### George W. Nickelson, P.E.

Traffic Engineering - Transportation Planning

July 26, 2011

Ms. Lauren Watters Quintessa Winery 1601 Silverado Trail Rutherford, CA 94573

Subject:

Traffic Impact Analysis (TIA) for the Proposed Faust House Winery on

Coombsville Road in Napa County

Dear Ms. Watters:

This letter report summarizes our TIA for the proposed Faust Winery on Coombsville Road in Napa County. The analysis is based on our recent new traffic counts on Coombsville Road and our calculations of the expected winery traffic. This report has identified the existing traffic conditions and conducted an analysis of the proposed winery traffic effects.

#### 1. Existing Traffic Conditions

Coombsville Road is essentially a two-lane rural road in the area of the winery site. At the winery site Coombsville Road does not have a left turn lane. The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on Coombsville Road 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 Coombsville Road. 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.".<sup>(1)</sup> 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 Coombsville Road were measured at about 45 mph eastbound and westbound. (2) Caltrans' design standards indicate that these speeds require a stopping sight distance of about 360 feet, measured along the travel lanes on Coombsville Road.

Daily machine counts (with hourly subtotals) were conducted on Coombsville Road east of First Avenue for a one week period in October 2010.<sup>(3)</sup> The average weekday volume was 3,429 vehicles while weekend volumes were significantly lower; 2,427 vehicles on a Saturday and 1,770 vehicles on a Sunday (count data is attached to this report). The higher weekday volumes reflect additional trips to/from the Mt. George Elementary School off of Coombsville Road east of the project

Peak period counts (4-6 PM on a weekday and 1-3 PM on a Saturday) were also conducted at the site driveway on Coombsville Road. (4) Volumes in/out of the site were minimal with 3 weekday peak hour vehicles (1 in/2 out) and 2 Saturday peak hour vehicles (1 in/1 out). Based on the peak hour volumes at the driveway (with Coombsville Road volumes adjusted to reflect school traffic),

1901 Olympic Blvd., Suite 120 Walnut Creek, CA 94596 (925) 935-5014 Fax (925) 935-2247

July 26, 2011

Jeannette Doss, Assistant Engineer Department of Public Works County of Napa 1195 Third Street, room 201 Napa, California 94559 JUL 27 2011

NAPA COUNTY DEPT OF PUBLIC WORKS

Re:

Faust House Winery Permit Application #P11-00060. 2031 Coombsville

Road, Napa. APN 045-250-030

Dear Ms. Doss:

Attached please find an updated traffic study prepared by George Nickelson, P.E. This repot was prepared to reflect the June 24, 2011 comments from Paul Wilkinson and yourself. It is my understanding that Mr. Nickelson also conferred with Paul on or about that date to be sure the study scope was acceptable to your department. We are pleased that Mr. Nickelson has confirmed that the scope of the winery project does not necessitate the construction of a left turn lane at the driveway's entrance on Coombsville Road. This conclusion will allow for the retention of the historic Tulocay Creek bridge as well as two, historic stone pillars at the driveway entrance. Your confirmation of Mr. Nickelson's conclusions is much appreciated.

The updated traffic study also concludes that there is sufficient width between the aforementioned pillars to accommodate the new two-way driveway section. However, if you believe that we should file a request for an exception to the County's Road and Street Standards to allow for the construction of a standard driveway entrance at this location, we will file one soon as we hear back from your office.

We believe that with the submittal of this updated traffic study and the revised site plan showing the two-way driveway that we submitted to your office on July 9, 2011 we have provided your office with all the information and clarifications you requested of us on June 24, 2011

We very much appreciate the courtesies you have extended and your continued support of our project.

Sincerely,

Faust House Winery

CC:

John McDowell, Deputy Planning Director

Ron Gee, project planner

Client

Delta Consulting and Engineering

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below the Napa County warrant for providing a left turn lane in Coombsville Road (left turn lane graph attached as an appendix).

Also, the added 18 weekday winery trips and 24 Saturday winery trips would be offset by the removal of 20 daily residential trips (the two on-site residences being converted to winery uses). Thus, with the winery project, any change in existing volumes on Coombsville Road would not be measurable within typical daily traffic fluctuations. No change would be expected relative to the driveway intersection LOS.

Based on initial field reviews, it appears that Coombsville Road vehicle sight distance at the driveway would meet Caltrans standards. However, it was noted that foliage on the inside of the curve west of the driveway should be trimmed to enhance visibility. Also, a small shrub immediately east of the driveway (adjacent to the outbound stone pillar) should be trimmed or removed to enhance visibility.

There are two driveways located on the north side of Coombsville Road immediately west and east of the site access driveway. During the peak period counts at the site access driveway, traffic activity in/out of these other driveways was extremely light. The combined level of traffic from the Faust Winery (and existing residences accessing the Faust driveway) and these other driveways would remain very low, and no significant operational or safety problems would be anticipated.

Finally, it is noted that the current driveway is essentially a single lane wide. The winery development would include a paved driveway which would meet the Napa County standards (18 feet of pavement plus a 2-foot shoulder for two-way traffic flow). At its intersection with Coombsville Road, the driveway design should also accommodate turn paths for inbound right-turns and outbound left turns by trucks.

#### 3. Summary and Conclusions

At the site access, our initial field review indicates that there is sufficient sight distance along Coombsville Road, The appropriate sight distances should be confirmed by the project's civil engineer.

The combination of volumes on Coombsville Road and volumes in/out of the winery access would be below Napa County thresholds for installation of a left-turn lane. The driveway design should meet Napa County standards and should also accommodate turn paths for inbound right-turns and outbound left turns by trucks at Coombsville Road.

I trust that this letter report responds to your needs. Please let me know if you have any questions or if further input is needed.

Sincerely,

Slly Michellen George W. Nickelson, P.E. July 26, 2011 Ms. Lauren Watters Page 4 of 5

Attachments: radar surveys

LOS definitions LOS calculations

left turn lane warrant graph

machine counts

#### References:

- (1) Caltrans, Highway Design Manual Fifth Edition, July 24, 2009.
- (2) George W. Nickelson, P.E., radar surveys on July 14, 2011.
- (3) George W. Nickelson, P.E., traffic counts conducted October 19-25, 2010.
- (4) George W. Nickelson, P.E., traffic counts conducted on July 14, 2011 and July 16, 2011.
- (5) Mr. Jeffrey Redding, AICP, e-mail correspondence, July 12, 2011.
- (6) Semi-Annual events would generate estimated daily traffic as follows:
  - 100 visitors/2.8 per vehicle x 2 one-way trips = 72 daily trips
  - 6 employees (includes food service) x 2 one-way trips = 12 daily trips
  - 1 truck x 2 one-way trips per truck = 2 daily trips
  - Existing single family dwelling = 10 daily trips 96 daily trips
- (7) Napa County Department of Public Works, Adopted Road & Street Standards, Revised August 31, 2004.
- (8) Napa County, ibid.

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the driveway intersection operates at Level of Service (LOS) "A" during both the weekday and Saturday peak hours (LOS definitions and calculations are attached).

#### 2. Potential Traffic Effects of the Proposed Winery

#### a. Project Description (5)

The site now has three residential units and accessory structures. The proposed project would create a winery and would involve conversion of two of the residential units into winery uses (offices, tasting room, etc.). The Faust House Winery would be a small facility with limited production and visitors. The new winery would have an annual production of 10,000 gallons, all of which would reflect grapes delivered from off site vineyards. A total of 2 full time employees would work at the winery.

The winery would have a visitor program with a maximum of 100 weekly visitors (by appointment) with a maximum of 15 weekday visitors and 25 visitors on each weekend day. Monthly events would host a maximum of 25 persons, and quarterly events would have up to 50 persons in attendance. Regular winery visitation would be suspended on these event days.

#### b. Trip Generation

As outlined in Table 1, the winery property (including the retained residence) would generate 28 daily trips on a weekday and 34 daily trips on a Saturday. During the harvest season, the winery trip generation would be slightly higher at 38 daily trips.

The proposed monthly events would each generate daily trips consistent with a typical Saturday. It is noted that the total traffic in/out of the site's Coombsville Road driveway would also include 10 daily trips generated by the existing single family residence located immediately north of the site.

It is noted that planned semi-annual events would generate about 96 daily trips. (6) However, these events would be scheduled such that traffic would occur outside the peak hours, and again, no regular visitors would be allowed on the event days.

#### c. Site Access Design Issues

The primary traffic design issue would be the need for a left-turn lane at the site access. Standards for left-turn lanes relate to the left-turn volume conflicting with the volume of opposing through traffic. Napa County has adopted a warrant methodology based on daily traffic volumes on the highway and daily traffic volumes on the access road or driveway. (7) As noted above, the daily volumes on Coombsville Road are 3,429 vehicles on a weekday and 2,427 vehicles on a Saturday just west of the winery site access.

With the proposed winery, the retained on-site single family residence and the existing off-site single family residence, the daily traffic on the access driveway would be 38 weekday trips and 44 Saturday trips. The combination of traffic on Coombsville Road and total driveway traffic would be

# TABLE 1 DAILY TRIP GENERATION FOR THE FAUST HOUSE COOMBSVILLE ROAD WINERY

#### Daily Traffic During a Typical Weekday:

6	15 visitors/2.6 per vehicle x 2 one-way trips	=	12 daily trips
0	2 employees x 2 one-way trips per employee	=	4 daily trips
0	1 truck x 2 one-way trips per truck <sup>(1)</sup>	=	2 daily trips
•	Existing single family dwelling	=	10 daily trips
			28 daily trips

#### Daily Traffic During a Typical Saturday:

9	25 visitors/2.8 per vehicle x 2 one-way trips		18 daily trips
	2 employees x 2 one-way trips per employee	555	4 daily trips
	1 truck x 2 one-way trips per truck <sup>(1)</sup>	=	2 daily trips
0	Existing single family dwelling	=	10 daily trips
			34 daily trips

#### Daily Traffic During a Harvest Season Day:

•	25 visitors/2.8 per vehicle x 2 one-way trips	<u> *****</u>	18 daily trips
	4 employees x 2 one-way trips per employee	=	8 daily trips
•	1 truck x 2 one-way trips per truck <sup>(2)</sup>	=	2 daily trips
•	Existing single family dwelling	=	10 daily trips
	* 2		38 daily trips

- (1) During the 46-week non-harvest season, a maximum of 1 daily truck would be generated related to routine deliveries associated with the winery production (10,000 gallons/2.38 gallons per case = 4,202 cases).
  - 4,202 cases/2,310 cases per truck = 2 glass delivery trucks
  - 4,202 cases/1,232 cases per truck = 3 wine shipment trucks
  - 5 miscellaneous weekly deliveries = 225 miscellaneous trucks
    230 annual trucks

230 trucks/46 weeks = 5 weekly trucks or a maximum of 1 truck per day.

- (2) During the 6-week harvest season, <u>about one weekly grape delivery truck</u> (which would not measurably change the daily truck activity) would be generated, calculated as follows:
  - 10,000 gallons of off-site production/165 gallons per ton = 61 tons of off-site grapes
  - 61 tons of off-site grapes/10 tons per truck/6 weeks = one truck/week

#### RADAR SPEED SURVEY

#### OMNI-MEANS LTD.

#### Coombsville Road at 2301 Driveway

DATE: 7/14/11

TIME START: 4:00pm TIME END: 5:30pm WEATHER: Clear

ROAD TYPE: 2 lanes

DIRECTION: EastboundSPEED LIMIT: 40 mph

OBSERVER: GWN Assocs.

CALIBRATION TEST: Yes

SPEED	FREQUENCY	ACUM %	PERCENTAGE BREAKDOWN
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AVERAGE SPEED = 41.3 50th PERCENTILE = 40.5 85th PERCENTILE = 45.3 90th PERCENTILE = 46 95th PERCENTILE = 47.1

PACE = 38 - 47 % IN PACE = 86

VEHICLES IN PACE = 43

SAMPLE VARIANCE = 14.58163 STANDARD DEVIATION = 3.818591

RANGE 1\*S = 74RANGE 2\*S = 94 RANGE 3\*S = 100

#### RADAR SPEED SURVEY

### OMNI-MEANS LTD.

### Coombsville Road at 2301 Driveway

DATE: 7/14/11 TIME START: 4:00pm TIME END: 5:30pm WEATHER: Clear

ROAD TYPE: 2 lanes

DIRECTION: WestboundSPEED LIMIT: 40 mph

OBSERVER: GWN Assocs. CALIBRATION TEST: Yes

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85th P	ERCENTILE :	= 44.3	VEHICLES IN PACE = 42	RANGE 1+S = 80			
90th P	ERCENTILE :	44.8	2	RANGE 2#S = 94			
95th P	ERCENTILE :	= 46.7		RANGE 3#5 = 100	•		

#### LEVEL OF SERVICE DEFINITIONS

Mark of the live	Charles and the second resident		ASSESSMENT CONTRACTOR	MARITHMEN TO
	LEVEL OF SERVICE	SIGNALIZED INTERSECTIONS	UNSIGNALIZED INTERSECTIONS*	
	"A"	Uncongested operations, all queues clear in a single-signal cycle. (Average stopped delay less than 10 seconds per vehicle; V/C less than or = 0.60).	Little or no delay. (Average delay of ≤ 10 seconds)	U &
	"B"	Uncongested operations, all queues clear in a single cycle. (Average delay of 10-20 seconds; V/C=0.61-0.70).	Short traffic delays. (Average delay of >10 and ≤15 secs.)	
	"C"	Light congestion, occasional backups on critical approaches. (Average delay of 20-35 seconds; V/C=0.71-0.80).	Average traffic delay. (Average delay of >15 and ≤25 secs.)	
	<b>"D"</b>	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. (Average delay of 35-55 seconds; V/C=0.81-0.90).	Long traffic delays for some approaches. (Average delay of >25 and ≤35 secs.)	
	"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). (Average delay of 55-80 seconds; V/C=0.91-1.00).	Very long traffic delays for some approaches. (Average delay of >35 and ≤50 secs.)	*
	"F"	Total breakdown, stop-and-go operation. (Average delay in excess of 80 seconds; V/C of 1.01 or greater).	Extreme traffic delays for some approaches (intersection may be blocked by external causes—delays >50 seconds).	
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<sup>\*</sup> Level of Service refers to delays encountered by certain stop sign controlled approaches. Other approaches may operate with little delay.

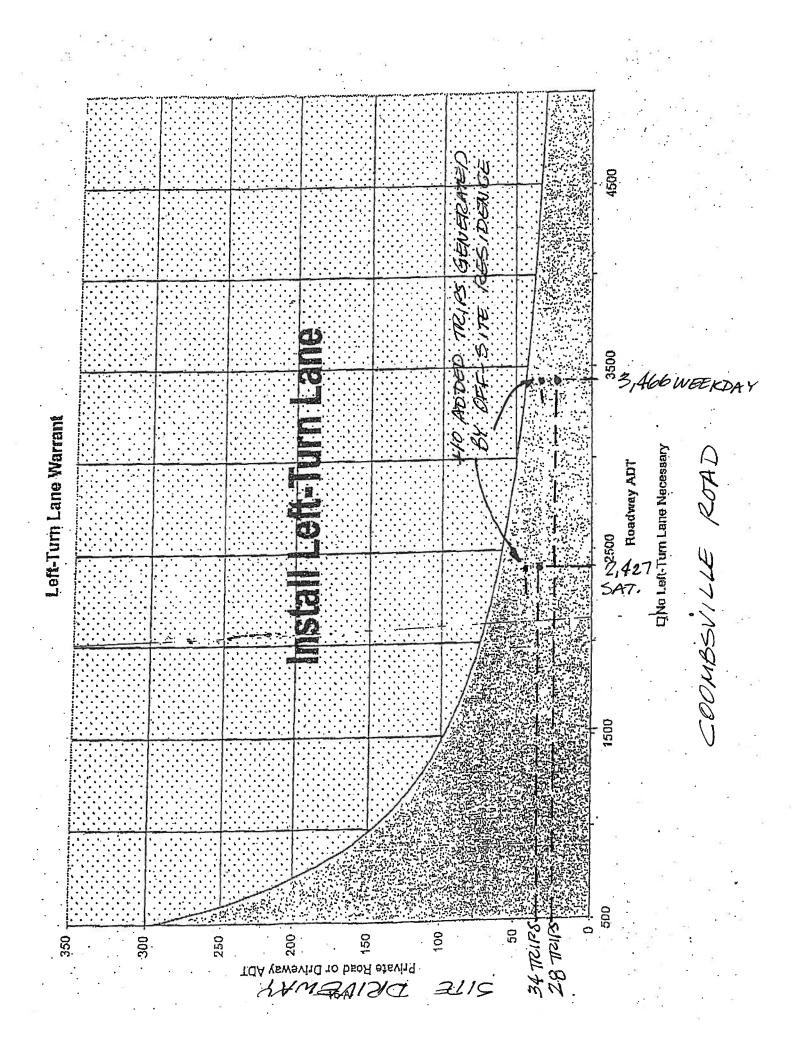
Source: Transportation Research Board, Highway Capacity Manual, 2000.

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#### CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET **Analysis Summary** General Information Site Information **GWN** Analyst Jurisdiction/Date NAPA COUNTY GWN Agency or Company COOMBSVILLE Major Street SATURDAY 2011 SITE DRIVEWAY Analysis Period/Year Minor Street EXISTING SATURDAY PEAK Comment Input Data Lane Configuration WB NB EΒ SB Lane 1 (curb) TR LT LR Lane 2 Lane 3 Lane 4 Lane 5 EB NB WB Movement 1 (LT) 2 (TH) 3 (RT) 4 (LT) 5 (TH) 6 (RT) 7 (LT) 8 (TH) 9 (RT) 10 (LT) 11 (TH) 12 (RT) Volume (veh/h) 108 130 0 1 PHF 0.90 0.90 0.90 0.90 0.90 0.90 Percent of heavy vehicles, HV 3 3 3 3 3 Flow rate 120 0 144 1 0 Flare storage (# of vehs) Median storage (# of vehs) Signal upstream of Movement 2 Movement 5 Length of study period (h) 1.00 **Output Data** Control Delay Lane Movement Flow Rate Capacity v/c Queue Length ! LOS Approach (veh/h) (veh/h) Delay and LOS (veh) (s) LR 0.001 10.0 1 1 722 0 Α 10.0 NB 2 Α 3 1 SB 3 EΒ (1)WB (4) 0 1460 0.000 0 7.5

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FaustWinery - EXISTINGSATURDAY



## B A Y M E T R I C S 7-Day ADT in Napa County

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#30 #45	36	123	57 11 69 21	0 31	146	72	184 217	58 14 37 15	4 71	180 219	36	130 151	46 84	162 205	13	39 44	16	50 55	11 11	22	8	36 40	37 37	140	52 79	173 224
915	20		22 IB 26 17	4 13	139 117	25	196 182	19 13 28 14	2 35	200 198	26 21	136	30 18	187	12 11	46 49	14 19	55 61	10	26	18 12	47	.30	137	31 20	200 182
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800 815	36	163	27 115 44 130	38	158	30	139	30 1 <u>37</u> 53 153	22	126	- 39 - 30	143	22 31	98	5	56 42	47	116	29 17	25 79	20	74 75	33 41	139 154	33 34	133
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