CONSULTING CIVIL ENGINEERS
RIECHERS & SPENCE ASSOCIATES

#4112020.0
February 22, 2013

Jeff Redding
2423 Renfrew Street
Napa, CA 94558

RE: Tamber Bey Winery
Left Turn LaneWarrant

Dear Jeff:

Per your request, we have evaluated the Napa County Left Turn Lane Warrant for the Tamber Bey Project. The attached exhibit demonstrates the warrant for the following conditions:

1) The Roadway ADT based on the counts recorded by Omni-Means.
2) The Private Driveway ADT for the "existing condition" which includes one residence
3) The Private Driveway ADT for the weekday trips resulting from the project
4) The Private Driveway ADT for weekend trips resulting from the project.

If you have any questions regarding the attached exhibit, please contact me.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
Hugh A. Linn
No. 52509
Exp 12-31-14
CIVIL
STATE OF CALIFORNIA

Hugh Linn, PE, LEED AP
President

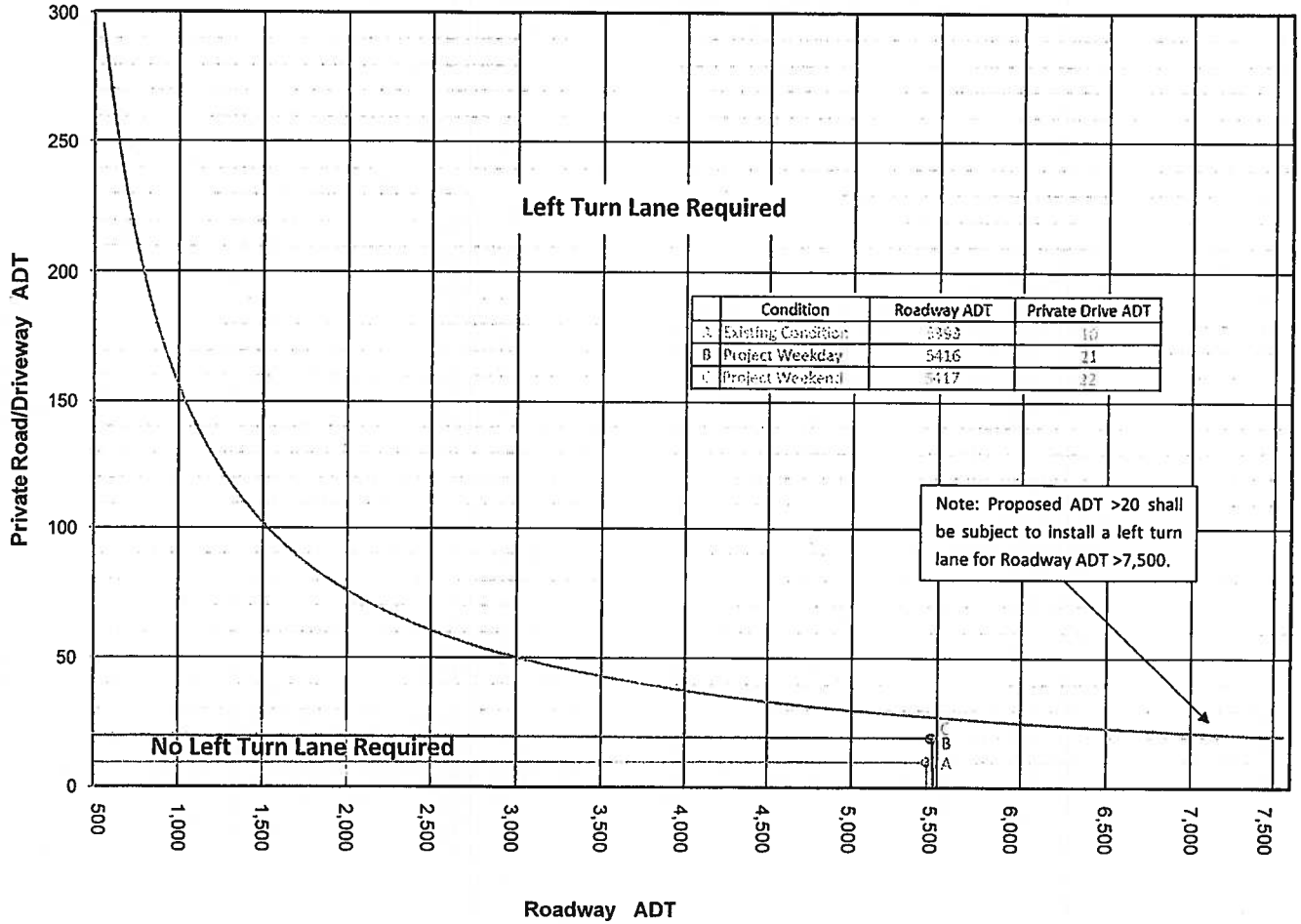
Encl.

cc: Barry Waitte

rsacivil.com
1515 Fourth Street, Napa, CA 94559
Tel: 707.252.3301 Fax: 707.2524966

TAMBER BEY WINERY

LEFT TURN LANE WARRANT GRAPH



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December 14, 2012

Tamber Bey Vineyards
c/o Mr. Jeffrey Redding, AICP
2423 Renfrew Street
Napa, CA 94558

Subject: ***Traffic Study for a Proposed Tamber Bey Vineyards Winery at 1251 Tubbs Lane***

Dear Mr. Redding:

The attached report summarizes our traffic analysis for the proposed Tamber Bey Vineyards Winery at 1251 Tubbs Lane in Napa County (see Figure 1 for site location map). The project would consist of a 60,000 gallon annual production winery to be added to an existing residential property. The scope of the analysis is based on our discussions with you and the potential traffic issues as identified by Napa County staff.

The analysis has determined that the proposed winery would not significantly impact traffic level of service conditions. The project would be expected to generate 16-17 new daily trips. Existing daily volumes on Tubbs Lane are indicative of LOS 'A' conditions and would remain unchanged under existing plus project conditions. The Tubbs Lane/Tamber Bey Access intersection operates at LOS 'A' under existing conditions for all approaches. The intersection would continue to operate efficiently under existing plus project conditions. The intersection would operate at LOS 'B' for the southbound driveway approach and LOS 'A' for the eastbound Tubbs Lane approach.

Accounting for near term approved development traffic volumes, conditions would also operate at acceptable levels of service. Operating conditions would be similar to existing conditions, with Tubbs Lane daily volumes indicative of LOS 'A' conditions under near term conditions and near term plus project conditions. The Tubbs Lane/Tamber Bey Access intersection would operate at LOS 'A' conditions under near term without project conditions and LOS 'B' under near term plus project conditions. No vehicle queuing issues are expected at the project driveway based on the project volumes.

The daily volumes on the project driveway and Tubbs Lane under existing and near term plus project conditions were applied to the Napa County warrants for installation of a left turn lane in Tubbs Lane. Based on our review of the warrant, a left turn lane is not required on Tubbs Lane.

The available sight distances along Tubbs Lane at the driveway location exceed Caltran's minimum sight distance guidelines. The existing 16 feet wide driveway would be widened to 18 feet wide as part of the project development, which would satisfy the County's driveway road width standard of 18 feet. In keeping with the County's policy of encouraging alternative travel modes and fuels with new developments, the project would provide bicycle racks and an electric vehicle charging station.

Travel model forecasts from the Napa County General Plan Update were used to calculate cumulative volumes. The intersection would operate at acceptable conditions (LOS 'D' or better) under cumulative and cumulative plus project conditions using the forecasted volumes. Additional road improvement measures and vehicle trip reduction strategies may further improve cumulative conditions.

Although there were no significant impacts associated with project, the forecast cumulative volume increases are quite large. (Volume data for the past several years indicates volumes are not increasing at the forecasted rate.) Should the forecast cumulative volumes be realized, long term traffic growth on Tubbs Lane could degrade conditions at all driveways and side street approaches. Volumes would likely warrant left turn lanes at all side streets and driveways exceeding twenty daily trips. The County may impose a traffic impact fee to fund the General Plan adopted improvements and/or other traffic infrastructure projects, such as a continuous two-way left turn lane on Tubbs Lane. The fee would presumably be on a "per project trip" basis. The project's contribution to cumulative ADT volumes on Tubbs Lane would equate to $1/10^{th}$ of 1%. Should the County enact TIF mitigation, the proposed project could contribute a "fair share" towards such future circulation improvements.

I trust that this report responds to your needs. Please feel free to call me with any questions or comments after your review.

Sincerely,

George Nickelson

George W. Nickelson, P.E.
OMNI-MEANS, Ltd.
Engineers & Planners

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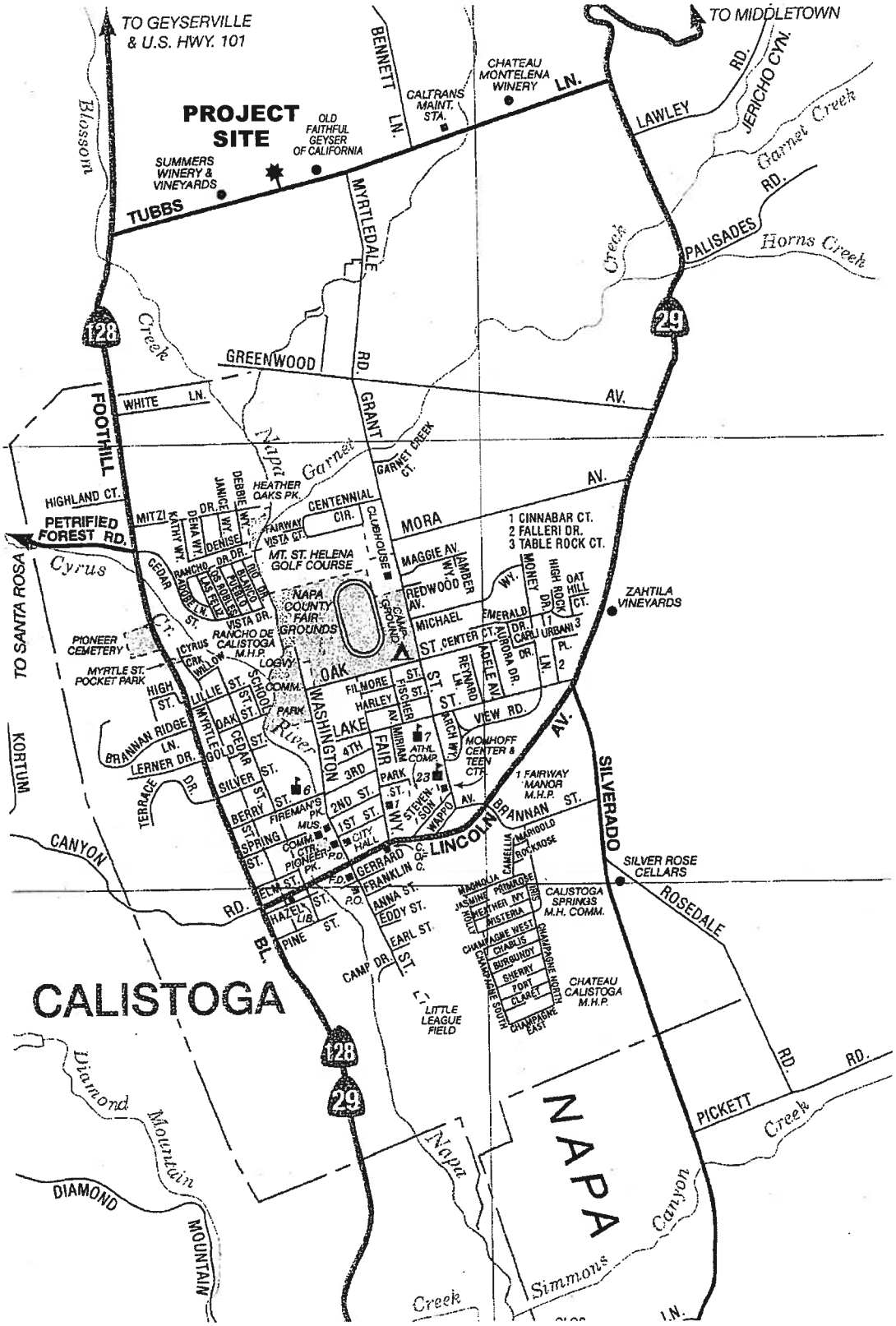


Project Vicinity Map

North

omni-means

figure 1

1. EXISTING TRAFFIC CONDITIONS

Site Location

The proposed Tamber Bey winery would be located at the site of an existing residential property at 1251 Tubbs Lane. The property access driveway is located on the north side of Tubbs Lane approximately one-half mile east of State Route 128. Tubbs Lane is a rural two lane undivided arterial road oriented in an east-west direction north of the town of Calistoga which connects State Route 128 and State Route 29. Tubbs Lane near the project site consists of two 12-feet wide travel lanes and 3-4 feet paved shoulders plus drainage swales or slopes in some areas. The existing property is a private residence with horse boarding facilities accessed via a paved driveway/road. The Tubbs Lane/Tamber Bey Access intersection consists of single lane approaches.

Existing Traffic Operations

Traffic operating conditions are measured by Level of Service (LOS), which applies a letter ranking to successive levels of roadway and intersection traffic performance.[1] LOS 'A' represents optimum conditions with free-flow travel and no congestion. LOS 'F' represents severe congestion with long delays. When applied to unsignalized intersections with minor street stop controls, the LOS reflects the delays experienced by the minor street approach. (LOS definitions, calculations, and volume worksheets are provided in the Appendix.)

To identify LOS conditions, daily and peak hour volume traffic counts were conducted on Tubbs Lane. The daily counts were recorded by machine tube count just east of the project access driveway. [2] The counts identified an average daily traffic (ADT) volume of 6,271 vehicles (Thursday through Saturday). The counts were conducted in September over a weekend when peak visitation and harvest activities were occurring. Therefore the volumes reflect "peak season" conditions. The annual average daily traffic (AADT) as described by Caltrans is generally used in a traffic analysis in order to account for seasonal influences, weekly variations, and other variables which may by present. Caltrans volume records on State Route 128 near Tubbs Lane were evaluated for AADT and peak month volumes for the Year 2011.[3] The AADT volume was 86% of the peak month volume (8,600 AADT vs. 10,000 peak ADT). Applying the same ratio to the recent peak season count results in 5,393 daily trips, or approximately 5,400 AADT. This daily volume on Tubbs Lane is indicative of Level of Service 'A' conditions, with less than 9,000 ADT for a two lane arterial.

In order to assess the peak hour intersection operating conditions, turning volume counts were conducted at the Tubbs Lane/Tamber Bey Access intersection over the same weekend as the daily counts. The counts were conducted during a weekday PM peak commute period (4-6 PM) and a Saturday afternoon peak period (1-3 PM).[4] The peak hour volume within each count period was identified and is shown in Figure 3. The counts identified one to two peak hour trips in/out of the existing driveway. This corresponds with data from the Institute of Transportation Engineers which indicates a single family dwelling generates approximately one peak hour trip and 10 daily trips.[5]

As outlined in Table 1, existing peak hour conditions at the Tubbs Lane/Tamber Bey Access intersection are LOS 'A' (9.6 seconds delay or less) during the weekday and Saturday peak hours for the driveway's outbound approach. The eastbound Tubbs Lane approach operates at LOS 'A' (less than one second of delay) during the weekday and Saturday peak hours. Existing volumes in and out of the site are low and no vehicle queuing issues were observed.

TABLE 1
EXISTING PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour	Saturday Afternoon Peak Hour
	Existing LOS Delay	Existing LOS Delay
Tubbs Lane / Tamber Bey Access		
Unsignalized (Tamber Bey stop control)		
Tamber Bey southbound approach:	A <1"	A 9.6"
Tubbs Lane eastbound approach:	A <1"	A <1"

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.

2. PROPOSED PROJECT

Project Description

The traffic generating components of the proposed project are summarized as follows:

- Production: 60,000 gallons annual wine production;
- Visitation: 15 average daily visitors / 20 maximum daily visitors;
  (by appointment: 10:00 a.m. to 6:30 p.m. seven days per week).
- Employees: 3 total: 1 new full-time employee plus two existing residents (1 working in a full-time capacity and 1 in a part-time capacity).
  Harvest Season: 4 total: 2 new full-time plus two existing residents
- Marketing Events:
  1 per month for up to 30 guests at each event,
  1 per month for up to 75 guests at each event,
  2 per year for up to 100 guests.

Project Trip Generation/Distribution

The proposed winery traffic generation has been calculated in Table 2. New trips would be composed of visitors, new employees, and wine production-related truck traffic. The existing residence also generates some existing trips. Normally all of the winery traffic would be added to the existing residence traffic as new trips. However, two of the employees (one full-time and one part-time) are residents of the site and a portion of their trips are accounted for in the existing residence trips. The project was calculated to generate 16 new weekday daily trips and 6 new weekday peak hour trips (2 in, 4 out). On a typical Saturday the project would generate 17 new daily trips and 5 new afternoon peak hour trips. During the six-week harvest season, the project would generate 29 new daily trips and 8 peak hour trips (3 in, 5 out).

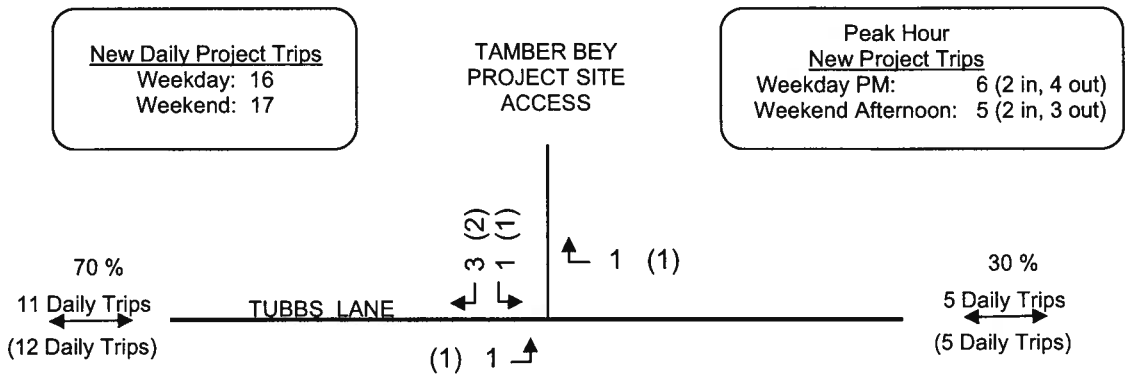
The project trips were distributed onto Tubbs Lane based on the existing driveway turning movements, directional flows on Tubbs Lane, and turning movements at the adjacent Calistoga Geyser and Mytledale Road intersections. Based on the observed turning percentages, the project trips were distributed with 70% to/from the west and 30% to/from the east on Tubbs Lane. (Project trips are shown in Figure 2.)

TABLE 2
TRIP GENERATION:
PROPOSED TAMBER BEY WINERY

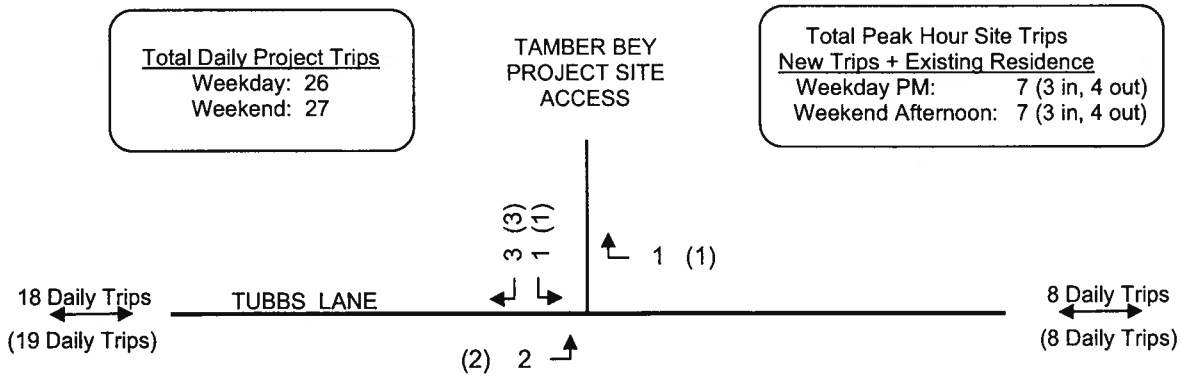
Typical Weekday Daily Traffic:		
Project: 15 visitors/2.6 per vehicle x 2 one-way trips	=	12 daily trips
1 new full time employee x 3.05 one-way trips	=	3 daily trips
1 truck trip: (60,000 gls/1,000 x .009 x 2 o-w trips)	=	1 daily trip
Existing residence (10 daily trips[a]) comprised of:		
1 full-time employee/resident x 3.05 one-way trips)	=	3 daily trips
1 part time employee/resident x 1.90 one-way trips)	=	2 daily trips
additional residential trips (10 – 5 = 5 trips)	=	5 daily trips
Total Weekday Daily Trips	=	**26 total daily trips**
New Weekday Daily Trips	=	**16 new daily trips**
Typical Weekday PM Peak Hour Traffic:		
Project: (12 daily visitor trips + 1 daily truck trip) x .38	=	5 peak hour trips
1 new full time employee	=	1 peak hour trip
Existing residence: 1 peak hour trip	=	1 peak hour trip
Total Weekday Peak Hour Trips	=	**7 total trips (3 in, 4 out)**
New Weekday Peak Hour Trips	=	**6 new trips (2 in, 4 out)**
Typical Weekend (Saturday) Daily Traffic:		
Project: 20 visitors/2.8 per vehicle x 2 one-way trips	=	14 daily trips
1 new full time employee x 3.05 one-way trips	=	3 daily trips
Existing residence (10 daily trips)	=	10 daily trips
Total Weekend (Saturday) Daily Trips	=	**27 total daily trips**
New Weekend (Saturday) Daily Trips	=	**17 new daily trips**
Typical Weekend (Saturday) Peak Hour Traffic:		
Total Weekend Peak Hour Trips (27 daily trips x 25%)	=	**7 total trips (3 in, 4 out)**
New Weekend Peak Hour Trips (7 total trips – 2 existing trips)	=	**5 new trips (2 in, 3 out)**
Weekend (Saturday) Daily Traffic During Crush:		
Project: 20 visitors/2.8 per vehicle x 2 one-way trips	=	14 daily trips
2 new full time employees x 3.05 one-way trips	=	6 daily trips
1 new part time employee x 1.90 one-way trips	=	2 daily trips
1 truck trip: (60,000 gls/1,000 x .009 x 2 trips)	=	1 daily trip
450 annual tons grape on-haul/4 tons per truck x 2 trips	=	6 daily trips
Existing residence (10 daily trips):	=	10 daily trips
Total Weekend (Saturday) Daily Harvest/Crush Trips	=	**39 total daily trips**
New Weekend (Saturday) Daily Harvest/Crush Trips	=	**29 new daily trips**
Weekend (Saturday) Peak Hour Traffic During Crush:		
Total Weekend Peak Hour Harvest Trips (39 daily trips x 25%)	=	**10 total trips (4 in, 6 out)**
New Weekend Peak Hour Trips (10 total trips – 2 existing trips)	=	**8 new trips (3 in, 5 out)**

Production, visitor, and employee data provided by Mr. Jeff Redding, AICP (project representative) and Use Permit Application. Trip equations for daily and weekday peak hour derived from Napa County, Conservation, Planning, & Development Department, "Use Permit Application Package", Napa County Winery Traffic Generation Characteristics, 2012. Trip equation for weekend peak hour based on conservative assumption that 25% of daily trips occur in peak hour.

[a] *Residential trips based on Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012.*



New Project Trips
Weekday and (Weekend) Peak Hour



Total Project Trips: Comprised of Existing Trips Plus New Project Trips
Weekday and (Weekend) Peak Hour

New Project Trips and Total Site Trips
Weekday and (Weekend) Peak Hour

North

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figure 2

3. EXISTING PLUS PROJECT CONDITIONS

Napa County Significance Criteria

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

Intersections:

- The County shall seek to maintain a Level of Service D or better at all intersections, except where the level of service already exceeds this standard (i.e. Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way.

  No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met.

Further significance criteria are based on County and CEQA guidelines and apply mainly to intersection operation and access. A significant impact occurs if project traffic would result in the following:

- Cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume capacity ratio on roads, or congestion at intersections);
- Exceed either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways;
- Result in a change of traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency vehicle access;
- Project site or internal circulation on the site is not adequate to accommodate pedestrians and bicycles.

Existing Plus Project Operating Conditions

The project would add 11-12 daily trips west of the site and 5 daily trips east of the site on Tubbs Lane to the existing AADT volume of 5,400 trips. The new daily project traffic west of the driveway would add 0.2% to the existing daily volumes on Tubbs Lane. The combined existing plus project volume of 5,417 daily trips on Tubbs Lane would continue to function at LOS 'A' (less than 9,000 daily trips). The traffic increases would be somewhat higher during the six-week harvest season (0.5% addition to existing volumes on Tubbs Lane), but these volumes would also not significantly affect traffic flows.

The Tubbs Lane/Tamber Bey Access intersection peak hour operating conditions were evaluated for existing plus project conditions and are shown in Table 3. The Tamber Bey Access southbound approach would function at LOS 'B' for the weekday and Saturday peak hours (10.7 seconds of delay or less). The eastbound Tubbs Lane approach would continue to operate at LOS 'A' conditions (less than one second of delay) during weekday and Saturday peak hours. The intersection would continue to operate acceptably. (The existing plus project volumes are shown in Figure 3.)

Turn Lane Warrants (Existing and Existing Plus Project Conditions)

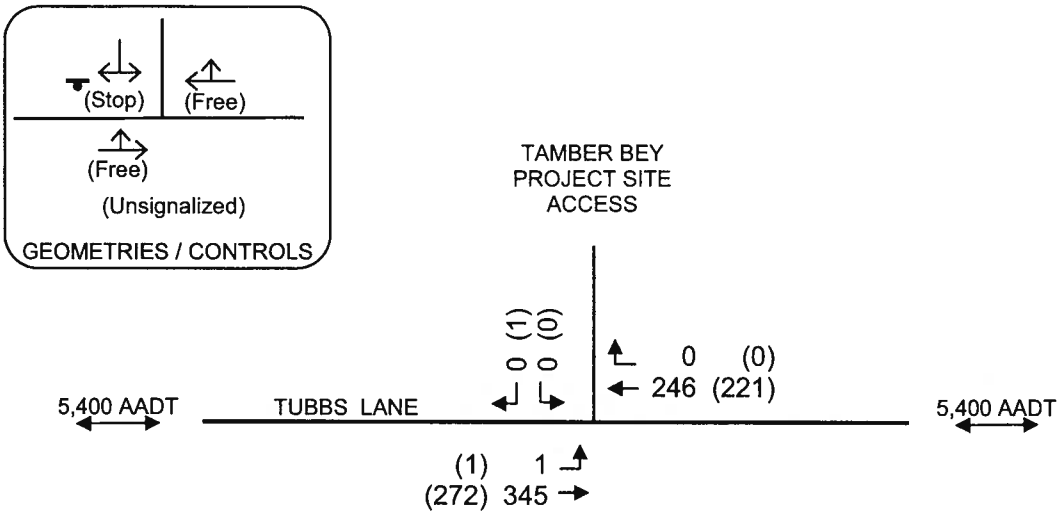
The existing and existing plus project volumes were compared with the Napa County guidelines for installing a left turn lane in Tubbs Lane. [6] (The warrant graphs for weekday and Saturday conditions are provided in the Appendix.) With 16-17 new daily trips added to the 10 existing residential daily trips on the access driveway and 5,417 annual average daily trips on Tubbs Lane, a left turn lane is not warranted.

The projected right turn volumes at the site driveway are well below minimum thresholds at which right turn lanes (deceleration and acceleration) would be required (right turn lane warrant graphs are included in the Appendix.)[7]

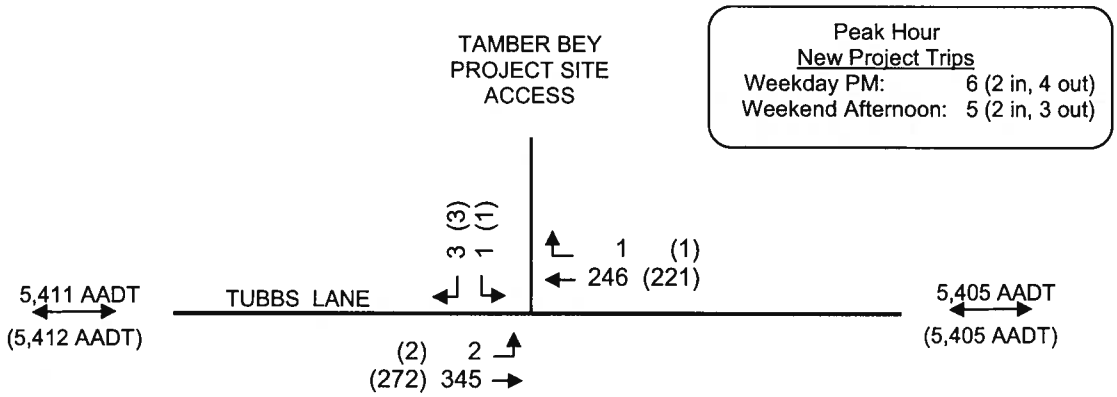
TABLE 3
EXISTING AND EXISTING + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Existing LOS Delay	Existing + Project LOS Delay	Existing LOS Delay	Existing + Project LOS Delay
Tubbs Lane / Tamber Bey Access				
Unsignalized (Tamber Bey stop control)				
Tamber Bey southbound approach	A <1"	B 10.7"	A 9.6"	B 10.3"
Tubbs Lane eastbound approach	A <1"	A 0.1"	A <1"	A 0.1"

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.



Existing Weekday and (Weekend) Peak Hour Volumes



Existing Plus Project Weekday and (Weekend) Peak Hour Volumes

Existing and Existing Plus Project
Weekday and (Weekend) Peak Hour Volumes

North

omni-means

figure 3

4. NEAR TERM CONDITIONS

Approved Developments

Near term conditions reflect existing volumes plus any additional volumes expected to be generated by approved developments within the project study area. Approved developments include structures that are built but not fully occupied or are not yet built but are expected to be within the near term future.

The County of Napa and City of Calistoga planning departments each provided a list of approved developments.[8, 9] The vehicle trips for these developments were taken from traffic studies when available or generated based on the type of development and distributed onto the street network. The County identified thirteen developments (all wineries). Seventeen developments within the City of Calistoga were reviewed (including traffic studies of two pending resort developments). (A list of the developments that have calculated trips on west Tubbs Lane is provided in the Appendix.)

Near Term Operating Conditions

The approved developments were calculated to generate 185 daily trips on Tubbs Lane. Added to the existing volume of 5,400 daily trips results in 5,585 daily trips on Tubbs Lane for near term conditions. It is noted that the approved development volumes are likely conservatively high since they assume all trips are new trips when it is reasonable to assume a portion of the trips are shared trips with other wineries in the area. The volumes represent a three percent increase in the daily Tubbs Lane volume. Tubbs Lane would continue to function at LOS 'A' conditions.

The ratio of peak hour trips to daily trips for the proposed project was applied to the approved developments' daily volume to obtain near term peak hour volumes. (The volumes are shown in Figure 4.) The approved developments would add approximately 69 weekday and 54 weekend peak hour trips to Tubbs Lane (and approximately 60-76 trips during harvest season). The Tubbs Lane/Tamber Bey intersection would operate at LOS 'A' conditions during the weekday and weekend peak hours. (LOS are shown in Table 4.)

Near Term Plus Project Operating Conditions

With the project's 16-17 new daily trips added to the near term volume of 5,585 daily trips, the near term plus project volume on Tubbs Lane would be 5,601-5,602 daily trips. The project traffic would add 0.3 % to the near term daily volumes on Tubbs Lane. Tubbs Lane would continue to function at LOS 'A' (less than 9,000 daily trips). Tubbs Lane would continue to operate at acceptable conditions.

The peak hour intersection operating conditions were evaluated for near term plus project conditions and are shown in Table 4. During the weekday peak hour, the Tamber Bey Access southbound approach would operate at LOS 'B' (11.1 seconds delay). During the weekend peak hour the Tamber Bey southbound approach would also operate at LOS 'B' (with delay increasing to 10.6 seconds from 9.8 seconds without the project). The eastbound Tubbs Lane approach would continue to operate at LOS 'A' with delays of less than one second. The intersection would continue to operate at acceptable conditions under near term plus project conditions. Based on the volumes there would not be any expected vehicle queuing issues at the project access intersection.

Turn Lane Warrants (Near Term and Near Term Plus Project Conditions)

The near term and near term plus project volumes were compared with the Napa County guidelines for installing a left turn lane in Tubbs Lane. (The warrant graphs for weekday and Saturday conditions are provided in the Appendix.) Under near term conditions with 5,585 trips on Tubbs Lane and 10 trips on the access driveway, a left turn lane is not warranted. With the added project traffic, the Tubbs Lane volume of 5,601-5,602 daily trips and the Tamber Bey access road volume of 26-27 daily trips would also not warrant a left turn lane.

The projected right turn volumes at the site driveway would remain well below minimum thresholds at which right turn lanes (deceleration and acceleration) would be required (right turn lane warrant graphs are included in the Appendix.)

TABLE 4
NEAR TERM AND NEAR TERM + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Near Term LOS Delay	Near Term + Project LOS Delay	Near Term LOS Delay	Near Term + Project LOS Delay
Tubbs Lane / Tamber Bey Access				
Unsignalized (Tamber Bey stopped)				
Tamber Bey southbound approach	A <1"	B 11.1"	A 9.8"	B 10.6"
Tubbs Lane eastbound approach	A <1"	A 0.1"	A <1"	A 0.1"

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.

5. SITE ACCESS / DESIGN PARAMETERS

Sight Distances on Tubbs Lane

Vehicle sight distances along Tubbs Lane to/from the project driveway were evaluated. The required vehicle visibility or "corner sight distance" is a function of travel speeds on Tubbs Lane. 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". Caltrans design guidelines also indicate that at private access intersections the minimum corner sight distance "shall be equal to the stopping sight distance".

Tubbs Lane has a posted speed limit of 50 mph. New radar speed surveys of Tubbs Lane were also conducted at the project site access.[10] The "critical" vehicle speed (the speed at which 85% of all surveyed vehicles travel at or below) along Tubbs Lane was measured at 52 mph. Caltrans' design standards indicate that these vehicle speeds require a stopping sight distance of 460 feet, measured along the travel lanes on Tubbs Lane.[11] Based on field measurements, sight distances from the driveway location are in excess of 1,000 feet in both directions on Tubbs Lane. Therefore, the sight distance recommendations are met for the speed limit and measured vehicle speeds.

Project Access and Circulation

A project site plan is provided in Figure 5. The existing paved driveway width is 16 feet wide. The driveway is proposed to be widened to 18 feet wide with the project. An 18 feet wide driveway would meet the Napa County standard of 18 feet of pavement for two-way traffic flow.[10] The driveway widens to 55 feet wide at the intersection with Tubbs Lane, which provides adequate turning radius for trucks serving the winery.

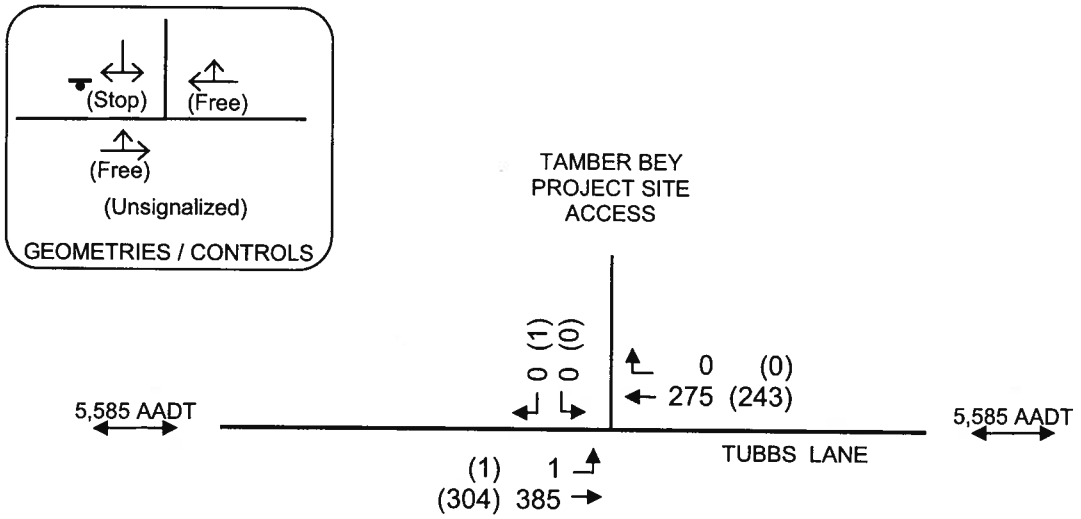
The Napa County Transportation & Planning Agency (NCTPA) in cooperation with Napa County and local City agencies is developing bicycle routes as outlined in the Napa Countywide Bicycle Plan.[12] The plan encourages new developments to incorporate bicycle friendly design. Tubbs Lane is straight and flat with striped shoulder area (Class II) bike lanes in both directions. Some visitors may utilize bicycles to access the proposed project. Based on the use permit application and site plan, the project would provide bicycle racks for visitors to the proposed winery. County policy also encourages alternative modes of transportation and the use of alternative fuels. The project would provide an electric vehicle charging station.

Based on the provided site plan, the project would provide 7 striped parking spaces adjacent to the winery plus an unstriped overflow area to accommodate larger events. The winery's striped parking supply would meet the daily visitor demand. The unstriped area would be expected to accommodate the special event demand.

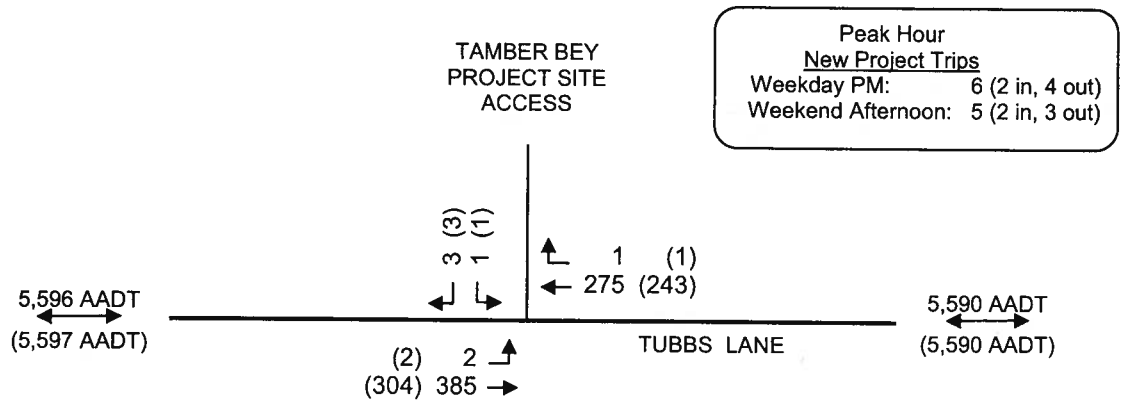
Marketing Events

The winery proposes to host the following marketing events: one event per month with a maximum of 30 people; one event per month with a maximum of 75 people; and two events per year with a maximum of 100 people.

Based on standard vehicle occupancy ratios, the monthly 30-person events would be expected to generate approximately 25-30 trips (15 in, 15 out) including visitors and staff. The largest events (100 people) would generate up to 85-86 trips (43 in, 43 out). 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 (during the middle of the day or later than 6:00 p.m.), therefore they would not be expected to impact peak hour operations.



Near Term Weekday and (Weekend) Peak Hour Volumes



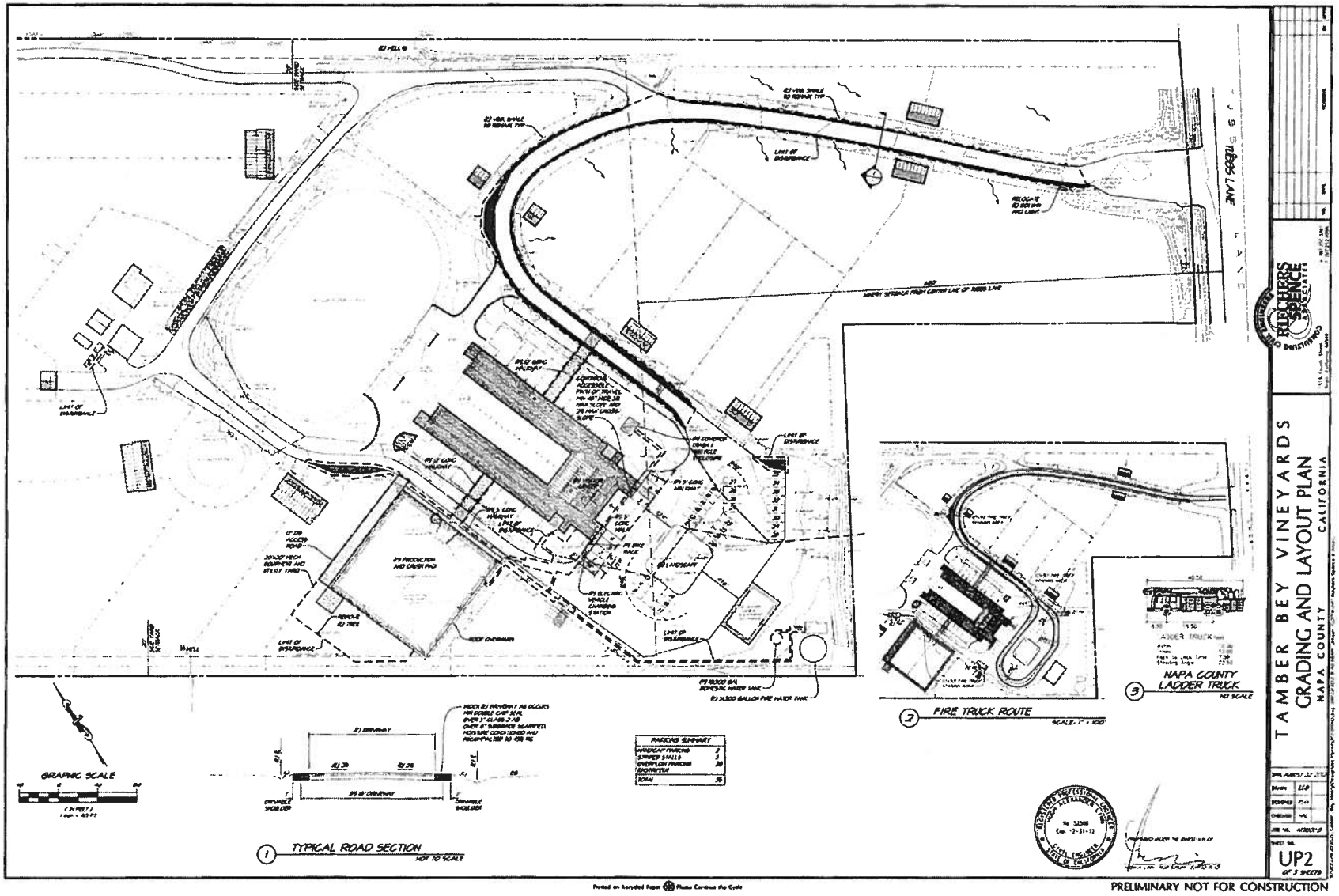
Near Term Plus Project Weekday and (Weekend) Peak Hour Volumes

Near Term and Near Term Plus Project
Weekday and (Weekend) Peak Hour Volumes

North

omni-means

figure 4



Project Site Plan

North

omni-means

figure 5

6. CUMULATIVE CONDITIONS

Cumulative Year 2030 Projections

Cumulative (Year 2030) volume projections on Tubbs Lane were derived from the Napa County Transportation & Planning Agency's traffic volume forecasts in the Napa County General Plan Update EIR.[14] The increase in volume-to-capacity (v/c) ratio from Year 2003 to Year 2030 on Tubbs Lane was applied to the provided Year 2003 peak hour two-way volume (564 trips) on Tubbs Lane, yielding a volume of 2,021 weekday PM peak hour trips on Tubbs Lane in Year 2030.

The cumulative volume represents a large (three-fold) increase compared to the existing (Year 2012) peak hour volume of 591 trips. With the forecasted volumes, the existing daily volume on Tubbs Lane would increase from 5,400 trips to 18,465 daily trips. By comparison, the existing peak hour volume of 591 trips (Year 2012) is only 27 trips higher than the 564 trips (Year 2003) identified in the EIR. Also, a review of annual daily traffic volumes on SR 128 south of Tubbs Lane over the previous twenty years shows an increase of 2%-3% per year. The daily volumes have declined since 2007 and are lower today than they were in 2002. Therefore it is unlikely volumes will increase to the projected levels (at least within the forecast timeframe).

The County has adopted several plans identified in the General Plan to both improve the street network and reduce vehicle trips through public transit and Transportation Demand Management (TDM) strategies. With the adopted development and street improvements under the General Plan Update Circulation Element ("Alternative B"), Tubbs Lane has projected operating conditions of LOS 'D'. Within the General Plan Update, the Solano/Napa County travel demand model was adjusted to reflect implementation of TDM policies. Under all three scenarios (including the minimum alternative of 3% reduction in local trips only), Tubbs Lane has projected LOS 'D' operating conditions.

In order to identify cumulative weekend conditions, the General Plan Update provides a ratio of weekday to weekend peak hour volumes. Tubbs Lane had an average ratio of 1, indicating similar volumes during both peak hours. This corresponds with the volumes counted for this study which found slightly lower weekend volumes (approximately 90% of weekday volumes). Therefore the weekend conditions would be expected to be the same or better than the weekday peak hour.

Cumulative Operating Conditions

Intersection conditions at the Tubbs Lane/Tamber Bey Access intersection were evaluated using the projected cumulative volumes. (Volumes are shown in Figure 6.) Under cumulative without project conditions, the Tamber Bey Access southbound approach would operate at LOS 'B' (14.2 seconds delay) or better during the weekday and weekend peak hours based on the existing property use. The eastbound Tubbs Lane approach would operate at LOS 'A' during both peak hours.

Cumulative Plus Project Operating Conditions

The project trips were added to the cumulative volumes. The Tamber Bey Access southbound approach would operate at LOS 'D' (33.2 seconds delay) during the weekday PM peak hour and LOS 'C' (23.2 seconds delay) during the weekend peak hour. The eastbound Tubbs Lane approach would operate at LOS 'A' (0.1 seconds delay) during both peak hours. The cumulative conditions are shown in Table 5.

TABLE 5
CUMULATIVE AND CUMULATIVE + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

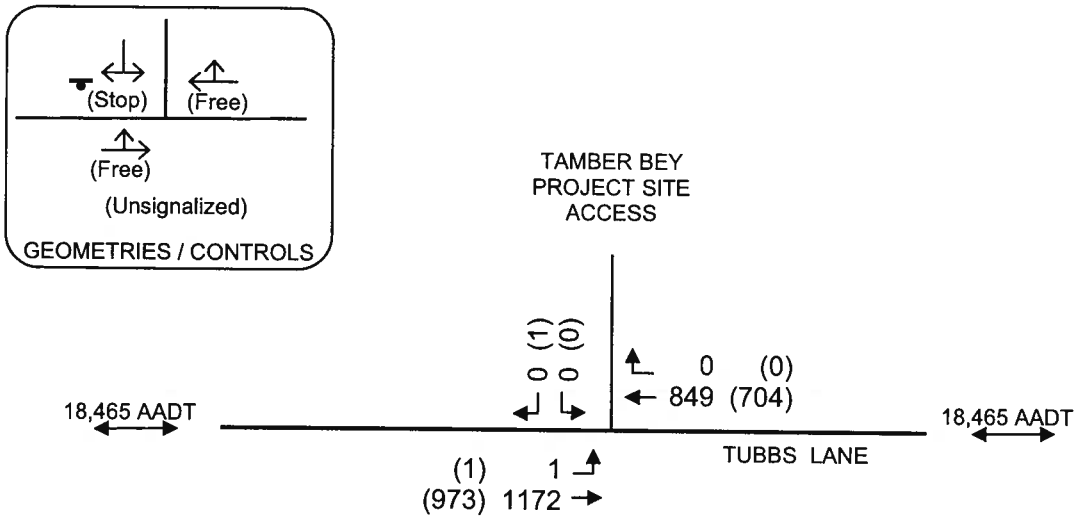
Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Cumulative LOS Delay	Cumulative + Project LOS Delay	Cumulative LOS Delay	Cumulative + Project LOS Delay
Tubbs Lane / Tamber Bey Access				
Unsignalized (Tamber Bey stopped)				
Tamber Bey southbound approach	A <1"	D 33.2"	B 14.2"	C 23.2"
Tubbs Lane eastbound approach	A <1"	A 0.1"	A <1"	A 0.1"

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.
Cumulative volumes derived from volumes and v/c forecasts provided in Napa County General Plan Update EIR, Appendix C.

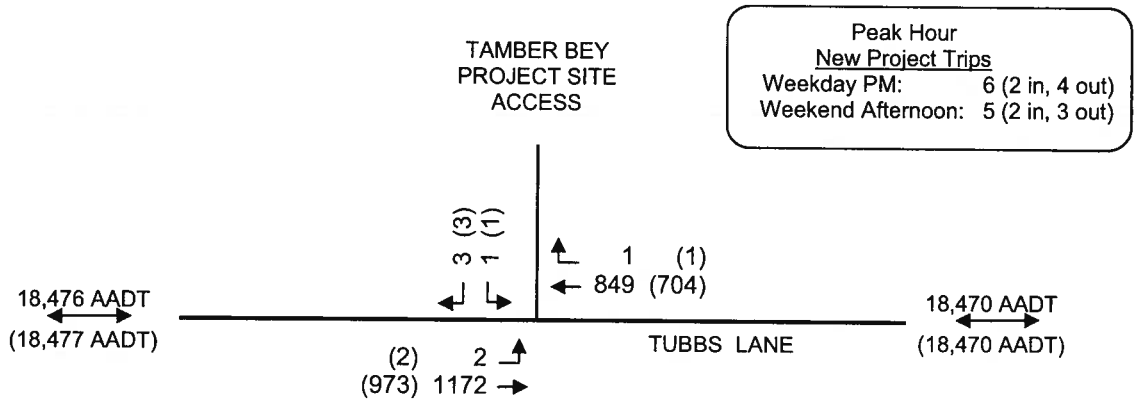
The intersection would operate at acceptable conditions under cumulative and cumulative plus project conditions using the forecasted volumes and without any trip reduction assumptions. As noted, historical volumes on SR 128 over the previous twenty years indicate a lower growth rate than the forecasted volumes. However, in keeping with the policies of the General Plan to proactively address potential traffic volumes under cumulative conditions, the County has adopted a policy to help reduce vehicle trips and emissions: "The project should support programs to reduce single occupant vehicle use and encourage alternative travel modes." In keeping with the policy, the project would provide bicycle racks and an electric vehicle charging station.

In addition, the County has identified other mitigation policies, including development of a traffic impact fee 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. The concept is under development but presumably the fee would be applied on a "per trip" basis if/when implemented.

If volumes reach forecast levels, all driveways and side street approaches along Tubbs Lane would be affected. Left turn lane warrants would be met for all side roads/driveways with volumes exceeding 20 daily trips. Though not a part of the General Plan's listed road improvements, consideration could be given to applying TIF funds toward construction of a continuous two-way left turn lane on Tubbs Lane, if volumes reach warranted levels. The project's 16-17 new daily trips would represent 1/10th of one percent of the forecast cumulative ADT volumes on Tubbs Lane.



Cumulative Weekday and (Weekend) Peak Hour Volumes



Cumulative Plus Project Weekday and (Weekend) Peak Hour Volumes

Cumulative and Cumulative Plus Project
Weekday and (Weekend) Peak Hour Volumes

North

omni-means

figure 6

7. SUMMARY AND CONCLUSIONS

The proposed Tamber Bey Winery project would generate 16-17 new daily trips in addition to 10 existing daily trips from the onsite residence. The project traffic (approximately 13-14 daily trips to the west and 3-4 trips to the east) would represent an increase of approximately 0.2% to the existing Tubbs Lane volume of 5,400 annual average daily trips. Tubbs Lane traffic flows would continue to operate at LOS 'A' conditions under existing plus project conditions.

The Tubbs Lane/Tamber Bey intersection operates at LOS 'A' under existing conditions. The intersection would continue to operate at satisfactory levels-of-service under existing plus project conditions. The Tubbs Lane/Tamber Bey intersection would operate at LOS 'B' for the stopped southbound approach and LOS 'A' for the eastbound Tubbs Lane approach during weekday and weekend peak hours.

With approved development traffic volumes, the near term and near term plus project conditions would continue to operate acceptably. Near term daily volumes on Tubbs Lane are expected to be approximately 5,585 trips without the project and 5,602 with the project trips, representative of LOS 'A' conditions.

The Tubbs Lane/Tamber Bey Access intersection would operate at LOS 'A' (9.8 seconds delay or less) during weekday and weekend peak hours under near term conditions. The intersection would operate at LOS 'B' (delays of 11.1 seconds or less) during both peak hours under near term plus project conditions. The intersection would continue to operate efficiently and within acceptable levels. No queuing issues are anticipated at the access driveway based on the project volumes.

The daily volumes would not warrant a left turn lane on Tubbs Lane based on the Napa County left turn lane warrant. The volumes would also be below the thresholds at which right turn lanes would be needed.

Based on field observations, the available sight distance along Tubbs Lane is approximately 1,000 feet in both directions which exceeds the recommended sight distance of 460 feet. (The project's civil engineer should confirm the adequacy of sight distances along Tubbs Lane.)

The winery applicant proposes to widen the existing driveway from 16 feet to 18 feet of paved width. This would match the Napa County standard requirement of 18 feet. Therefore, the access road would reflect an appropriate design as determined by Napa County to accommodate the projected traffic flows. At its intersection with Tubbs Lane, the driveway flares to 55 feet wide, which would accommodate turning paths for inbound and outbound trucks serving the winery. (The project's civil engineer should confirm adequate turning paths.) In keeping with the policies of the General Plan Update to promote alternative modes of transportation, the project would provide bicycle racks and an electric vehicle charging station.

Travel model forecasts from the Napa County General Plan Update were used to calculate cumulative volumes. The intersection would operate at acceptable conditions (LOS 'D' or better) under cumulative and cumulative plus project conditions based on the forecasted volumes. Additional road improvement measures and vehicle trip reduction strategies may further improve the cumulative operating conditions.

Although there were no significant impacts associated with project, the forecast cumulative volume increases are quite large. The volumes on Tubbs Lane would likely warrant left turn lanes at all side streets and driveways exceeding twenty daily trips. A traffic impact fee may be adopted by the County to fund the General Plan improvements or other projects, such as a continuous two-way left turn lane on Tubbs Lane. The project's contribution to cumulative ADT volumes on Tubbs Lane would equate to $1/10^{th}$ of 1% of the projected volumes. If a TIF program were enacted, the proposed project could contribute a "fair share" towards such future circulation improvements.

References:

(1) Transportation Research Board (TRB), *Highway Capacity Manual – Fourth Edition*, 2000. Peak hour intersection LOS conditions analyzed using HCM 2000 operations methodology. Daily capacities derived from peak hour capacities.

(2) Baymetrics, Machine tube counts on Tubbs Lane east of project driveway, Thursday September 27 through Saturday September 29, 2012.

(3) Caltrans, Traffic Operations Division, Traffic and Vehicle Data Systems Unit, 2011 Traffic Volumes on California State Highway System (online database: www.traffic-counts.dot.ca.gov).

(4) Omni-Means Engineers & Planners, traffic counts on Friday (4-6 PM) September 28, 2012 and Saturday (1-3 PM) Saturday September 29, 2012.

(5) Institute of Transportation Engineers, Trip Generation, 8th Edition, 2008.

(6) Napa County, *Adopted Road and Street Standards*, revised November 21, 2006.

(7) Caltrans, Guidelines for Reconstruction of Intersections, August 1985.

(8) Napa County, Planning Department, Mr. Sean Trippi, December 5, 2012.

(9) City of Calistoga, Planning Department, Mr. Erik Lundquist, November 27, 2012.

(10) Omni-Means Engineers & Planners, ibid.

(11) Caltrans, *Highway Design Manual*, July 1, 2004.

(12) Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.

(13) Dowling & Associates, Inc., Napa County General Plan Update EIR, Prepared for County of Napa, February 9, 2007.

(14) Dowling & Associates, Inc., ibid.