“I”

Traffic Study

Beau Vigne P14-00200
Planning Commission Hearing September 7, 2016

September 28, 2015

Mr. Ed Snider
DBA Beau Vigne Winery
P.O. Box 6412
Napa, CA 95481

Focused Traffic Impact Study for the Beau Vigne Winery

Dear Mr. Snider;

As requested, W-Trans has prepared a traffic analysis relative to the proposed winery to be located at 4057 Silverado Trail in the County of Napa. The traffic study was completed in accordance with the criteria established by the County of Napa, and is consistent with standard traffic engineering techniques.

Project Description

Beau Vigne Winery is a proposed new winery to be located at 2057 Silverado Trail. The proposed project would include winemaking and distillation facilities capable of producing 14,000 gallons of wine per year. In addition, the project includes a tasting room and expects averages of 10 visitors a day Monday to Thursday and 15 visitors a day Friday to Sunday, between the hours of 10:00 a.m. and 6:00 p.m. The winery will have three full-time employees and one part-time employee on weekdays and one full-time and one part-time employee on weekends. Special events are planned at the project site, with wine and food pairings for up to 25 guests occurring once a month and up to 30 guests twice per year.

There is an existing winery without a tasting room at the project site permitted to produce 8,000 gallons of wine per year.

Study Area

The study area consists of Silverado Trail, which runs along the frontage of the project site in the County of Napa. Silverado Trail generally runs north-south and is classified as a two-lane rural throughway. This segment of Silverado Trail is configured into one travel lane and bike lane in each direction. Traffic counts obtained on Silverado Trail in April 2015 indicate that the roadway is carrying approximately 13,000 vehicles per weekday.

Baseline Conditions

Baseline operating conditions were determined by adding trips generated by other approved and pending projects within four miles of Beau Vigne Winery to existing volumes. As directed by County staff, the following projects were included in the Baseline Conditions scenario.

- **Krupp Winery** – 3150 Silverado Trail, approximately 0.6 miles south of the project site; new winery with an annual production of 50,000 gallons; six full-time employees and four part-time employees; average of 124 visitors per day; average of 125 guests at special events
- **Melka Winery** – 2900 Silverado Trail, approximately 1.2 miles south of the project site; new winery with an annual production of 10,000 gallons; one full-time employee and one part-time employee; average of 7 visitors per day; average of 100 guests at special events
- **Reynolds Winery** – 3720 Silverado Trail, approximately 0.4 miles south of the project site; use permit update to produce 20,000 additional gallons annually; 10 additional employees; average of 30 additional visitors per day; average of 125 guests at special events

- **Davis Estates Winery** – 4060 Silverado Trail, approximately 0.1 miles north of the project site; use permit update to produce an additional 80,000 gallons annually; 10 additional employees; average of 190 additional visitors per day; maximum of 200 guests at special events
- **Mountain Peak Winery** – 3265 Soda Canyon Road, approximately 6.5 miles from the project site; new winery with an annual production of 100,000 gallons; 29 full-time employees and eight part-time employees; average of 80 visitors per day; maximum of 125 guests at special events (although this winery is more than four miles from the project site, it will add trips to the study segment via the lone connection to Soda Canyon Road)
- **Stag's Leap Winery** – 5766 Silverado Trail, approximately 3.5 miles north of the project site; use permit update to have an additional 25 employees; maximum of 250 guests at special events
- **Corona Winery** – 3165 Silverado Trail, approximately 0.4 miles south of the project site; new winery with an annual production of 100,000 gallons; 25 employees; average of 48 visitors per day; maximum of 125 guests at special events
- **Sam Jasper Winery** – 4059 Silverado Trail, approximately 0.3 miles north of the project site; new winery with an annual production of 20,000 gallons; 10 employees; average of 25 visitors per day; maximum of 50 guests at special events.

Cumulative 2030 Conditions

The Cumulative traffic scenario represents General Plan buildout at an estimated time horizon of the year 2030. Future projected traffic volumes were obtained from the Solano Transportation Authority (STA) who maintains the joint Napa County/Solano County 2010-2030 Travel Demand Forecasting Model. This data was provided in the form of segment volumes. Because of the differences in the existing traffic volumes counted and the model's projected 2010 volume, a growth rate was calculated to develop Cumulative 2030 volumes based on projected p.m. peak hour growth on Silverado Trail near Soda Canyon Road, which was found to be 2.15, or approximately eight percent of growth per year. The model does not include forecasts for the weekend midday peak hour; therefore, the weekday p.m. peak hour growth rate was applied to the weekend midday peak to analyze future operations.

It should be noted that the relatively high increase in traffic growth expected in the p.m. peak hour is due to the assumed increase in congestion at the intersection of SR 29/SR 12-SR 121; Silverado Trail is well-situated for bypassing this congestion. As such, the high increase in traffic is only expected during the hours of peak traffic demand in the region, and not throughout the entire day. Thus, the daily volume on Silverado Trail is expected to have a growth rate that is much lower than 2.15.

In the *2007 Napa County General Plan Update*, Silverado Trail just south of the project site was documented as operating at LOS C or better under both 2003 conditions and projected 2030 conditions. In Napa County, the LOS standard for roadway segments is LOS D or better.

Trip Generation

The anticipated trip generation for a proposed project is typically estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012. However, the publication contains no such information for a winery. Therefore, the County of Napa's Winery Traffic Information/Trip Generation Sheet was used to determine the anticipated traffic that would be generated by the proposed new winery and tasting room. A copy of this worksheet is enclosed for reference.

Since the County of Napa's Winery Traffic Information/Trip Generation Sheet does not include guidance on inbound versus outbound trips, it was assumed that two-thirds of project trips would be outbound during the weekday p.m. peak hour since most of the trips would be associated with employees and customers leaving at closure of the winery. For the weekend midday peak hour it was assumed that inbound and outbound trips would be evenly split. Based on these assumptions, the proposed project is expected to generate 13 new daily trips on

a weekday, including five p.m. peak hour trips, and 10 new trips on a weekend day, including six trips added during the midday peak hour. A summary of the project's trip generation potential is provided in Table 1.

Table 1 – Trip Generation Summary

Trip Type	Weekday – Monday through Thursday				Weekend – Friday through Sunday			
	Daily	PM Peak Hour			Daily	Midday Peak Hour		
	Trips	Trips	In	Out	Trips	Trips	In	Out
Existing Winery								
Winery Employees	6	2	0	2	6	3	2	1
Proposed Winery								
Tasting Room Visitors	8	3	1	2	11	8	4	4
Winery Employees	11	4	1	3	5	1	1	0
Project Total	*19*	*7*	*2*	*5*	*16*	*9*	*5*	*4*
Net New Trips	**13**	**5**	**2**	**3**	**10**	**6**	**3**	**3**

Note: Trip generation does not include traffic associated with special events

Special Events

As part of the proposed project, marketing events would be held at the project site. There would be one event a month for a maximum of 25 persons and two events per year for a maximum of 30 persons. Events would be scheduled to begin and end outside of normal traffic peak periods on weekdays and weekends. As a result, no significant event-related traffic impacts would be expected during the weekday p.m. or Saturday midday peak periods.

Trip Distribution

The pattern used to allocate new project trips to the street network was based on existing traffic counts and an understanding of the regional network. The applied distribution assumptions and resulting trips are shown in Table 2.

Table 2 – Trip Distribution Assumptions

Route	Percent	Weekday Daily Trips	Weekday PM Peak	Weekend Daily Trips	Saturday MD Peak
To/from north Silverado Trail	30%	4	2	3	2
To/from south Silverado Trail	70%	9	3	7	4
TOTAL	**100%**	**13**	**5**	**10**	**6**

Roadway segment volumes on Silverado Trail are summarized in Table 3, including the existing volumes counted, projected future volumes, and resulting volumes with project trips added. It should be noted that the difference in traffic volume between no project and project conditions do not equal the total project trip generation because only a portion of the trips would travel in one direction of Silverado Trail. The proposed project would be projected to generate 0.1 percent of Cumulative 2030 p.m. peak hour volumes and approximately 0.2 percent of Cumulative

2030 weekend midday peak hour volumes along Silverado Trail. Because the project adds less than one percent of Cumulative 2030 traffic volumes, the project-related impacts on Silverado Trail are less-than-significant.

Table 3 – Traffic Volume Summary

Scenario	Weekday PM Peak	Weekend Midday Peak
Silverado Trail		
Existing	1,401	936
Existing plus Project	1,404	940
Percent Increase	*0.21%*	*0.42%*
Baseline	1,530	1,123
Baseline plus Project	1,533	1,127
Percent Increase	*0.20%*	*0.36%*
Cumulative 2030	3,012	2,012
Cumulative 2030 plus Project	3,015	2,016
Percent Increase	*0.10%*	*0.20%*

Access Analysis

Site Access

The project would be accessed at the existing driveway on the western side of Silverado Trail, located approximately 660 feet north of Soda Canyon Road. This driveway would be used for both employees and tasting room visitors.

Sight Distance

At driveways a substantially clear line of sight should be maintained between the driver of a vehicle waiting on the driveway and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic to radically alter their speed. Sight distance should be measured from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. Setback for the driver on the crossroad shall be a minimum of 15 feet, measured from the edge of the traveled way.

Sight distance along Silverado Trail at the project driveway was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for a driveway is based on stopping sight distance. The approaching travel speeds are used as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

The posted speed on Silverado Road is 55 miles per hour which requires a minimum stopping sight distance of 500 feet. The available sight distance from the project driveway is greater than or equal to 500 feet looking both directions. Similarly, drivers on Silverado Trail have in excess of 500 feet of visibility to a vehicle they are following that might slow or stop before turning left into the driveway. Therefore, the sight distance at the project driveway is adequate.

Left-Turn Lane Warrants

The need for a left-turn lane on southbound Silverado Trail at the project driveways was evaluated using Napa County's Left-Turn Lane Warrant methodology, which is based on the average daily traffic (ADT) of the roadway and the projected ADT of the proposed use, as well as safety criteria. Along roadways with an ADT of 7,500 vehicles per day or more, left-turn lanes are warranted when the projected ADT of the minor street or driveway is greater than 20 vehicles per day.

Based on the intended users of the driveway, the driveway is expected to generate an ADT of 19 vehicle trips per weekday and 16 per weekend day. Because this volume is less than the 20-vehicle threshold, the proposed project volumes would not meet the left-turn lane volume warrant threshold for Silverado Trail at the project driveway, so a left-turn lane is not warranted.

Conclusions

- The proposed project would be expected to generate a net increase of 13 daily weekday trips and 10 daily weekend trips, including five trips during the weekday p.m. peak hour and six trips during the weekend midday peak hour.

- The proposed project would be expected to generate 0.10 percent of Cumulative 2030 p.m. peak hour trips and 0.20 percent of Cumulative 2030 weekend midday peak hour trips on Silverado Trail, resulting in a less-than-significant impact associated with project-generated traffic volumes.

- The available sight distance at the project driveway is adequate.

- Under all conditions with the proposed project, a left-turn lane is not warranted on Silverado Trail at the project driveway.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,

Sam Lam, PE
Associate Traffic Engineer

Dalene J. Whitlock, PE, PTOE
Principal

DJW/stl/NAX102.L1

Enclosures: Winery Trip Generation Spreadsheet
Napa County Left-Turn Lane Warrant Graph

Winery Traffic Information / Trip Generation Sheet

Project Name: Beau Vigne Winery Project Scenario: Existing Winery

Traffic during a Typical Weekday

Number of FT employees: 2 x 3.05 one-way trips per employee = 6.10 daily trips.

Number of PT employees: 0 x 1.90 one-way trips per employee = 0.00 daily trips.

Average number of weekday visitors: 0 / 2.6 visitors per vehicle x 2 one-way trips = 0.00 daily trips.

Gallons of production: 8000 / 1,000 x .009 truck trips daily[3] x 2 one-way trips = 0.14 daily trips.

Total = 6 **daily trips.**

Number of total weekday trips x .38 = 2 **PM peak trips.**

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 2 x 3.05 one-way trips per employee = 6.10 daily trips.

Number of PT employees (on Saturdays): 0 x 1.90 one-way trips per employee = 0.00 daily trips.

Average number of weekend visitors: 0 / 2.8 visitors per vehicle x 2 one-way trips = 0.00 daily trips.

Total = 6 **daily trips.**

Number of total Saturday trips x .57 = 3 **PM peak trips.**

Traffic during a Crush Saturday

Number of FT employees (during crush): 0 x 3.05 one-way trips per employee = 0.00 daily trips.

Number of PT employees (during crush): 0 x 1.90 one-way trips per employee = 0.00 daily trips.

Average number of weekend visitors: 0 / 2.8 visitors per vehicle x 2 one-way trips = 0.00 daily trips.

Gallons of production: 0 / 1,000 x .009 truck trips daily x 2 one-way trips = 0.00 daily trips.

Avg. annual tons of grape on-haul: 0 x .11 truck trips daily [4] x 2 one-way trips = 0.00 daily trips.

Total = 0 **daily trips.**

Number of total Saturday trips x .57 = 0 **PM peak trips.**

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): 0 x 2 one-way trips per staff person = 0 trips.

Number of visitors (largest event): 0 / 2.8 visitors per vehicle x 2 one-way trips = 0 trips.

Number of special event truck trips (largest event): 0 x 2 one-way trips = 0 trips.

[3] Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).

[4] Assumes 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).

Winery Traffic Information / Trip Generation Sheet

Project Name: Beau Vigne Winery Project Scenario: Proposed Project

Traffic during a Typical Weekday

Number of FT employees: 3 x 3.05 one-way trips per employee = 9.15 daily trips.

Number of PT employees: 1 x 1.90 one-way trips per employee = 1.90 daily trips.

Average number of weekday visitors: 10 / 2.6 visitors per vehicle x 2 one-way trips = 7.69 daily trips.

Gallons of production: 14000 / 1,000 x .009 truck trips daily[3] x 2 one-way trips = 0.25 daily trips.

Total = 19 **daily trips.**

Number of total weekday trips x .38 = 7 **PM peak trips.**

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 1 x 3.05 one-way trips per employee = 3.05 daily trips.

Number of PT employees (on Saturdays): 1 x 1.90 one-way trips per employee = 1.90 daily trips.

Average number of weekend visitors: 15 / 2.8 visitors per vehicle x 2 one-way trips = 10.71 daily trips.

Total = 16 **daily trips.**

Number of total Saturday trips x .57 = 9 **PM peak trips.**

Traffic during a Crush Saturday

Number of FT employees (during crush): 3 x 3.05 one-way trips per employee = 9.15 daily trips.

Number of PT employees (during crush): 1 x 1.90 one-way trips per employee = 1.90 daily trips.

Average number of weekend visitors: 15 / 2.8 visitors per vehicle x 2 one-way trips = 10.71 daily trips.

Gallons of production: 14000 / 1,000 x .009 truck trips daily x 2 one-way trips = 0.25 daily trips.

Avg. annual tons of grape on-haul: 85 x .11 truck trips daily [4] x 2 one-way trips = 1.18 daily trips.

Total = 23 **daily trips.**

Number of total Saturday trips x .57 = 13 **PM peak trips.**

Largest Marketing Event- Additional Traffic

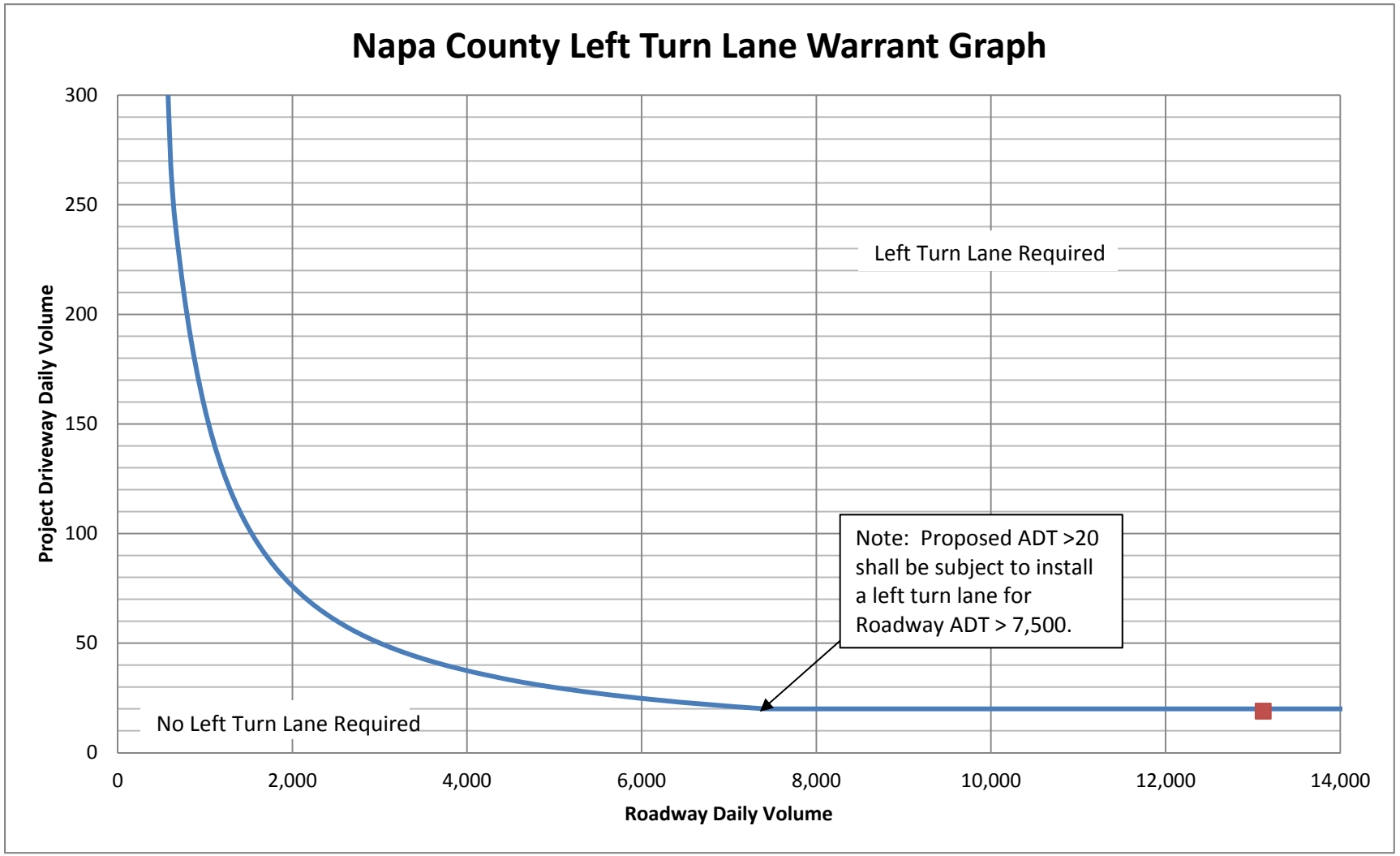
Number of event staff (largest event): 1 x 2 one-way trips per staff person = 2 trips.

Number of visitors (largest event): 30 / 2.8 visitors per vehicle x 2 one-way trips = 21 trips.

Number of special event truck trips (largest event): 4 x 2 one-way trips = 8 trips.

[3] Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).

[4] Assumes 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).


Napa County Left Turn Lane Warrant Graph
Project Driveway Daily Volume
300
250
200
150
100
50
0
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
Roadway Daily Volume
Left Turn Lane Required
No Left Turn Lane Required
Note: Proposed ADT >20 shall be subject to install a left turn lane for Roadway ADT > 7,500.