection's operation. The existing left turn lane in Silverado Trail is appropriately designed for the projected volumes, and the site's internal access road would meet the Napa County standards.

I trust that this report responds to your needs. Please review this information and call me with any questions or comments.

Sincerely,

George Nickelson

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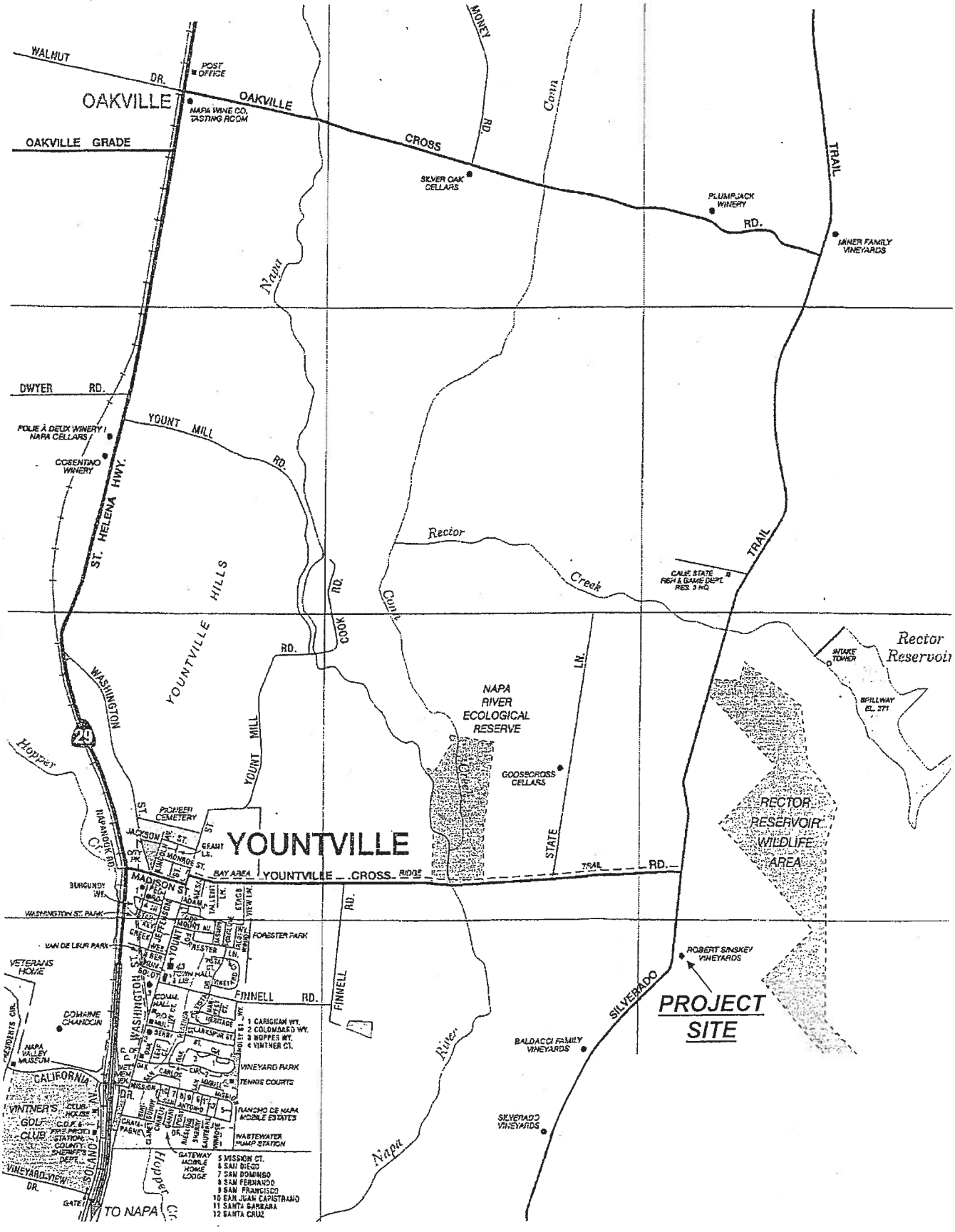

Project Site Location Map

North

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figure 1

1. Existing Traffic Conditions

a. Traffic Operations

Silverado Trail provides a primary north-south Napa County access along the east side of the Napa Valley and is a two-lane rural road in the area of the Sinskey Vineyards Winery. Based on Napa County records, Silverado Trail has a current average daily traffic volume of 10,486 vehicles south of Yountville Cross Road.(1) These volumes are within the roadway's capacity. Based on the volume and observed vehicle speeds, the operation would be categorized as in the Level of Service (LOS) "C" range.(2)(3)

In the vicinity of the proposed project, Silverado Trail has two travel lanes, a left turn lane and paved shoulders/bike lanes on both sides of the road. It is noted that the left turn lane at the site driveway also extends to the south, providing a limited refuge area for outbound left turns.

New traffic counts were conducted at the Silverado Trail site access during a weekday PM peak commute period (4-6 PM) and the Saturday afternoon peak period (1-3 PM).(4) Because the counts for this study were conducted in September, the volumes reflect traffic flows during the higher summer travel season. Peak hour traffic flows in/out of the winery driveway are 55% to/from the north and 45% to/from the south on Silverado Trail.

As outlined in Table 1, the delays for vehicles outbound from the access are comparable during both the weekday PM peak hour and Saturday afternoon peak hour - the outbound traffic operation was calculated at LOS "B" with short delays (LOS definitions and calculations are attached as appendices).

b. Vehicle Speeds and Sight Distance on Silverado Trail

The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on Silverado Trail and vehicles turning in/out of the access road. The required vehicle visibility or "corner sight distance" is a function of the travel speeds on Silverado Trail. 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.".(5) Caltrans design guidelines also indicate that at private access intersections the minimum corner sight distance "shall be equal to the stopping sight distance".

Based on new radar surveys at the site access, the "critical" vehicle speeds (85% of all surveyed vehicles travel at or below the critical speed) along Silverado Trail were measured (in both directions) at about 51 mph.(6) Caltrans' design standards indicate that these vehicle speeds require a stopping sight distance of about 450 feet, measured along the travel lanes on Silverado Trail.(7) Our field measurements indicate over 1,000 feet of visibility to the north and 650-700 feet to the south, in excess of the minimum standards.

TABLE 1
EXISTING AND PROJECTED OPERATION AT THE
SINSKEY VINEYARDS WINERY ACCESS ON SILVERADO TRAIL
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection Scenario	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Outbound	Inbound Left Turn	Outbound	Inbound Left Turn
Existing	LOS B/ 14.0 seconds	LOS A/ 8.0 seconds	LOS B/ 12.9 seconds	LOS A/ 8.5 seconds
Existing + Project	LOS B/ 14.3 seconds	LOS A/ 8.0 seconds.	LOS B/ 13.0 seconds	LOS A/ 8.5 seconds

c. Internal Circulation

The project would be served by the existing internal access road which extends from Silverado Trail about 400-500 feet to visitor facility and winery. The road is about 24 feet wide and paved. This pavement width would exceed the Napa County standard of 18 feet for a driveway of this type.[8]

2. Traffic Effects of the Proposed Project

a. Traffic Operations Impacts of the Proposed Winery

A key element of this analysis is to clearly identify the new traffic associated with the proposed production and visitor increases at the winery. The typical traffic that would be added to the roadways would represent visitor trips as well as those activities associated with the importation and processing of grapes and bottling/shipping of wine, deliveries of equipment and supplies, employees and other periodic deliveries.

In addition to a production increase (from 65,000 gallons to 143,000 gallons), the winery would have increased visitors. Public visitation would be unchanged, but seminars could experience an average increase of 6 persons per day, and new private tours/tastings could average 55 persons. The maximum daily attendance for the private tours/tastings would be 75 persons, and this level has been used to provide a "worst case" conservative analysis of the visitor program's overall traffic effects.

The proposed winery expansion traffic generation has been calculated in Table 2. On a weekday and Saturday, a maximum of 64-68 added trips would be expected. During the 6-week harvest season, the traffic increase would be 76 daily trips.

Assuming the added daily trips would be distributed comparable to existing flows, the daily traffic due to the proposed project would add about 0.3-0.4% to existing volumes on Silverado Trail. This change would not be measurable within the typical daily fluctuations in traffic and traffic operations would be unchanged. As noted in Table 2, the traffic increases would be somewhat higher during the 6-week harvest season, but the volumes would similarly not measurably affect traffic flows. The peak hour LOS and delays at the access intersection would be unchanged as a result the added trips due to the proposed Sinskey Vineyards Winery expansion project (see Table 1).

Consideration has also been given to the proposed new monthly events. As shown in Table 2, during each of the monthly events, a total of 79 daily trips would be generated. On such event days, the winery trips would add about 0.4% to existing volumes on Silverado Trail. This increase would not be measurable within the typical flows on Silverado Trail. It is also recognized that these events would occur in the evening hours and would not generate trips during either the weekday PM peak commute hours or the Saturday afternoon peak hours.

b. Site Access

The Sinskey Vineyards Winery would continue to use the existing driveway on Silverado Trail. The driveway would serve all employee, delivery and visitor access. Again, sight distances are over 1,000 feet to the north and 650-700 feet to the south, and these sight distances are adequate for the measured vehicle speeds. It is noted that the sight distance to the south can be affected by foliage along the west side of Silverado Trail. To the extent that foliage and grasses are trimmed low to the ground, the sight distance would be maximized.

The proposed Sinskey Vineyards Winery project would add 12-14 trips to the peak hour volumes at the access intersection with Silverado Trail (with the conservative assumption that peak hour volumes represent 20% of daily volumes). The existing and projected peak hour volumes are shown on Figure 2. With these increases, the delays for outbound vehicles would remain very satisfactory - LOS "B" during both the weekday PM peak hour and Saturday afternoon peak hour.

The peak hour inbound left turn volume would increase by 2 vehicles in the weekday PM peak hour and 4 vehicles in the Saturday afternoon peak hour. Based on Caltrans design standards, only one vehicle would be expected to queue at any given time, but Caltrans recommends a minimum 50 foot left-turn storage lane – the existing left turn lane provides 50 feet of storage.[9] The projected volumes in/out of the site driveway are well below minimum thresholds at which a right-turn lane would be required (right turn lane warrant attached as an appendix).[10] It is noted that the paved shoulder area widens to provide a right turn taper at the winery driveway. At its intersection with SR 29, the driveway design appears satisfactory to accommodate turn paths for inbound and outbound right-turns by trucks.

c. Internal Circulation

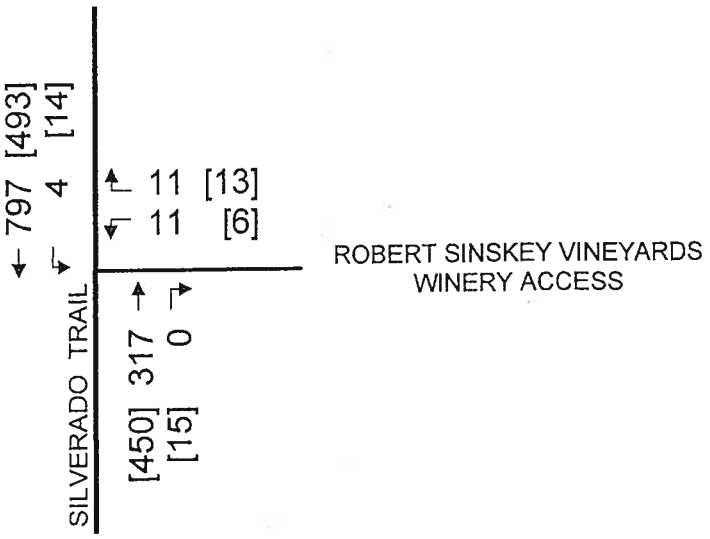
When added to the existing volumes, the Sinskey Vineyards Winery traffic would reflect about 30 weekday peak hour and 60 Saturday peak hour vehicle trips on the access road. The access roadway width is 24 feet, exceeding the Napa County standard of 18 feet. The access road could readily accommodate the expected volumes.

3. Summary and Conclusions

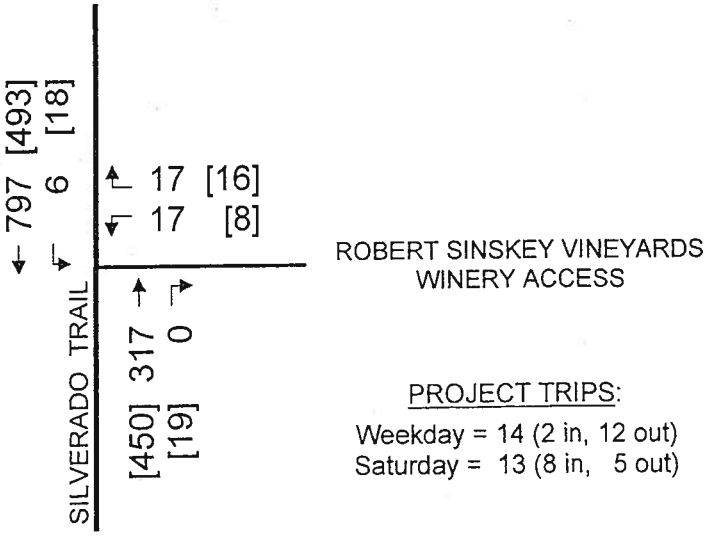
The traffic generated by the proposed Sinskey Vineyards Winery expansion project would have no measurable effects on traffic flows along Silverado Trail. The added trips would increase Silverado Trail traffic volumes by about 0.3-0.4% and the road's operation would be unchanged. During the monthly events, the winery traffic would add about 0.4% to Silverado Trail volumes – again, this change would not be measurable.

Based on field measurements, the available site distance along Silverado Trail would be adequate for the prevailing speeds. Traffic increases at the access road intersection with Silverado Trail

EXISTING PEAK HOUR VOLUMES:
Weekday and [Weekend]



EXISTING + PROJECT PEAK HOUR VOLUMES:
Weekday and [Weekend]



PROJECT TRIPS:
Weekday = 14 (2 in, 12 out)
Saturday = 13 (8 in, 5 out)

Existing and Existing+Project Peak Hour Volumes
Weekday and [Weekend]

North

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figure 2

would not have a measurable effect on the intersection's operation. The existing traffic left turn lane on Silverado Trail would provide adequate storage for existing and project vehicles. It is recommended that the striping south of the driveway be modified to provide a more typical two-way-left-turn-lane design, ensuring an adequate refuge lane for outbound left turns.

The winery is served by a 24-foot wide access road, designed to exceed the Napa County standard of 18 feet. Overall, the access road would reflect an appropriate design (as determined by Napa County) to accommodate the existing and projected traffic flows. It is recommended that a brief centerline (50 foot maximum) be striped on the access road to better delineate inbound/outbound traffic flows.

References:

(1) Napa County, traffic volumes for Silverado Trail based on July 2008 count data.

(2) Transportation Research Board (TRB), *Highway Capacity Manual - Special Report 209*, 1994.

(3) TRB, *Highway Capacity Manual*, 2000.

(4) George W. Nickelson, P.E., traffic counts on September 7, 2009 and September 17, 2009.

(5) Caltrans, *Highway Design Manual – Fifth Edition*, July 1, 2004.

(6) George W. Nickelson, P.E., radar surveys on September 7, 2009 and September 17, 2009.

(7) Caltrans, ibid.

(8) Napa County, *Adopted Road and Street Standards*, revised August 31, 2004.

(9) Caltrans, *Guidelines for Reconstruction of Intersections,* August 1985. The maximum peak hour southbound left turn volume is 18 vehicles, requiring 1 vehicle storage, calculated as follows:

- 18 hourly vehicles/60 x 2 minutes of storage = 0.6 or 1 vehicle.

(10) Transportation Research Board, *Report 279 – Intersection Channelization Design Guide*, 1985.

TABLE 2
TRIP GENERATION FOR THE PROPOSED
ROBERT SINSKEY VINEYARDS WINERY EXPANSION

Added Daily Traffic During a Typical Weekday:		
• 75 added visitors/2.6 per vehicle x 2 one-way trips	=	58 daily trips
• 4 added employees x 2 one-way trips per employee	=	8 daily trips
• 1 added truck x 2 one-way trips per truck[1]	=	2 daily trips
		68 daily trips
Added Daily Traffic During a Typical Saturday:		
• 75 added visitors/2.8 per vehicle x 2 one-way trips	=	54 daily trips
• 4 added employees x 2 one-way trips per employee	=	8 daily trips
• 1 added truck x 2 one-way trips per truck[1]	=	2 daily trips
		64 daily trips
Added Daily Traffic During Harvest Season (6 weeks):		
• 75 added visitors/2.6 per vehicle x 2 one-way trips	=	58 daily trips
• 6 added employees x 2 one-way trips per employee	=	12 daily trips
• 3 added trucks x 2 one-way trips per truck[2]	=	6 daily trips
		76 daily trips
Added Daily Traffic During a Monthly Event:		
• 80 added visitors/2.8 per vehicle x 2 one-way trips	=	57 daily trips
• 10 added employees[3] x 2 one-way trips per employee	=	20 daily trips
• 1 added truck x 2 one-way trips per truck[1]	=	2 daily trips
		79 daily trips

(1) During the 46-week non-harvest season, a maximum of 1 added daily truck would be generated related to routine deliveries associated with the increased production (78,000 gallons/2.38 gallons per case = 32,773 cases).

• 32,773 cases/2,310 cases per truck	=	14 glass delivery trucks
• 32,773 cases/1,232 cases per truck	=	27 wine shipment trucks
• 5 miscellaneous weekly deliveries	=	225 miscellaneous trucks
		266 annual trucks

266 trucks/46 weeks = 5-6 weekly trucks or 1 added truck per day.

(2) During the 6-week harvest season, a maximum of 2 added daily grape delivery trucks would be generated, calculated as follows:

- 473 tons of off-site grapes/10 tons per truck/6 weeks = 8 trucks/week or 1-2 added trucks per day.

(3) A monthly event would have an estimated 6 additional employees related to food service.

APPENDICES

- Level of Service Definitions
- Level of Service Calculations
  - Radar Surveys
- Right Turn Lane Warrant Graph