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# Traffic Impact Study and Addendum to the Traffic Impact Study



September 20, 2024

Mr. Mike Burgess Chief Financial Officer Del Dotto Vineyards 540 Technology Way Napa, CA 94558

## Addendum to the *Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification*

Dear Mr. Burgess;

Potential transportation impacts associated with the proposed modification to the use permit for the Piazza Del Dotto Winery were analyzed in the *Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification* (TIS), W-Trans, 2020. Since that time, several aspects of the initial use permit request have been changed, including a reduction in the requested production and visitation. The purpose of this addendum letter is to assess how the changes to the project description may impact the findings in the TIS.

#### **Project Description**

The project's TIS presented potential impacts associated with an expansion in production from 48,000 to 100,000 gallons per year, an increase in full-time employees from 13 to 17, and an increase in daily visitation from 40 to 125 on weekdays and from 75 to 130 on weekend days. The project description has since been revised to request an expansion to 75,000 gallons per year and an increase in daily visitation to 120 on weekdays, 25,000 gallons and five visitors less than the initial request. The request for 17 full-time employees and 130 daily weekend visitors is unchanged from the request evaluated.

#### **Trip Generation**

As indicated on Pages 12 and 13 of the TIS, the prior request was expected to result in a net increase of 71 new daily trips over permitted conditions with 13 new trips during the weekday p.m. peak hour and seven new trips during the weekend peak hour. On a Saturday during harvest, the prior request was expected to result in 58 additional daily trips with 10 new peak hour trips. To determine the trip generation for the modified request, the County of Napa's Winery Trip Generation Worksheet was used to calculate the daily trips, though winery-specific temporal data was once again used to calculate the peak hour trips consistent with the methodology used in the TIS. Based on actual site data, approximately 18 and 17 percent of the total daily trips occur during the peak hour of the generator on weekdays and weekend days, respectively.

Based on application of the same trip generation methodology used in the TIS but with the reduced visitation and production metrics, the modified request would be expected to generate a maximum of 150 trips during a typical weekday, with 27 trips occurring during the weekday evening peak hour and 23 trips during the weekend midday peak hour. As shown in Table 1, this would result in a net increase of 67 trips per weekday over permitted conditions, including 12 trips during the weekday p.m. peak hour, and seven trips during the weekend midday peak hour; all of these values are the same or less than what was analyzed in the TIS. The Winery Trip Generation Worksheet for the modified use permit request is enclosed.

Table 1 – Trip Generation Summary Non-Harvest								
Condition	Weekday	Weekda	y PM Pe	ak Hour	Weekend Peak Hour			
_	Trips	s Trips In Out				ln	Out	
Permitted	83	15	2	13	16	7	9	
Initial Request	154	28	4	24	23	10	13	
Modified Request	150	27	4	23	23	10	13	
TIS Net New Trips	71	13	2	11	7	3	4	
Modified Net New Trips	67	12	2	10	7	3	4	

Traffic that would occur on a Harvest Saturday was also tabulated using the same methodology, as shown in Table 2. The modified request would be expected to result in a maximum of 55 additional daily trips on a Saturday during harvest, including 10 new trips during the peak hour. Compared to the initial request evaluated in the TIS, this represents three fewer daily trips, though the same number of peak hour trips.

Table 2 – Trip Generation Summary Harvest Saturday						
Condition	Daily	Weekend Peak Hour				
	Trips	Trips	In	Out		
Permitted	102	17	8	9		
Initial Request	160	27	12	15		
Modified Request	157	27	12	15		
TIS Net New Trips	58	10	4	6		
Modified Net New Trips	55	10	4	6		

The proposed event program has also been reduced from the prior request of 54 annual events with 5,026 attendees to 10 events with 1,218 attendees. As was previously proposed, these events would be scheduled to begin and end outside of peak hours for traffic on SR 29.

It is noted that under the County's current traffic study guidelines, an operational analysis would not be required as the project would generate fewer than 110 new daily trips.

#### **Site Access**

As part of the modified use permit request, trips associated with harvest, employees, and hold and haul activities are proposed to use the main driveway on SR 29 rather than the Yount Mill Road driveways. As indicated on Page 16 of the TIS, adequate sight distance is available at the SR 29 driveway and the existing two-way left-turn lane (TWLTL) on SR 29 facilitates left turns into the site as well as two-stage left turns out of the site. As a result, it is reasonable to conclude that this request would not result in any less safe conditions than use of the Yount Mill Road driveways for these activities as both the project driveway and intersection of SR 29/Yount Mill Road possess the same side-street stop-control and safety features.

#### **Conclusions**

• The modified use permit request would be expected to result in four fewer daily trips on a typical weekday compared to what was previously analyzed in the 2020 TIS with one fewer trip during the weekday p.m. peak hour and the same number of trips during the weekend peak hour. During harvest, the modified request would result in three fewer daily trips on a Saturday, with the same number of peak hour trips.

- Because the modified request would result in the same number or fewer daily and peak hour trips compared
  to the previously analyzed levels, the operational analysis and resulting findings and recommendations
  identified in the 2020 TIS remain valid. It is noted that the operational analysis would not be required under
  the County's current guidelines.
- The project driveway on SR 29 would provide adequate access for production trucks, employees, and hold and haul trips considering existing sight lines are adequate and SR 29 has a TWLTL along the project frontage.

Thank you for giving us the opportunity to provide these services. Please let us know if you have any questions.

TR001552

Sincerely,

Cameron Nye, PE (Traffic) Transportation Engineer

Da**l**ene J. Whit**l**ock, PE (Civil, Traffic), PTOE

Senior Principal

DJW/cjn/NAX129-3.L2

Enclosure: Winery Trip Generation Worksheet





#### Planning, Building & Environmental Services

1195 Third Street, Suite 210 Napa, CA 94559-3082 (707) 253-4417

#### **PROJECT DESCRIPTION**

**Clear Form** 

Winery Name: Piazza Del Dotto Date Prepared: 9/18/24

Existing/Permitted Winery		Harvest	Non-Harvest
Number of Full Times Franciscos*	Weekday	13	13
Number of Full Time Employees*	Weekend	13	13
Number of Deat Time Familians	Weekday	2	2
Number of Part Time Employees*	Weekend	2	
Marrian Daile Visitation	Weekday	50	50
Maximum Daily Visitation	Weekend	75	75
Annual Gallons of Production		48,000	48,000
Annual Tons of Grape Haul		300.0	N/A
Number of Visitors at the Largest	Weekday		
Event that occurs two or more times per month, on average	, Weekend		

Proposed Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	17	17
Number of Full Time Employees*	Weekend	17	13
Number of Doub Time Charles of	Weekday	2	2
Number of Part Time Employees*	Weekend	2	
Manine Daile Visitation	Weekday	120	120
Maximum Daily Visitation	Weekend	130	130
Annual Gallons of Production		75,000	75,000
Annual Tons of Grape Haul		468.8	N/A
Number of Visitors at the Largest	Weekday		
Event that occurs two or more times per month, on average	Weekend		

<sup>\*</sup>Number of full time and part time employees should represent the max number of employees that will be working on any given day (including all vendors and contractors employed for the largest event that occurs two or more times per month on average).

## Piazza Del Dotto TRIP GENERATION

Existing Winery	/				Harvest	Non-Harvest
Maximum Daily Weekday	Traffic (Frida	<u>v)</u>				
FT Employees PT Employees	<u>Harvest</u> 13 2	<u>Non-Harvest</u> 13 2	3.05 one way trips/employee 1.9 one way trips/employee	FT Employee Daily Trips PT Employee Daily Trips	39.7 3.8	39.7 3.8
Max Visitors Max Event	50	50	2.6 visitors/vehicle for 2 one way tri 2.6 visitors/vehicle for 2 one way trip		38.5 0.0	38.5 0.0
Gallons of Production Tons of Grape Haul#	48,000 300.0		0.000018 truck trips 0.013889 truck trips	Production Daily Trips Grape Haul Daily Trips	0.9 4.2	0.9 0.0
				Total Weekday Daily Trips Total Weekday Peak Hour Trips*	87 31	83 29
Maximum Daily Weekena	Traffic (Satur	day)				
FT Employees PT Employees	Harvest 13 2	<u>Non-Harvest</u> 13	3.05 one way trips/employee 1.9 one way trips/employee	FT Employee Daily Trips PT Employee Daily Trips	39.7 3.8	39.7 0.0
Max Visitors Max Event	75	75	2.8 visitors/vehicle for 2 one way tri 2.8 visitors/vehicle for 2 one way trip		53.6 0.0	53.6 0.0
Gallons of Production Tons of Grape Haul#	48,000 300.0		0.000018 truck trips 0.013889 truck trips	Production Daily Trips Grape Haul Daily Trips	0.9 4.2	0.9 0.0
				Total Weekend Daily Trips Total Weekend Peak Hour Trips*	103 48	95 45
Maximum Annual Traffic						
				Total Annual Trips**	31,939	

Proposed Wine	ery				Harvest	Non-Harvest
Maximum Daily Weekday	Traffic (Frida	<u>y)</u>				
FT Employees PT Employees	<u>Harvest</u> 17 2	<u>Non-Harvest</u> 17 2	3.05 one way trips/employee 1.9 one way trips/employee	FT Employee Daily Trips PT Employee Daily Trips	51.9 3.8	51.9 3.8
Max Visitors Max Event	120	120	2.6 visitors/vehicle for 2 one way tri 2.6 visitors/vehicle for 2 one way trip		92.3 0.0	92.3 0.0
Gallons of Production Tons of Grape Haul#	75,000 468.8		0.000018 truck trips 0.013889 truck trips	Production Daily Trips Grape Haul Daily Trips	1.4 6.5	1.4 0.0
				Total Weekday Daily Trips Total Weekday Peak Hour Trips*	156 57	150 54
Maximum Daily Weekend	l Traffic (Satur	day)				
FT Employees PT Employees	Harvest 17 2	Non-Harvest 13	3.05 one way trips/employee 1.9 one way trips/employee	FT Employee Daily Trips PT Employee Daily Trips	51.9 3.8	39.7 0.0
Max Visitors Max Event	130	130	2.8 visitors/vehicle for 2 one way tri 2.8 visitors/vehicle for 2 one way tri		92.9 0.0	92.9 0.0
Gallons of Production Tons of Grape Haul#	75,000 468.8		0.000018 truck trips 0.013889 truck trips	Production Daily Trips Grape Haul Daily Trips	1.4 6.5	1.4 0.0
				Total Weekend Daily Trips Total Weekend Peak Hour Trips*	157 76	134 67
Maximum Annual Traffic						
				Total Annual Trips**	53,922	

Net New Trips	Harvest	Non-Harvest
Maximum Weekday Traffic (Friday)		
If total net new daily trips is greater than 110, a TIS is required Net New Weekday Daily Trips	69	67
Net New Weekday Peak Hour Trips'	26	25
Maximum Weekend Traffic (Saturday)		
If total net new daily trips is greater than 110, a TIS is required  Net New Weekend Daily Trips	54	39
Net New Weekend Peak Hour Trips	28	22
A Traffic Impact Study is NOT Required		
Net New Annual Trips**	21,983	

 $<sup>\</sup>hbox{\it\#Trips associated with Grape Haul represent harvest season only}.$ 

<sup>\*</sup>Weekday peak hour trips are calculated as 38% of daily trips associated with visitors and production plus one trip per employee. Weekend peak hour trips are calculated as 57% of daily trips associated with visitors and production plus one trip per employee.

<sup>\*\*</sup>Annual trips represent a conservative calculation that assumes 11 weeks of harvest, all weekdays are Fridays, all weekends are Saturdays, and assumes that the largest event that occurs two or more times per month on average occurs every day.



# Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification



Prepared for the County of Napa Permit Number P18-00143

Submitted by **W-Trans** 

April 21, 2020





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#### **Table of Contents**

Executive Summary	1
Introduction	2
Transportation Setting	4
Capacity Analysis	6
Alternative Modes	15
Access and Circulation	16
Parking	17
Transportation Demand Management	18
Conclusions and Recommendations	20
Study Participants and References	22
Figures	
<ol> <li>Project Location and Study Segment</li> <li>Traffic Volumes and Trip Distribution</li> <li>Site Plan</li> </ol>	9
Tables	
<ol> <li>Collision Rates for the Study Segment</li> <li>Planned Bicycle Facilities in the Project Vicinity</li> <li>Automobile Level of Service Criteria</li> <li>Existing Peak Hour Roadway Segment Levels of Service</li> <li>Future Peak Hour Roadway Segment Levels of Service</li> <li>Trip Generation Summary</li> <li>Trip Generation Summary – Crush Saturday</li> <li>Existing and Existing plus Project Peak Hour Roadway Segment Levels of Service</li> </ol>	
9. Future and Future plus Project Peak Hour Roadway Segment Levels of Service	14

#### **Appendices**

- A. Collision Rate Calculations
- B. City of Napa Seasonal Adjustment Factors
- C. Roadway Segment Level of Service Calculations
- D. Traffic Count Data and Driveway Count Summary
- E. Napa County Winery Traffic Information/Trip Generation Forms
- F. AutoTURN Exhibits





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#### **Executive Summary**

Piazza Del Dotto Winery seeks to modify the existing Use Permit to allow for an increase in the number of daily visitors to a maximum of 125 on weekdays and 130 on weekend days. Increases in production from 48,000 to 100,000 gallons per year and in staffing levels from 13 to 17 full-time employees are also proposed. Further, the Use Permit Modification would adjust the special event allowance to include 19 events with 120 guests and four events with up to 400 attendees annually. The events would be scheduled to avoid generating trips during peak hours, which are between 4:00 and 6:00 p.m. on weekdays and between 1:00 and 3:00 p.m. on weekend days.

Using the County's standard winery trip generation assumptions and site-specific information, the proposed project would be expected to generate an average of 71 new daily trips on weekdays, including 13 weekday p.m. peak hour trips, and seven trips during the weekend midday peak hour. On Crush Saturdays, the project would generate 10 new trips during the midday peak hour.

The study area included the segment of SR 29 between Washington Street and Oakville Grade Road, which is currently operating at LOS E during the weekday p.m. peak hour and weekend midday peak hour and would continue to do so with the addition of project traffic. Under anticipated Future volumes, the segment would drop to LOS F both without and with the project as there are no planned improvements to SR 29 beyond the recent addition of a two-way left-turn lane and bike lanes. Because this segment of SR 29 is allowed to operate at LOS F per the *General Plan*, the project would not have an adverse impact on traffic operation.

While the study area lacks pedestrian facilities and transit service, there is not expected to be a demand, and therefore, the lack of facilities is considered acceptable. Existing bike facilities on SR 29 and Yount Mill Road provide adequate bicycle access. To accommodate cyclists, the project should provide ten bicycle parking spaces on-site.

Access to the site occurs via SR 29 and Yount Mill Road. The driveway on SR 29 is the main entrance and is used by visitors, while the Yount Mill Road access is reserved for employees, agricultural and winery vehicles, emergency response vehicles, and trucks during harvest. The Yount Mill Road access points would also be used by construction vehicles; therefore, there would be no anticipated temporary traffic impacts to SR 29 at the project driveway. Sight lines along SR 29 and Yount Mill Road at the project driveways are adequate to accommodate turns into and out of the site.

The proposed 54-space parking supply is adequate to accommodate the anticipated daily parking demand but is insufficient to accommodate demand for the proposed events. The project applicant should make arrangements for guests to park off-site during events with transportation to and from the site via shuttles.

To meet CEQA requirements and in recognition of the statewide goal to reduce VMT it is recommended that the project implement a TDM Plan that includes measures identified in this report such as carpool/active transportation incentives and a guaranteed ride home program.



#### Introduction

This report presents an analysis of the potential traffic impacts that would be associated with the proposed modifications to the existing Use Permit for Piazza del Dotto Winery (previously known as Ca'Nani Winery) located at 7466 Saint Helena Highway (SR 29) in the County of Napa. The traffic study was completed in accordance with the criteria established by the County of Napa, reflects a scope of work approved by County staff, and is consistent with standard traffic engineering techniques.

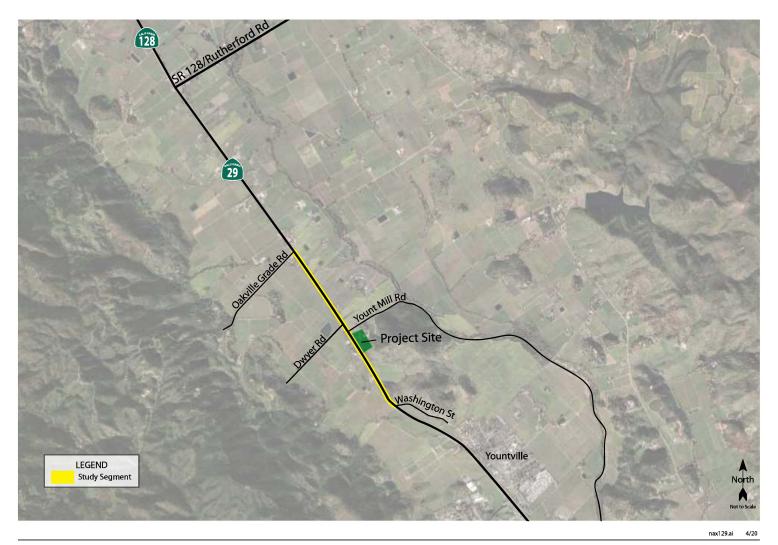
#### **Prelude**

The purpose of a traffic impact study is to provide County staff and policy makers with data they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the County's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

#### **Project Profile**

The proposed project would expand the existing Use Permit to allow for an increase in production from 48,000 to 100,000 gallons per year and an increase in full-time employees from 13 to 17. Additionally, the proposed Use Permit would increase visitation to allow for a maximum of 125 visitors per day on weekdays and 130 visitors per day on weekend days. The existing marketing program would be revised to include 19 events per year for up to 120 guests and four events per year with a maximum of 400 guests; however, these events would be scheduled to neither begin nor end during peak hours. The site is served by four existing driveways, including one on SR 29 and three on Yount Mill Road, all of which would continue to provide access with the Use Permit modification. The project site is located on the east side of SR 29 approximately two miles north of Yountville, as shown in Figure 1.





Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification Figure 1 – Project Location and Study Segment



#### **Transportation Setting**

#### **Operational Analysis**

#### **Study Area and Periods**

The study area consists of the section of SR 29 between Washington Street and Oakville Grade Road. Operating conditions during the weekday p.m. and weekend midday peak periods were evaluated as these time periods reflect the highest traffic volumes area wide and for the proposed project. The evening peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion of the day during the homeward bound commute, while the weekend peak generally occurs between 1:00 and 3:00 p.m. and reflects conditions when tasting rooms tend to be busiest. Four analysis scenarios were evaluated, as is typical for winery analyses, including Existing, Existing plus Project, Future and Future plus Project Conditions.

Consideration was given to the need for an operational analysis of Yount Mill Road as the winery has three secondary driveways on Yount Mill Road. A review of analyses for roadways with similar volumes indicates that they operate at LOS A or B. The project would generate very few trips to the new driveway so it is reasonable to conclude that Yount Mill road would continue to operate acceptably given its current low volumes and the nominal increase in traffic associated with the project.

#### **Study Roadway**

Saint Helena Highway (SR 29) runs mostly north to south with a northwest-southeast skew. In the study area, the highway has two 12-foot travel lanes with a 12-foot two-way left-turn lane and eight-foot paved shoulders marked as bicycle lanes. The posted speed limit is 55 miles per hour (mph). Based on count data posted on Caltrans' website, the segment of SR 29 along the project frontage has an average daily traffic (ADT) volume during the peak month of the year of approximately 27,500. During a visit to the project site, traffic was observed for 15 minutes at the existing driveway on SR 29. There were no observed issues with motorists entering or exiting the property. During the field review, a total of two bicyclists were observed on SR 29, one riding in each direction.

#### **Collision History**

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is July 1, 2013 through June 30, 2018.

As presented in Table 1, the calculated collision rate for the study road segment was compared to average collision rate for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). The study segment experienced a below-average collision rate of 0.59 collisions per million vehicle miles (c/mvm) versus an average rate statewide of 0.83 c/mvm indicating that the roadway is operating acceptably with regards to safety. The collision rate calculations are provided in Appendix A.



Table 1 – Collision Rate for the Study Segment							
Study Roadway Segment	Number of Collisions (2013-2018)	Calculated Collision Rate (c/mvm)	Statewide Average Collision Rate (c/mvm)				
1. SR 29: Oakville Grade Rd to Washington St	59	0.59	0.83				

Note: c/mvm = collisions per million vehicles miles

#### **Alternative Modes**

#### **Pedestrian Facilities**

As might be expected given the rural location of the project site, there are no pedestrian facilities in the project vicinity.

#### **Bicycle Facilities**

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories, three of which are applied in the County's Bicycle Plan:

- **Class I Multi-Use Path** a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- Class II Bike Lane a striped and signed lane for one-way bike travel on a street or highway.
- Class III Bike Route signing only for shared use with motor vehicles within the same travel lane on a street or highway.

In the project vicinity, Class II bike lanes exist on SR 29 and the planned Vine Trail would parallel SR 29 along the project frontage. Additionally, Yount Mill Road is a Class III bike route. Bicyclists currently ride in the roadway shoulder along SR 29 and share the travel lane with vehicles on other roads within the project study area. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Napa County Bicycle Plan*.

Table 2 – Existing and Planned Bicycle Facilities in the Project Vicinity							
Status Facility	Class	Length (miles)	Begin Point	End Point			
Existing							
SR 29	П	7.63	Madison St	Chaix Ln			
Yount Mill Rd	III	2.10	Yountville Town Limit	SR 29			
Proposed							
Vine Trail	1	7.67	Madison St	Chaix Ln			

Source: Napa County Bicycle Plan, W-Trans, 2012

#### **Transit Facilities**

There are no existing bus stops within an acceptable walking distance (one-quarter mile) of the project site.



#### **Capacity Analysis**

#### **Two-Lane Highway Segment Level of Service Methodology**

The roadway segment Level of Service methodology found in Chapter 15, "Two-Lane Highways," of the *Highway Capacity Manual* is the basis of the automobile LOS analysis. The methodology considers traffic volumes, terrain, roadway cross-section, the proportion of heavy vehicles, and the availability of passing zones. The LOS criteria for two-lane highways differs depending on whether the highway is considered "Class I," "Class II," or "Class III." Class I highways are typically long-distance routes connecting major traffic generators or national highway networks where motorists expect to travel at high speeds. Motorists do not necessarily expect to travel at high speeds on Class II highways, which often function as scenic or recreational routes and typically serve shorter trips. Class III highways may be portions of Class I or Class II highways that pass through towns and communities and have a mix of local traffic and through traffic.

The measure of effectiveness by which Level of Service is determined on Class I and II highways is average travel speed (ATS) and percent time spent following (PTSF), or the proportion of time that drivers on the highway are limited in their speed by a driver in front of them. Class III highways are measured by percent of free-flow speed (PFFS), which represents the ability of vehicles to travel at or near the posted speed limit. SR 29 was defined as a Class II highway for the purposes of this analysis. A summary of the ATS, PTSF, and PFFS breakpoints is shown in Table 3.

Table 3 – Automobile Level of Service Criteria							
LOS	Class I Highways		Class II Highways	Class III Highways			
	ATS (mi/h)	PTSF (%)	PTSF (%)	PFFS (%)			
Α	>55	≤35	≤40	>91.7			
В	>50-55	>35-50	>40-55	>83.3-91.7			
С	>45-50	>50-65	>55-70	>75.0-83.3			
D	>40-45	>65-80	>70-85	>66.7-75.0			
Ε	≤40	>80	>85	≤66.7			

Notes: LOS = Level of Service; ATS = Average Travel Speed; PTSF = Percent Time Spent Following; PFFS = Percent of Free-Flow Speed

Reference: Highway Capacity Manual, Transportation Research Board, 2010

#### **Traffic Operation Standards**

#### **Napa County**

In the Circulation Element of the Napa County General Plan, the following policies have been adopted:

• **Policy CIR-31** – The County seeks to provide a roadway system that maintains current roadway capacities in most locations and is efficient in providing local access.



• Policy CIR-38 – The County seeks to maintain operations of roads and intersections in the unincorporated County area that minimize travel delays and promote safe access for all users. Operational analysis shall be conducted according to the latest version of the Highway Capacity Manual and as described in the current version of the County's Transportation Impact Study Guidelines. In general, the County seeks to maintain Level of Service (LOS) D on arterial roadways and at signalized intersections, as the service level that best aligns with the County's desire to balance its rural character with the needs of supporting economic vitality and growth.

In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus on reducing the project's vehicular trips through modifying the project definition, applying TDM strategies, and/or applying new technologies that could reduce vehicular travel and associated delays; then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts (see the County's Transportation Impact Study Guidelines for a list of potential mitigation measures).

The following roadway segments are exceptions to the LOS D standard described above:

- State Route 29 in the unincorporated areas between Yountville and Calistoga: LOS F is acceptable.
- Silverado Trail between State Route 128 and Yountville Cross Road: LOS E is acceptable.
- o State Route 12/121 between the Napa/Sonoma county line and Carneros Junction: LOS F is acceptable.
- American Canyon Road from I-80 to American Canyon City Limit: LOS E is acceptable.

To provide a more quantitative method of adhering to the above standards, the County has recently updated the significance thresholds for intersections as summarized below:

- If an unsignalized intersection is operating acceptably (LOS A though LOS D), and the project would cause the intersection to fall to LOS E or LOS F, the applicant must mitigate the impact to restore to LOS D at a minimum, or the project is considered to adversely impact the intersection.
- If an intersection is already operating at LOS E or F, and the project would increase delay at the intersection by five or more seconds, the applicant must mitigate the impact to lower the increase in delay, or else the project would be considered to adversely impact the intersection. The same standards apply to the analysis of minor approaches to unsignalized intersections.

#### **Existing Conditions**

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday p.m. and weekend midday peak periods. This condition does not include project-generated traffic volumes. Volume data was collected in mid-May while local schools were in



session and adjusted to reflect peak summertime conditions using count adjustment factors provided in the *City of Napa Traffic Impact Study Guidelines*, City of Napa, 2004 as this source was determined to have the most accurate seasonal adjustment information. A copy of the policy indicating seasonal adjustment factors is contained in Appendix B.

#### **Roadway Segment Levels of Service**

Under Existing Conditions, the study segment operates at LOS D in the northbound direction during the weekday p.m. peak hour and at LOS E in the southbound direction during the p.m. peak hour as well as both directions during the weekend peak hour. Although LOS E is below the County's threshold of LOS D, LOS F is considered acceptable operation on the segment of SR 29 between Yountville and Calistoga, which encompasses the study segment. The Existing traffic volumes are shown in Figure 2. A summary of the roadway segment level of service calculations is shown in Table 4, and copies of the Level of Service calculations for all evaluated scenarios are provided in Appendix C.

Table 4 – Existing Peak Hour Roadway Segment Levels of Service							
Study Segment Direction	Weekday	PM Peak		Weekend Midday Peak			
	PTSF	LOS	PTSF	LOS			
Saint Helena Hwy (SR 29)							
NB – Washington St to Oakville Grade Rd	77.5	D	90.6	E			
SB – Oakville Grade Rd to Washington St	91.4	Е	87.7	E			

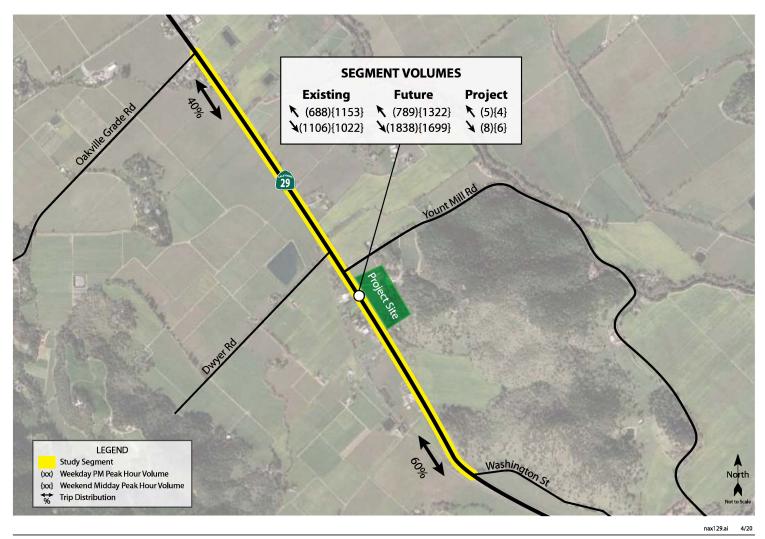
Notes: PTSF = Percent Time Spent Following; LOS = Level of Service; NB = Northbound; SB = Southbound

#### **Future Conditions**

Future volumes for the horizon year 2040 were calculated based on output from the *Napa Solano Travel Demand Model*, maintained by the Solano Transportation Authority (STA). Base year (2015) and future (2040) segment volumes for the weekday p.m. peak period were used to calculate growth factors in each direction for the study roadway segment.

The growth factors projected by the model were then adjusted to account for the three years of growth that have already occurred since 2015 and the Existing volumes were multiplied by the growth factor to project likely Future weekday p.m. peak hour volumes for the study segment. The same growth factors used for the weekday p.m. peak hour were used for the weekend midday peak hour as the model does not contain information for weekend days. It is noted that the model is projecting substantial increases in traffic volumes in the area resulting in a growth factor of 1.66 for the southbound direction of SR 29. The segment of SR 29 between Yountville and Calistoga is classified as a 2-lane Freeway on the Circulation Map (CIR-1) in the *General Plan* and there are no plans to provide additional travel lanes, though the travel demand model is projecting such substantial growth by the year 2040 that the only way to achieve LOS D operation under these projected volumes would be to provide two travel lanes in each direction.





Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification Figure 2 – Traffic Volumes and Trip Distribution



#### **Roadway Segment Levels of Service**

As might be expected, under the anticipated Future volumes and with no improvements to SR 29 beyond the recent addition of a center two-way left-turn lane, the study segment is expected to deteriorate to LOS F operation in both directions during the weekend midday peak hour and in the southbound direction during the weekday p.m. peak hour. Future volumes are shown in Figure 2 and operating conditions are summarized in Table 5.

Table 5 – Future Peak Hour Roadway Segment Levels of Service						
Study Segment Direction	Weekday PM Peak			Weekend Midday Peak		
	PTSF	LOS	PTSF	LOS		
Saint Helena Hwy (SR 29)						
NB – Washington St to Oakville Grade Rd	82.4	D	93.2	F		
SB – Oakville Grade Rd to Washington St	100.0	F	97.6	F		

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service; NB = Northbound; SB = Southbound

#### **Project Description**

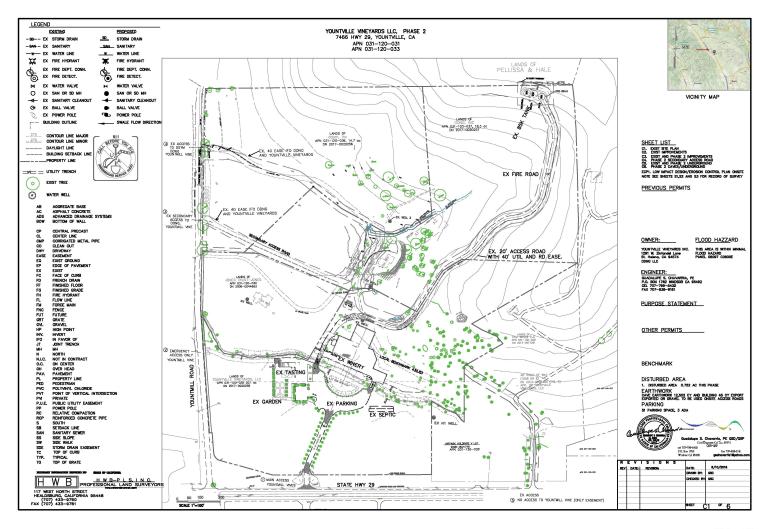
The project site is located at 7466 St. Helena Highway (SR 29) in the County of Napa. As proposed, the project would modify the current Use Permit for the Piazza Del Dotto Winery approved in October 2010 to allow for a maximum of 125 visitors per day on weekdays and 130 visitors on weekend days. Additionally, the proposed permit would allow for an increase in production from 48,000 to 100,000 gallons per year and an increase in full-time employees from 13 to 17. The permit would also add 19 events per year for 120 guests and four events per year for up to 400 guests, though it is noted that the proposed events would be scheduled to avoid generating trips during peak hours (between 4:00 and 6:00 p.m. on weekdays and between 1:00 and 3:00 p.m. on weekend days). The proposed project site plan is shown in Figure 3.

#### **Trip Generation**

The County of Napa's Winery Traffic Information/Trip Generation Sheet, updated in August 2019, was used to determine the anticipated trip generation for the permitted and proposed conditions. The form estimates the number of daily and peak hour trips for weekdays and Saturdays based on the number of full- and part-time employees, maximum daily visitors, and production. While the form also indicates estimates of the percent of daily traffic that occurs during peak hours (Option A) or allows use of standard ITE rates (Option B), because the winery is already in operation, it was determined that actual, site-specific data would provide a more accurate assessment of the project's potential impacts so Option C was selected.

To determine the peak hour volume as a percent of daily traffic, counts were performed for one week in January 2018. Option A of the Napa County trip generation form assumes 38 percent of weekday trips occur during the weekday p.m. peak hour and 57 percent of Saturday trips occur during the midday peak hour; the data obtained at winery driveway shows much lower ratios.





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Piazza Del Dotto makes an effort to schedule tastings so that few conclude during the p.m. peak period, and as a result their tasting trips are generally concentrated during the afternoon hours. Based on actual site data, approximately 18 and 17 percent of the total daily trips occur during the peak hour of the generator on weekdays and weekend days, respectively. The peak hour of the generator for the site typically occurs between 2:00 p.m. and 4:00 p.m. both on weekdays and weekend days.

Although the peak hour of the generator for the site does not coincide with the weekday p.m. peak hour, to provide a conservative estimate of the peak hour trip generation the peak hour of the generator percentages were used to estimate the number of trips generated during both the weekday p.m. and weekend midday peak hours. The inbound versus outbound ratios for both peak hours were also reviewed based on the actual driveway counts, and it was determined that the site experiences a 14/86 split between inbound and outbound trips during the weekday p.m. peak hour and a 45/55 split during the weekend midday peak hour. Copies of the counts and a summary to determine the ratios applied are contained in Appendix D.

It should be noted that some portion of the trips to Piazza Del Dotto would be drawn from existing traffic already on the adjacent street system, as it is typical for tourists to visit multiple wineries on the same trip. These vehicle trips are not considered "new," but are referred to as "pass-by." According to the 2014 Napa County Travel Behavior Study prepared by Fehr & Peers for the Napa County Transportation and Planning Agency, the average number of wineries groups planned to visit was 3.1. Therefore, two out of three trips to Piazza Del Dotto Winery are drawn from existing traffic to other nearby wineries, though these "pass-by" trips were not deducted from the trip generation estimated by the Napa County Winery Traffic Information form, which results in a conservative analysis.

Based on application of these assumptions and not taking pass-by trips into consideration, the proposed modification would be expected to generate a maximum of 154 trips during a typical weekday, with 28 trips occurring during the weekday evening peak hour and 23 trips during the weekend midday peak hour. As shown in Table 6, this would result in a net increase of 71 trips per weekday, including 13 trips during the weekday p.m. peak hour, and seven trips during the weekend midday peak hour; these trips represent the increase in traffic associated with the proposed Use Permit compared to permitted conditions. The Winery Traffic Information/Trip Generation Sheets for both permitted and proposed conditions are contained in Appendix E.

Table 6 – Trip Generation Summary								
Condition	Weekday	Weekda	y PM Pe	ak Hour	Weeken	d MD Pe	eak Hour	
	Trips	Trips	In	Out	Trips	In	Out	
Permitted	83	15	2	13	16	7	9	
Proposed	154	28	4	24	23	10	13	
Net New Trips	71	13	2	11	7	3	4	

Traffic that would occur during a Crush Saturday was also tabulated based on the same assumptions, as shown in Table 7. The modified Use Permit would be expected to result in a maximum of 58 additional daily trips during a Crush Saturday, including 10 new trips during the peak hour.



Table 7 – Trip Generation Summary – Crush Saturday							
Condition	Daily Weekend MD Peak Hour						
	Trips	Trips	In	Out			
Permitted	102	17	8	9			
Proposed	160	27	12	15			
Net New Trips	58	10	4	6			

Consideration was given to the amount of truck trips that would be associated with the winery's hold and haul system. Per the Wastewater Statement, the system would require one truck load about every five days during harvest. Over the course of a typical 45-day harvest season, this would translate to nine truck loads, or 18 total trips, for an average of about one truck trip every 2.5 days.

#### **Trip Distribution**

The pattern used to allocate new project trips to the street network was determined based familiarity with the area and surrounding region as well as likely origins and destinations for patrons of the project. A distribution of 40 and 60 percent to/from the north and south on SR 29, respectively, was applied.

#### **Roadway Segment Operation**

#### **Existing plus Project Conditions**

Under Existing plus Project volumes, the study roadway segment is expected to continue operating at the same levels of service as without project traffic in both directions during both peak hours. These results are summarized in Table 8 and project traffic volumes are shown in Figure 2.

Table 8 – Existing and Existing plus Project Peak Hour Roadway Segment Levels of Service								
Study Segment		Existing Conditions Existing plus Project						ect
Direction	PM I	PM Peak Weekend Peak		PM Peak		Weekend Peak		
	PTSF	LOS	PTSF	LOS	PTSF	LOS	PTSF	LOS
Saint Helena Hwy (SR 29)								
NB – Washington St to Oakville Grade Rd	77.5	D	90.6	Ε	78.2	D	90.6	Ε
SB – Oakville Grade Rd to Washington St	91.4	Ε	87.7	Ε	91.3	Ε	88.4	Ε

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service; NB = Northbound; SB = Southbound

**Finding** – The study roadway is expected to continue operating at LOS D or E upon the addition of project-generated traffic to existing volumes, which would be considered acceptable per the *General Plan*.

#### **Future plus Project Conditions**

With project-generated traffic added to the anticipated Future volumes, the study roadway is expected to continue operating at LOS F in the southbound direction during both peak hours and in the northbound



direction during the weekend peak hour. Future plus Project operating conditions are summarized in Table 9.

Table 9 – Future and Future plus Project Peak Hour Roadway Segment Levels of Service								
Study Segment Direction	Future Conditions  PM Peak Weekend  Peak  PTSF LOS PTSF LOS		Fut PM F	•	us Proje Weel Pe	kend		
					PTSF	LOS	PTSF	LOS
Saint Helena Highway (SR 29)								
NB – Washington St to Oakville Grade Rd	82.4	D	93.2	F	82.6	D	93.2	F
SB – Oakville Grade Rd to Washington St	100.0	F	97.6	F	100.0	F	97.8	F

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service; NB = Northbound; SB = Southbound

**Finding** – Upon the addition of project traffic to Future volumes, the study segment is expected to continue operating at the same levels as service as without project traffic. The study segment of SR 29 is allowed to operate at LOS F per the General Plan so the project would not create any adverse impacts with regards to operation of the surrounding roadway network.



#### **Alternative Modes**

#### **Pedestrian Facilities**

Consistent with expectations for a rural area, there are no existing pedestrian facilities in the project vicinity except for the roadway shoulders which are approximately eight feet wide on both sides of SR 29 along the project frontage.

**Finding** – While there are no pedestrian facilities serving the project site, pedestrian trips to and from the site are not expected, so this condition is acceptable.

#### **Bicycle Facilities**

The existing Class II bike lanes on SR 29 and Class III bike route on Yount Mill Road together with planned future facilities and the shared use of minor streets, provide adequate access for bicyclists.

#### **Bicycle Storage**

The County does not have specific bicycle parking requirements for wineries; however, the project should provide bicycle parking consistent with the requirements outlined in Chapter 18.110.040 of the Napa County Code of Ordinances which states that ten bicycle parking spaces should be provided for all nonresidential uses where ten or more automobile parking spaces are required. With a proposed supply of 54 permanent vehicle parking spaces, the project would need to provide ten bicycle spaces on-site.

**Recommendation** – The applicant should ensure parking for a minimum of ten bicycles is provided somewhere on-site, preferably near the tasting room.

#### **Transit**

While there are no transit facilities serving the project site, there is also no anticipated need for such service.

Finding – The lack of transit access does not result in an impact given the limited potential demand.

#### **Access and Circulation**

#### **Site Access**

The project site is accessed via four existing driveways, one of which is located on the east side of SR 29 and the other three are located on the south side of Yount Mill Road. The driveway on SR 29 serves as the main entrance while the driveways on Yount Mill Road are reserved for employee use, agriculture and winery vehicles, and trucks during harvest. As indicated on the site plan in Figure 3, Driveway 2 would be reserved for emergency access only. The Yount Mill Road access points would also be used by trucks during the construction phase to keep the main entrance clear for visitor access. Given that trucks will not be pulling into or out of the driveway on SR 29, there are no anticipated temporary traffic impacts to SR 29 because of construction.

#### **Sight Distance**

Sight distances along SR 29 and Yount Mill Road at the existing driveways were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distances for minor street approaches that are driveways are based on stopping sight distance, with approach travel speeds used as the basis for determining the recommended sight distance.

For the posted 55-mph speed limit on SR 29, the recommended sight distance is 500 feet. The speed limit is unposted on Yount Mill Road so for the purposes of assessing adequacy of stopping sight distance a speed of 40 mph was applied based on observations of traffic and roadway geometrics. Based on a review of field conditions, sight distance at the main driveway on SR 29 extends more than 500 feet in both directions, which is more than adequate for the posted speed limit. Additionally, sight lines extend more than 300 feet to both directions of the driveways on Yount Mill Road, which is adequate for speeds of 40 mph. Adequate sight distance is also available for following drivers to see and react to a vehicle stopped to make a turn into any of the driveways, though it is noted that there is a two-way left-turn lane on SR 29 to facilitate left-turn movements at this location and right-turn movements can be made from the shoulder so it is unlikely that there would be a vehicle stopped in the travel lane while waiting to turn into the driveway.

**Finding** – Sight distances on SR 29 and Yount Mill Road at the project driveway are adequate to meet the applied criteria for both entering and exiting movements.

#### **Site Circulation**

The AutoTURN application of AutoCAD was used to evaluate the adequacy of on-site circulation for firetrucks and commercial trucks. As designed, there would be no anticipated issues with either of these types of vehicles accessing the project site. Exhibits showing the expected travel paths are provided in Appendix F.

**Finding** – On-site circulation is expected to operate acceptably.



#### **Parking**

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated daily demand during harvest conditions as well as during events. The project site, as proposed, would have 51 standard parking spaces and three accessible parking spaces for a total of 54 parking spaces. It is understood that rideshare services such as Uber and Lyft as well as shuttles would be used to transport guests to the site during events.

To accommodate the daily parking demand for the tasting room, there should be at least one space provided for every employee on-site, as well as parking stalls for about 25 percent of the expected daily tasting room visitors. During harvest there would be 19 employees and a maximum of 130 visitors per day to the tasting room. Assuming the County's standard occupancy rate of 2.8 guests per vehicle, a total of 47 guest vehicles would visit the site over the course of the day. Therefore, the proposed project would need at least 31 parking spaces, 19 for employees and 12 for guests assuming one-quarter of the guests would be there at any one time. The proposed supply of 54 spaces would be more than adequate to accommodate the approximate day-to-day peak demand of 31 spaces.

The maximum number of parking spaces that would be needed on-site to accommodate employees and visitors during a 400-person marketing event was also estimated using the County's standard vehicle occupancies of one employee or 2.8 visitors per vehicle. Based on these operational parameters, during a 400-person event, a total of 175 parking spaces would be needed, including 143 for guests, 13 for event staff, and 19 for winery employees. Therefore, the total parking supply at the winery is insufficient to meet the anticipated parking demand for the largest event, experiencing a shortfall of 121 spaces. However, with the project's plans to provide shuttles for events, guest parking would not be required on-site.

The second largest event would be a 120-person event. Assuming staffing levels are the same as the largest 400-person event, the parking required for a 120-person event would be 75 spaces, including 43 for guests, 13 for event staff, and 19 for winery employees. Therefore, this event would also require the provision of a shuttle to transport guests to the winery.

**Finding** – The proposed permanent parking supply is adequate for the anticipated demand during typical harvest operation, but inadequate for 120-person and 400-person events.

**Recommendation** – As proposed, the applicant should provide a shuttle service and arrange for guests to park off-site during events with 120 or 400 guests.

#### **Transportation Demand Management**

Transportation Demand Management (TDM) measures aim to reduce single-occupancy vehicle trips, parking demand, and total vehicle miles traveled (VMT) through use of alternative modes of transportation and more efficiently planned trips. Due to the site's rural location, the project does not have as many options to reduce VMT as one located in an urban environment, but the project would be accessible via bicycle and would have up to 19 full- and part-time employees and 130 visitors on weekend days so there is potential to reduce vehicular trips and parking demand with implementation of a TDM program. Although adoption of a VMT standard is not required for the California Environmental Quality Act (CEQA) review process until July 2020, in recognition of the statewide goal to reduce VMT, measures are suggested for the project.

#### **Vehicle Miles Traveled**

In November 2017, the Governor's Office of Planning and Research (OPR) released a technical advisory containing recommendations regarding the assessment of Vehicle Miles Traveled (VMT), proposed thresholds of significance, and potential mitigation measures for lead agencies to use while implementing the required changes contained in Senate Bill 743. Also in November 2017, OPR released the proposed text for Section 15064.3, "Determining the Significance of Transportation Impacts," which summarized the criteria for analyzing transportation impacts for land use projects and transportation projects and directs lead agencies to "choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." The current deadline for adopting policies to implement SB 743 is July 2020 and the County of Napa has not yet adopted VMT policies there is no guidance on how to evaluate the proposed project in terms of VMT.

#### **Potential TDM Program Measures**

The project's TDM Program should provide information, encouragement, and access to non-motorized travel options to reduce the number of vehicle trips, shifting these trips to other modes and thus reducing VMT. The following TDM measures are examples that could be implemented by the project and are consistent with the goals of Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade.* It is recommended that the incentives offered as part of the program be available for the first two years of operation, after which the effectiveness of the program should be reevaluated and modified, if needed. It should be noted that although the measures described below are mostly intended for employees and can be implemented relatively easily, typically the bulk of vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions associated with tasting rooms are generated by visitors. This group represents a greater opportunity for reductions, but their respective measures can be more challenging to employ in a vehicle-dependent environment.

• Carpool Incentives: In non-urban areas, carpooling is often the most effective trip reduction measure. The winery and tasting room would require some employees to work the same shift so there is potential for employees to carpool to work. Financial incentives can be an effective way to encourage employees to do so. The applicant should provide an incentive of \$50 per month to employees who



agree to carpool to work a minimum of 75 percent of the time. This program should be offered to all employees of the project.

- Active Transportation Incentives: Financial incentives can also be an effective way to encourage
  employees to use active modes of transportation to reach the site. In addition to those who carpool,
  the applicant should provide an incentive of \$50 per month to employees who agree to bicycle to
  work a minimum of 75 percent of the time.
- Guaranteed Ride Home: One of the reasons that many employees do not carpool or commute via alternative modes is the fear of being stranded should they need to leave in an emergency. Employees who carpool to work should be guaranteed a ride home in the case of an emergency or unique situation. As part of the V-Commute program offered by the Napa Valley Transportation Authority (NVTA), employees who carpool or commute via alternative modes are be able to use a taxi, rental car, Lyft, Uber, or other means to get home in an emergency and are reimbursed for the full cost of the service. The program is available to all who work or attend college in Napa County and is free to join, but registration is required. As part of the project's TDM program, employees should be provided information about V-Commute and encouraged to register for the service.
- Bicycle Trip-End Facilities: Employees and visitors are more likely to ride their bicycle to the site if
  bicycle parking is available. As recommended in the Alternative Modes section of this report, the
  project should include a minimum of 10 bicycle parking spaces on-site. Additionally, it is
  recommended that basic bicycle maintenance provisions are available on-site such as spare tubes and
  tire pumps.
- **Shuttle Service:** As described in the Parking section of the report, shuttles would be used to transport guests to the site during events. This service would reduce trips and parking demand and has the potential to reduce VMT depending on where the shuttle service would originate.
- **Transportation Coordinator:** One person should be designated as the transportation coordinator for the project site. This is not an additional position, but rather should fall under a manager's responsibilities. It is important to select someone to oversee the different TDM measures available, explain the program to new hires, answer questions, pair carpoolers, administer incentives, etc.

#### **VMT Reduction**

Based on the California Air Pollution Officers Association (CAPCOA) report *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA 2010, it is estimated that the inclusion of voluntary commute trip reduction measures with monetary incentives can reduce a project's total VMT by approximately 1.0 to 6.2 percent. According to the CAPCOA report, the provision of bicycle storage has a minimal effect on trip generation but supports the greater trip reduction program by providing opportunities for non-motorized travel. The report does not address VMT reduction associated with connectivity to bike facilities, but because there are existing bike lanes on SR 29 and Yount Mill Road is a Class III bike route, it is reasonable to expect some reduction in VMT due to employees and visitors accessing the site via bicycle, especially when combined with the on-site bicycle parking recommended.

#### **Conclusions and Recommendations**

#### **Conclusions**

- The proposed change in visitation, production, and employment levels at the winery would be expected to result in an average of 71 new daily trips at the site on weekdays, including 13 trips during the weekday p.m. peak hour and seven trips during the weekend midday peak hour. On Crush Saturdays, the project would be expected to result in 10 new trips during the midday peak hour.
- The study segment of SR 29 between Washington Street and Oakville Grade Road is currently
  operating at LOS E during both peak hours and would continue to do so with the addition of projectgenerated traffic. However, as identified in the *General Plan*, LOS F operation is considered
  acceptable on this segment of SR 29 so the project would not have an adverse impact.
- Under Future and Future plus Project Conditions, the study segment would be expected to deteriorate
  to LOS F operation in the southbound direction during both peak periods; however, this type of
  operation is considered acceptable.
- All proposed marketing events would be scheduled such that no trips would be generated during peak hours, so there would not be adverse LOS impacts to SR 29 associated with events.
- The lack of pedestrian facilities serving the project site does not result in an impact given the rural location and type of project.
- Similarly, the lack of transit service does not result in an impact due to the lack of demand for such services.
- The existing bike facilities in the project vicinity including Class II bike lanes on SR 29 and a Class III bike route on Yount Mill Road provide adequate access for bicyclists.
- Stopping sight distances along SR 29 and Yount Mill Road at the project driveways are adequate to meet the applied criteria for both entering and exiting movements.
- There would be no anticipated temporary traffic impacts to SR 29 during construction as trucks would use the driveways on Yount Mill Road to access the site.
- The proposed parking supply is adequate to accommodate the anticipated peak parking demand during daily harvest conditions, but insufficient to accommodate the demand for the proposed 120person and 400-person events.

#### Recommendations

- Large events shall be scheduled to start and end outside peak periods for traffic on SR 29 (between 4:00 and 6:00 p.m. on weekdays and between 1:00 and 3:00 p.m. on weekend days), as proposed.
- Secure parking facilities for at least ten bicycles should be provided on-site.



•	As proposed, the applicant should provide a shuttle service and arrange for guests to park off-site
	during events.

•	The project should implement a TDM Plan that includes some of the measures identified in this
	report, such as carpool/active transportation incentives and a guaranteed ride home program.

#### **Study Participants and References**

#### **Study Participants**

**Principal in Charge** Dalene J. Whitlock, PE, PTOE

Associate Engineer Cameron Nye, EIT
Assistant Engineer Kevin Rangel, EIT
Graphics Katia Wolfe
Editing/Formatting Alex Scrobonia

**Report Review** Dalene J. Whitlock, PE, PTOE

#### References

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Napa County Bicycle Plan, W-Trans, 2012

Napa County Code, Municipal Code Corporation, 2017

Napa County General Plan, County of Napa, 2013

Napa County Road and Street Standards, County of Napa, 2016

Napa County Travel Behavior Study, Fehr & Peers, 2014

Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2013-2018

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### **Appendix A**

**Collision Rate Calculations** 





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#### SEGMENT COLLISION RATE CALCULATIONS

#### Piazza Del Dotto Winery

Location: SR 29 between Oakville Grade Rd and Washington St

Date of Count: Saturday, June 30, 2018

**ADT**: 27,500

Number of Collisions: 59 Number of Injuries: 25 Number of Fatalities: 3

Start Date: July 1, 2013
End Date: June 30, 2018
Number of Years: 5

Highway Type: Conventional 2 lanes or less

Area: Rural
Design Speed: ≤55 Terrain: Flat

Segment Length: 2.0 miles Direction: North/South

Number of Collisions x 1 Million

ADT x 365 Days per Year x Segment Length x Number of Years

1,000,000 x 2 27,500

	Collision Rate		Fatality Rate	Injury Rate
Study Segment	0.59	c/mvm	5.1%	42.4%
Statewide Average*	0.83	c/mvm	2.4%	40.1%

ADT = average daily traffic volume c/mvm = collisions per million vehicle miles
\* 2014 Collision Data on California State Highways, Caltrans



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## **Appendix B**

**City of Napa Seasonal Adjustment Factors** 





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## **Traffic Advisory Committee**

## **Exhibit C: Count Adjustment Factors**

### Monthly and Daily Factors for Converting Counts To Average August Thursday Traffic

#### Day of Week Multiplier

Monday	1.043
Tuesday	1.020
Wednesday	1.010
Thursday	1.000
Friday	0.940

#### Month of Year Multiplier

January	1.179
February	1.161
March	1.133
April	1.083
May	1.064
June	1.009
July	1.015
August	1.000
September	1.037
October	1.078
November	1.067
December	1.158

Source: Napa Transportation Management Plan (TMP) Traffic Model



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## **Appendix C**

**Roadway Segment Level of Service Calculations** 





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## PM Existing.txt HCS7: Two-Lane Highways Release 7.5

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment Analysis			
Analyst Revision Rangel Analyst Revision Rangel Analyst Revision Rangel Analysts Time Period Rangel Righmay (SR 29) Righmay Saint Relena Righmay (SR 29) Saint Re				
Input Data_				
Shoulder width	rawling 0.0 % ol speed 0.0 mi/hr ional vehicles 2 %			
Analysis direction volume, Vd 688 veh/h Opposing direction volume, Vo 1106 veh/h				
Average Travel Spe	eed			
Direction	1.0 1.0 06 1.000 1.00			
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-Flow Speed, (note-3) BFFS Adj. for lane and shoulder width, (note-3) fLS Adj. for access point demsity, (note-3) fA	- mi/h - veh/h 65.0 mi/h 0.0 mi/h 3.7* mi/h			
Free-flow speed, FFSd	61.3 mi/h			
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.0° mi/h 45.5 mi/h 74.2 %			
Percent Time-Spent-Fc	ollowing			

	Existing.txt			
Direction PCE for trucks, ET	Analysis(d) 1.0*		Opposing 1.0*	(0)
PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	1.0*		1.00	
Grade adjustment factor (note-1) fg Directional flow rate (note-2) vi	1.00 732	oc/h	1.00 1177	pc/h
Base percent time-spent-following, (no Adjustment for no-passing zones, fnp	te-4) BPTSFd	18.0	%	
Percent time-spent-following, PTSFd		77.5	%	
Level of Service and	Other Perform	nance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, WPeak 15-min total travel time, TTIS Capacity from ATS, CdATS Capacity from PTSF, CdTSF Directional Capacity	VMT15	D 0.43 366 1376 8.1 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
			veh/h	
Passing	Lane Analysis	i		
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape	f the passing	lane, i	2.0 Lu -	mi mi
Length of passing lane including tape Average travel speed, ATSd (from above	rs, Lpl		45.5	mi mi/h
Average travel speed, ATSd (from above Percent time-spent-following, PTSFd ( Level of service, LOSd (from above)	from above)		77.5 D	
Average Travel Spe	ed with Pass	ing Lan		
Downstream length of two-lane highway length of passing lane for average				mi
Length of two-lane highway downstream length of the passing lane for av	of effective erage travel	speed, I	Ld -	mi
Adj. factor for the effect of passing on average speed, fpl			-	
Average travel speed including passir Percent free flow speed including pas			0.0	%
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway	within effec	tive le	ngth	
of passing lane for percent time- Length of two-lane highway downstream	spent-follow	ing, Lde e Tenath	of -	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow	ving, Ld	-	mi
on percent time-spent-following, Percent time-spent-following	fp1		-	
including passing lane, PTSFpl			-	%
Level of Service and Other Perf	ormance Measu	res with	n Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servi	:e		
Posted speed limit, Sp			55	
Percent of segment with occupied on-h Pavement rating, P		1g	0	
=:	Page 2			

Flow rate in outside lane, vol.

Effective width of outside lane, we

Effective speed factor, St

Bicycle LOS Score, BLOS

Bicycle LOS

c

Notes:

Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific 1.5 per the analysis direction only and for 2.00 terminate analysis—the LOS is F.

For the analysis direction only and for 2.00 terminate.

Solventh of the direction of the condition of the condition

## PM Existing.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:	F	ax:		
Direct	ional Two-Lane Hig	hway Segment	Analysis	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 PM Existing Saint Helena High SB County of Napa 2017 Dotto Winery TIS	way (SR 29)		
	Input D	ata		
Highway class Class 2 Shoulder width 3.2 Lane width 1.2 Segment length 2.1 Terrain type Le Grade: Length - Up/down -	0 ft % Tru .0 ft % Tru 0 mi Truck vel % Rec mi % No-	hour factor, cks and buses cks crawling crawl speed reational veh passing zones s point densi	0.0 0.0 0.0 icles 2 91	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu		h/h h/h 1 Speed		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,()	or,(note-5) fHV -1) fq	lysis(d) 1.0* 1.00* 1.000 1.00 1177 pc/h	Opposing 1.1 1.0 0.996 1.00 735	(o) pc/h
Free-Flow Speed from Fi Field measured speed, (no Observed total demand, ( Estimated Free-Flow Spe Base free-flow speed, (n Adj. for lane and shoul	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3)		mi/h veh/h mi/h mi/h	
Ad]. for access point d Free-flow speed, FFSd	ensity,(note-3) fA	3.7* 61.3	mi/h mi/h	
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TŠd	1.7* 44.8 73.0	mi/h mi/h %	

	M Existing.txt			
Direction PCE for trucks, ET	Analysis(d) 1.0*		pposing 1.0°	(0)
PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	1.0° / 1.000		1.0	
Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi	1.00	c/h	1.00	pc/h
Base percent time-spent-following, (r Adjustment for no-passing zones, fra	note-4) BPTSFd		6	p=,
Percent time-spent-following, PTSFd	,	91.4 9	6	
Level of Service and	d Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c		E 0.69		
Peak 15-min vehicle-miles of travel.	VMT15	588	veh-mi	
Peak-hour vehicle-miles of travel, V Peak 15-min total travel time, TT15			veh-mi veh-h	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF		1700	veh/h veh/h	
Directional Capacity		1700	veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Li	ef the presing	Jane II	2.0	mi mi
Length of two-lane highway upstream Length of passing lane including tap	ers, Lpl	rane, Lu	' E	mi
Average travel speed, ATSd (from abo Percent time-spent-following, PTSFd	(from above)		44.8 91.4	mi/h
Level of service, LOSd (from above)			E	
Average Travel Sp	eed with Pass	ing Lane_		
Downstream length of two-lane highwa length of passing lane for avera	y within effect	tive	_	mi
Length of two-lane highway downstrea length of the passing lane for a	of effective	eneed to		mi
Adj. factor for the effect of passing	ng lane			
on average speed, fpl Average travel speed including pass	ing lane, ATSpl		Ξ.	
Percent free flow speed including pa	-			
Percent Time-Spent-F	-	-		
Downstream length of two-lane highwa of passing lane for percent time				mi
Length of two-lane highway downstrea the passing lane for percent time	am of effective	length o	of _	mi
Adj. factor for the effect of passing on percent time-spent-following.	ng Tane			
Percent time-spent-following including passing lane, PTSFpl	, ipi		-	%
Level of Service and Other Per	eformanco Moncu	non wish	Paccina	-
				Laire
Level of service including passing 7 Peak 15-min total travel time, TT15	iane, Lospi	- -	veh-h	
Bicycle u	evel of Service	e		
Posted speed limit, Sp Percent of segment with occupied on-	hinhway narkin	9 8	5	
Pavement rating, P		9	í	
	Page 2			

## MD Existing.txt HCS7: Two-Lane Highways Release 7.5

al Two-Lane Hig vin Rangel Trans /02/2018 Existing int Helena High	hway Segment	Analysi	s	
Trans /02/2018 Existing				
unty of Napa 17 tto Winery TIS	way (SR 29)			
Input D	ata			
ft % Tru ft % Tru mi Truck % Rec mi % No- % Acces	cks and buses cks crawling crawl speed reational veh passing zones s point densi	icles	2 0.0 0.0 2 91	% mi/hr % % /mi
_Average Trave	1 Speed			
(note-5) fHV fq	1.0 1.00 1.000 1.00		05ing ( 1.0 1.0 1.000 1.000 1043	o) pc/h
-3) S FM e-3) V -3) BFFS width,(note-3)		mi/h veh/h mi/h mi/h mi/h		
	61.3	mi/h		
	1.0* 43.1 70.3	mi/h mi/h %		
	Input D   Peak   Ft   % Tru   ft   % Tru	Triput Data  ft Peak hour nattors,  ft Strucks crawling  in Truck crawling  in Truck crawling  in X No-passing zone  X Access point densi  velvin voi 1022 velvih  voi 1022 velvih  analysis(d)  (note-5) fiv 1.00  e-2) vi 1137 pc/h  Measurement  13 print  1-2 pc/h  2-3 pc/h  1-3 pc/h  1-4 pc/h  1-5 pc/h  1-7 pc/h  1-7 pc/h  2-3 pc/h  1-7 pc/h  1-7 pc/h  2-3 pc/h  1-7 pc/h  1-	Input Data  Peak hour factor. PHF ft Peak hour factor. PHF ft X Trucks craw1ing mi Truck craw1ing mi Truck craw1ing mi X No-passing zones X Access point density vol 1133 veh/h vol 1022 veh/h	Input Data  ft peak hour factor, PHF 0.98  ft Truck crawl isg 0.0  mi Truck crawl isg 0.0  mi Truck crawl isg 0.0  mi Truck crawl isgement(cles 0.0  X No-passing zones 91  X Access point density 14  vo 1022 velv/h  vo 1022 velv/h  1.0  (note-5) fiv 1.000 1.000  (note-5) fiv 1.000 1.000  e-2) v 1137 pc/h  Measurement: 1177 pc/h  123 pr 104  Measurement: 1177 pc/h  123 pr 104  Measurement: 1177 pc/h  123 pr 104  Measurement: 1177 pc/h  127 pc/h  128 pr 104  Measurement: 1177 pc/h  129 pr 104  Measurement: 1177 pc/h  104  Measurement: 1177 pc/h  104  Measurement: 1177 pc/h  105  106  107  107  108  108  109  109  109  109  109  109

Base percent time-spent-following, (note-4) BTSFG 82.5 %  Percent time-spent-following, (note-4) BTSFG 90.6 %  Level of service and other performance Measures  Level of service, LOS  Volume to capacity raito, V/C  Volume to capacity raito, V/C  For the service and other performance Measures  Level of service, LOS  Volume to capacity raito, V/C  Volume to capacity raito, V/C  For the service and	oc/h
pict for trucks. I 1.0° 1.0° 1.0° 1.0° 1.0° 1.0° 1.0° 1.0°	oc/h
Lumpl of service. LOS.  On 69  Pask 13-sin vehicle-siles of travel, wm15 588 veh-mi  Reak 13-sin vehicle-siles of travel	
Wolume to capacity ratio, VC  wolume to capacity ratio, VC  reach to verbell-endies of travel, warts 0.69  reach to verbell-endies of travel, warts 0.206  reach to verbell-endies of travel, warts 0.206  reach to verbell-endies of travel time, TIS 13.7  web-hi  reach to verbell travel time, TIS 13.7  reach to verbell travel to verbell to ver	
Total length of analysis segment, it engined for analysis segment, it engined for analysis segment, it engined for passing lane including tapers, it is segment of passing lane including tapers, it is segment of a	
ength of two-lane highway upstream of the passing lane, tu = might of passing lane including tapers, tpl = might of passing lane including tapers including passing lane, artspl = might of the passing lane for average travel speed, i.d. including tapers including passing lane, artspl = might of the passing lane for average travel speed, i.d. including passing lane, artspl = might of the passing lane for average travel speed including passing lane, artspl = might of the passing lane including passing lane, artspl = might of two-lane highway within effective length of passing lane for percent ince-spent-following with passing tapers in the passing lane of passing lane for percent ince-spent-following with passing tapers in the passing lane in the passing lane of passing lane for percent ince-spent-following with passing tapers in the passing lane in the passing l	
Committeem length of two-lame highway within effective length of two-lame highway extraor travels peed. Let ungth of two-lame highway domnstream of effective length of two-lame highway domnstream of effective length of two-lame highway domnstream of effective makes and the length of two-lame length of two-lame highway domnstream length of two-lame highway within effective length of passing lame in the lame of passing lame length of two-lame highway within effective length of passing lame for persons time-spent-following with easing Lame of passing lame for persons time-spent-following with easing Lame	
Tempth of passing lame for average travel speed, i.e	
Percent free flow speed including passing lane, PFFSpl 0.0 %  Percent Time-Spent-Following with Passing Lane  Downstream length of two-lane highway within effective length  of passing lane for percent time-spent-following, ide — mi  entor of two-lane highway downstream of effective length of	
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde mitenth of two-lane highway downstream of effective length of	
of passing lane for percent time-spent-following, Lde - mi	
the passing lane for percent time-spent-following, Ld - mi	
on percent time-spent-following, fpl - Percent time-spent-following	
including passing lane, PTSFpl - %	
Level of Service and Other Performance Measures with Passing Lane	
Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	
Bicycle Level of Service	
Posted speed limit, Sp Percent of segment with occupied on-highway parking 0 Pavement rating, P Page 2	

Flow rate in outside lane, vol.

Effective width of outside lane, we 28,00

Effective width of outside lane, we 28,00

Eloyel Elos Score, Elos Eloyel Elos 2, 61

Eloyel Elos Score, Elos Eloyel Eloy

MD Existing.txt HCS7: Two-Lane Highways Release 7.5

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment Analysis			
Amalyzc Evrin mangel D/07/2018 Date Performed D/07/2018 Amalysis rise period Servine Manalysis rise Servine M				
Shoulder width	rawling 0.0 % il speed 0.0 mi/hr ional vehicles 2 %			
Analysis direction volume, Vd 1022 veh/h Opposing direction volume, Vo 1153 veh/h				
Average Travel Spe	ed			
pirection Analysis PCE for trucks, ET 1.0 PCE for RVS, ER 1.0 PCE How Preserved For RVS, ER 1.00 Grade adj. factor, (note-5) fHV Grade adj. factor, (note-1) fg 1.00 pirectional flow rate, (note-2) vi 1043	1.0 1.0 00 1.000 1.000			
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM observed total demand, (note-3) V Estimated Free-Flow Speed:	- mi/h - veh/h			
Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note-3) fLS Adj. for access point density, (note-3) fA	65.0 mi/h 0.0 mi/h 3.7* mi/h			
Free-flow speed, FFSd	61.3 mi/h			
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.0° mi/h 43.1 mi/h 70.3 %			
Dancase Time Cooks Co	Manda			

MD Existing.txt			
Direction Analysis(d) PCE for trucks, ET 1.00 PCE for Rys, ER 1.00 PCE for Rys, ER 1.00 Grade adjustment factor, fiv 1.00 Grade adjustment factor, (mote-1) fg 1.00 Base percent time-spent-following, (mote-4) BPTSFd Adjustment for no-passing zones, fign	c/h 80.6 15.2	1.0 1.000 1.000 1.77	(o) pc/h
Level of Service and Other Perform	ance Mea	asures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15		veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment. Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.0 Lu - 43.1 87.7	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Domstream length of two-lame highway within effect length of passing lame for average travel speet Length of two-lame highway dometream of effective length of the passing lame for average travel add. factor for the effect of passing lame on average speed. fp] Average travel speed including passing lame, ATSP Percent free flow speed including passing lame, PF	d, Lde speed, L	Ld -	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	ng, Lde Tength	of -	mi mi
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu		n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A .	veh-h	
Bicycle Level of Service	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating, P Page 2	a	55 0 3	

Flow rate in outside lane, VOL

Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS

Bicycle LOS

- Notes:

  1. Note that the adjustment factor for level terrain is 1.00, as level terrain

  1. Note that the adjustment factor for level terrain is 1.00, as level terrain

  2. If v/ (vi or v) >= 1.700 pc/h, terrainate analysts—the Los is r.

  2. If v/ (vi or v) >= 1.700 pc/h, terrainate analysts—the Los is r.

  3. For the analysis direction of loss for rocky devh.

  5. Is not the analysis direction of loss for rocky terrainate analysis.

  5. See alternative tambit 15-14 if some trucks operate at crawl speeds on a

  8 These items have been entered or edited to override calculated value

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Phone: E-Mail:	Fax:			
Direct	ional Two-Lane Highway	Segment A	nalysis	
Analyst Agency/co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 PM Future Saint Helena Highway ( NB County of Napa 2017 Dotto Winery TIS	SR 29)		
	Input Data_			
Segment length 2. Terrain type Le Grade: Length - Up/down -	.0 ft % Trucks c 0 mi Truck craw vel % Recreati % No-passi % Access poi	nd buses rawling I speed onal vehi- ng zones	0.0 0.0 0.0 cles 2 91	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu				
	Average Travel Spe	ed		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	-1) fq 1.00	16	Opposing ( 1.0 1.0 1.000 1.000 1.00	o) pc/h
Free-Flow Speed from Fi Field measured speed, (n observed total demand, ( Estimated Free-Flow Spe Base free-flow speed, (n Adj. for lane and shoul Adj. for access point d	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3) fLS	65.0 0.0	mi/h veh/h mi/h mi/h mi/h	
Free-flow speed, FFSd		61.3	mi/h	
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TŠd	38.9	ni/h ni/h %	
	Percent Time-Spent-Fo Page 1	llowing		

PM Future.txt			
Direction Analysis(d) PCE for trucks, ET 1.0* PCE for RVS, ER 1.0* Heavy-vehicle adjustment factor, fHv 1.000 Grade adjustment factor.(note-1) fg 1.00	c/h	opposing 1.0* 1.0 1.000 1.000 1.955 %	
Level of Service and Other Performa	ance Me	asures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	F 0.49 420 1578 10.8 1700 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.0 Lu - 38.9 82.4 F	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane	e	
Downstream length of two-lane highway within effect length of passing lane for average travel space length of the passing lane for average travel and Adj. factor for the effect of passing lane on average speed, fpl average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, ATSpl	d, Lde speed, I	- Ld - - 0.0	mi mi
Percent Time-Spent-Following with F	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective and the bassing lane for percent time-spent-following on percent time-spent-following, fpl Percent time-spent-following including passing lane, PYSSP]	ng, Lde Tength	of -	mi mi
Level of Service and Other Performance Measur	non with	h Paccina	1200
			Laire
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating, P Page 2	9	55 0 3	

Flow rate in outside lane, vol.

Effective width of outside lane, we
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS

c

Notes:

Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific 1.5 per the analysis direction only and for 2.00 beth.

For the analysis direction only and for 2.00 beth.

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Phone: E-Mail:	F	ax:		
Direct	ional Two-Lane Hig	hway Segment	Analysis	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 PM Future Saint Helena High SB County of Napa 2017 Dotto Winery TIS	way (SR 29)		
	Input D	ata		
Highway class Class 2 Shoulder width 8.2 Lane width 12. Segment length 2.1 Terrain type Le Grade: Length - Up/down -	0 ft % Tru .0 ft % Tru 0 mi Truck vel % Rec mi % No-	hour factor, cks and buses cks crawling crawl speed reational veh passing zones s point densi	0.0 0.0 0.0 icles 2 91	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu		h/h h/h 1 Speed		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	or,(note-5) fHV -1) fq	lysis(d) 1.0* 1.0* 1.000 1.00 1.00 1955 pc/h	Opposing (1.1 1.0 0.996 1.00 843	(o) pc/h
Free-Flow Speed from Fi Field measured speed, (no Observed total demand, ( Estimated Free-Flow Spee Base free-flow speed, (no Adj. for lane and shouly Adj. for access point d	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3)		mi/h veh/h mi/h mi/h mi/h	
Free-flow speed, FFSd	,,,	61.3	mi/h	
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TŠd	1.4* 38.2 62.3	mi/h mi/h %	

PM Future.txt			
Direction PCE for trucks, ET PCE for RVS, ER All Signature factor, flav All Signature flav	c/h	1.0* 1.0 1.000 1.00 839	pc/h
Level of Service and Other Perform	ance Meas	ures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time TT15	3676	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of wor-lame highway upstream of the passing Length of passing lame including tapers, Lpl Average travel speed, ATSU (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)			mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effectength of passing lame for average travel speet Length of two-lane highway downstream of effective and the speed of the spee	d, Lde speed, Ld	-	mi mi
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following the passing lane for percent time-spent-following. The passing lane for percent time-spent-following. Actor for the effect of passing lane properties the passing lane land the passing lane land land land land land land land land	tive leng ng, Lde length o	th -	mi mi
Level of Service and Other Performance Measu	res with	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TTIS	A .	veh-h	
Bicycle Level of Service	e		
Posted Speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P	g 5 0 3		

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Effective width of outside lane, we 28.00 
Effective width of outside lane, we 28.00 
Effective width of outside lane, we 28.00 
Electron of the land outside lane, we 28.00 
Electron outside lane, we 28.00 
El

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Phone: E-Mail:	F	ax:		
Direc	tional Two-Lane Hig	hway Segment	Analysis	
Analyst Agency/co. Date Performed Analysis Time Period Highway From/To Durisdiction Analysis Year Description Piazza De				
	Input D	ata		
Lane width 1 Segment length 2	.0 ft % Tru 2.0 ft % Tru .0 mi Truck evel % Rec mi % No-	hour factor, icks and buses icks crawling crawl speed reational veh passing zones s point densi	0.0 0.0 0.0 icles 2 91	% mi/hr % /mi
Analysis direction vol Opposing direction vol	ume, Vo 1699 ve	h/h		
	Average Trave	1 Speed		
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adj. fac Grade adj. factor,(not Directional flow rate,	tor,(note-5) fHV e-1) fq	lysis(d) 1.0° 1.0° 1.000 1.00 1349 pc/h	Opposing 1.0 1.0 1.000 1.000 1734	(o) pc/h
Free-Flow Speed from F Field measured speed,( Observed total demand, Estimated Free-Flow Sp	note-3) S FM (note-3) V	Ī	mi/h veh/h	
Base free-flow speed,( Adj. for lane and shou Adj. for access point	note-3) BFFS lder width,(note-3)	fLS 0.0 3.7*	mi/h mi/h mi/h	
ree-flow speed, FFSd		61.3	mi/h	
adjustment for no-pass average travel speed, Percent Free Flow Spee	ATŠd	0.7* 36.7 59.8	mi/h mi/h %	
		nt-Following		

MD	Future.txt				
Direction PCE for trucks, ET PCE for Trucks, ET PCE for RVS, ER Heavy-vehic learner factor, fHV Grade adjustment factor, fore-1) fg Base percent time-spent-following, (not adjustment for no-passing zones, fnp Percent time-spent-following, PTSFG	Analysis(d) 1.0* 1.0* 1.000 1.000 1349 e-4) BPTSFd	c/h		05ing 1.0* 1.0 1.000 1.000 1734	
Level of Service and O	ther Perform	ance Me	asur	es	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, vM Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT1S capacity from ATS, CdMTS capacity from PTSF, CdMTSF olirectional capacity	MT15 60	F 0.79 674 2644 18.4 1700 1700	ve ve ve		
Passing L	ane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above Percent time-spent-following, PTSF( Level of service, LOSd (from above)	the passing s, Lpl ) rom above)	lane,	Lu	2.0 - 36.7 93.2 F	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lan	e		
Downstream length of two-lane highway in length of passing lane for average Length of two-lane highway downstream in length of the passing lane for average speed, follows a versue speed, follows.	travel spee of effective rage travel lane	d, Lde speed,	Ld	-	mi mi
on average speed, fpl Average travel speed including passing Percent free flow speed including pass	lane, ATSpl	FSpl		0.0	%
Percent Time-Spent-Fol	lowing with	Passing	Lan	e	
Downstream length of two-lane highway of passing lane for percent time-s	within effective	tive le ng, Lde length	ngth of	_	mi
the passing lane for percent time- adj. factor for the effect of passing on percent time-spent-following, fi percent time-spent-following	lane	ing, Ld		-	mi
including passing lane, PTSFpl				-	%
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	ssing	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl	A .	ve	h-h	
Bicycle Lev	el of Servic	e			
Posted speed limit, Sp Percent of segment with occupied on-hi Pavement rating, P	ghway parkin Page 2	g	55 0 3		

Flow rate in outside lane, vol.

Effective width of outside lane, we 28.00

Effective width of outside lane, we 28.00

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Phone: E-Mail:		Fax	:				
bin	ectional Two-Lar	ne Highw	ay s	egment	Analys	is	
Analyst Agency/co. Date Performed Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza I	Saint Helena SB County of Na 2017 Del Dotto Winery	a Highwa apa / TIS		R 29)			
	Ir	nput Dat	a				
Highway class Class Shoulder width Lane width Segment length Terrain type Grade: Length Up/down	8.0 ft 12.0 ft 2.0 mi Level mi	Peak ho % Truck % Truck Truck c % Recre % No-pa Access	s an s cr rawl atio ssin	d buses awling speed nal veh g zones	icles	0.98 2 0.0 0.0 2 91 14	% % mi/hr % /mi
Analysis direction vo Opposing direction vo	olume, vo 1322	veh/	h				
	Average						
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fa Grade adj. factor,(na Directional flow rate	ote-1) fg	FHV 1	sis( .0* .0* .000 .00 734			00sing ( 1.0 1.0 1.000 1.000 1349	o) pc/h
Free-Flow Speed from Field measured speed Observed total deman Estimated Free-Flow:	(note-3) S FM d,(note-3) V	ent:		1	mi/h veh/h		
Base free-flow speed Adj. for lane and sho Adj. for access poin	(note-3) BFFS bulder width,(no		LS	65.0 0.0 3.7*	mi/h mi/h mi/h		
Free-flow speed, FFS	d			61.3	mi/h		
Adjustment for no-pa: Average travel speed Percent Free Flow Sp	ATŠd			1.0° 36.4 59.3	mi/h mi/h %		
	Percent Tin	ne-Spent Page		lowing_			

MD Future.txt			
Direction Analysis(d) PCE for trucks, ET PCE for Rys, ER PCE for Rys, ER 1.0° PCE for Rys, ER 2.0° PCE for Rys, ER	c/h	1.0* 1.000 1.000 1349	(o) pc/h
Level of Service and Other Perform	ance Me	asures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	F 1.02 867 3398 23.8 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment. Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSU (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.0 Lu - 36.4 97.6	mi mi mi mi/h
Average Travel Speed with Pass	ing Lan		
Downstream length of two-lane highway within effecting in length of passing lane for average travel spectiments of the passing lane for average travel adjection for the passing lane for average travel adj. factor for the effect of passing lane on average speed, fpl average travel speed including passing lane, FP effects free flow speed including passing lane, FP effects free flow speed including passing lane, FP	d, Lde speed, I	Ld -	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followidength of two-lane highway downstream of effective the passing lane for percent time-spent-follow and, factor for the effect of passing lane on percent time-spent-following, fpl percent time-spent-following.	ng, Lde Tength	of -	mi mi
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu		n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	<u>A</u>	veh-h	
Bicycle Level of Servic	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	q	55 0 3	

Flow rate in outside lane, vol.

Effective width of outside lane, we Effective speed factor, st sicycle Los Score, BLOS

Bicycle LOS

NOTE\* c

Notes:

Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific 1.5 per the analysis direction only and for 2.00 beth.

For the analysis direction only and for 2.00 beth.

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## PM Existing plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:		ax:			
Direct	ional Two-Lane Hig	hway Segment	Analysi:	·	
Analyst Agency/co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 PM Existing + Pro Saint Helena High NB County of Napa 2017 Dotto Winery TIS				
	Input D	ata			
Highway class Class 2 Shoulder width 8. Lane width 12. Segment length 2. Ferrain type Le Grade: Length up/down -	0 ft % Tru .0 ft % Tru 0 mi Truck vel % Rec mi % No-	hour factor, icks and buses icks crawling crawl speed reational ver- passing zones s point densi	icles	0.94 5 0.0 0.0 2 91	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu	ne, vo 1114 ve	eh/h eh/h			
pirection PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(i	or,(note-5) fHV -1) fq	ilysis(d) 1.1* 1.0* 0.996 1.00 740 pc/h		0sing ( 1.0 1.0 1.000 1.000 1.85	o) pc/h
Free-Flow Speed from Firield measured speed, (n) observed total demand, (Estimated Free-Flow Speeds free-Flow Speeds free-Flow speed, for lane and should for lane and should for access point demands.	ote-3) S FM note-3) V ed: ote-3) BFFS der width.(note-3)	3.7*	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		61.3	mi/h		
Adjustment for no-passi Average travel speed, A	ng zones, fnp	1.0° 45.4	mi/h mi/h		

\_\_\_\_\_Percent Time-Spent-Following\_\_\_\_\_ Page 1

PM Exi	sting pl	us Projec	t.txt				
Direction PCE for Rys, ER PCE for Rys, ER Heavy-vehicle adjustment factor, f frade adjustment factor, (note-1) f Directional flow rate, (note-2) vi Base percent time-spent-following, Adjustment for no-passing zones, f Percent time-spent-following, PTSE	HV g (note-4)		·/h	орр % %	00sing 1.0* 1.0 1.000 1.000 1.85	)	oc/h
Level of Service a	nd Other	Performa	ince Me	asu	res		
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of trave Peak-hour vehicle-miles of travel. Peak 15-min total travel time, Tri Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	5		D 0.43 369 1386 8.1 1700 1700 1700	V	eh-mi eh-mi eh-h eh/h eh/h eh/h		
Passi	ng Lane	Analysis_					
Total length of analysis segment, Length of two-lane highway upstrea Length of passing lane including t Average travel speed, ATSd (from a Percent time-spent-following, PTSF Level of service, LOSd (from above	m of the apers, L bove) d (from	n] -		Lu	2.0 - 45.4 78.2 D	m m	i
Average Travel	speed v	ith Passi	ng Lar	ne			
Downstream length of two-lane high length of passing lane for ave Length of two-lane highway downstr length of the passing lane for Adj. factor for the effect of pass on average speed, fpl Average travel speed including pas Percent free flow speed including	rage tra eam of e average ing lane sing lar	vel speed ffective travel s	l, Lde peed,	Ld	-	m m	
Percent Time-Spent	-Followi	ng with F	assing	Lai	ne	_	
Downstream length of two-lane high of passing lane for percent ti Length of two-lane highway downstr the passing lane for percent t Adj. factor for the effect of pass on percent time-spent-followin Percent time-spent-followin	me-spent eam of e ime-sper ing lane	-followir ffective t-followi	g, Lde Tenath	of	-	m'	
including passing lane, PTSFpl					-	%	
Level of Service and Other P						Lane	
Level of service including passing Peak 15-min total travel time, TT1					eh-h		
Bicycle	Level c	f Service	·			_	
Posted speed limit, Sp Percent of segment with occupied o Pavement rating, P	n-highwa	y parking		55 0 3			

Flow rate in outside lane, vol.

Effective width of outside lane, we 28.00

Effective width of outside lane, we 28.00

Elevative videous to 28.00

Elevative los score, Bloss to 2.80

Notesic that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific 2.70 per purpose 2.70

#### PM Existing plus Project.txt HCS7: Two-Lane Highways Release 7.5

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Phone: E-Mail:		Fax:				
Direct	ional Two-Lane H	ighway	Segment	Analysi	s	
Analyst Agency/co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 PM Existing + P Saint Helena Hi SB County of Napa 2017 Dotto Winery TI	ghway (	SR 29)			
	Input	Data				
Segment length 2.	0 ft % T 2.0 ft % T 0 mi Tru evel % R mi % N	rucks a rucks c ck craw ecreati o-passi	factor, nd buses rawling 1 speed onal veh ng zones nt densi	icles	0.94 4 0.0 0.0 2 91 14	% % mi/hr % /mi
Analysis direction volu Opposing direction volu	me, Vd 1114 ime, Vo 693 Average Tra	veh/h veh/h vel Spe	ed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	or,(note-5) fHV	nalysis 1.0° 1.0° 1.00 1.00	0		00sing ( 1.1 1.0 0.996 1.00 740	pc/h
Free-Flow Speed from Fi Field measured speed,(r Observed total demand,( Estimated Free-Flow Spe	note-3) S FM note-3) V ed:		-	mi/h veh/h		
Base free-flow speed,(r Adj. for lane and shoul Adj. for access point o	der width, (note-	3) fLS fA	65.0 0.0 3.7*	mi/h mi/h mi/h		
Free-flow speed, FFSd			61.3	mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TŠd		1.7° 44.7 72.9	mi/h mi/h %		

# 

Level of service including passing lane, LOSp1 A veh-h
Peak IS-wish total travel time, T15 - veh-h

— Bicycle Level of service

— Posted Speed limit, Sp
Posted Speed Speed

Flow rate in outside lane, on Existing plus Project.txt

Effective width of outside lane, we 28.00

Effective speed factor, 54.73

Effective speed factor, 54.75

Effective speed factor,

#### MD Existing plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:			ax:				
D1	rectional Two-L	ane High	nway	Segment	Ana Iys	1 S	
Analyst Agency/Co. Date Performed Analysis Time Perio Highway From/To Jurisdiction Analysis Year Description Piazza	Saint Hele NB County of 2017	g + Pro na Highi Napa		SR 29)			
		Input D	ata				
Highway class Clas Shoulder width Lane width Segment length Terrain type Grade: Length Up/down	s 2 8.0 ft 12.0 ft 2.0 mi Level mi	% True % Truck % Reci % No-	cks a cks c craw reati passi	factor, nd buses rawling 1 speed onal veh ng zones nt densi	icles	0.98 2 0.0 0.0 2 91 14	% mi/hr % % /mi
Analysis direction Opposing direction	volume, vo 102	8 vel	h/h				
	Averag		.,				
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. Grade adj. factor,( Directional flow ra	note-1) fg	fhv	1.0* 1.0* 1.00 1.00 1.00	0	.,,	1.0 1.0 1.00 1.000 1.000 1.00	pc/h
Free-Flow Speed fro Field measured spee Observed total dema Estimated Free-Flow	d, (note-3) S FM nd, (note-3) V	ment:		Ī	mi/h veh/h		
Base free-flow spee Adj. for lane and s Adj. for access poi	d, (note-3) BFFS houlder width, (	note-3)		65.0 0.0 3.7*	mi/h mi/h mi/h		
Free-flow speed, FF	sd			61.3	mi/h		
Adjustment for no-p Average travel spee Percent Free Flow S	d, ATSd	np		1.0* 43.0 70.1	mi/h mi/h %		
	Percent T	ima_sna	nt-Fo	llowing			

## No Existing plus Project.txt | Molecular Passing Lane Analysis regement. For the passing lane, Lu 2.0 ml length of smallysis regement, as of the passing lane, Lu 2.0 ml length of passing lane in Luight grapers, Lp 1 ml length of passing lane in Luight grapers, Lp 1 ml length of passing lane in Luight grapers, Lp 1 ml length of passing lane in Luight grapers, Lp 1 ml length of passing lane in Luight grapers, Lp 2 ml length grapers land length g Percent ctime-spent-following, Frsed (from above) 20.6 Event of service, Losd (from above) 20.6 Event of service service, Losd (from above) 20.6 Event of service service, Losd (from above) 20.6 Event of service service, Losd (from above) 20.6 Event of service and other performance Measures with Passing Lane (Lovel) of service (including passing lane, Losd) Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h \_\_\_\_\_\_ Bicycle Level of Service \_\_\_\_\_ Posted speed limit, Sp Percent of segment with occupied on-highway parking Pawement rating, P Page 2

Flow rate in outside lame, Vol. 200 Effective width of outside lame, ve 22.00 Effective width of outside lame, ve 22.00 Effective speed factor, St. 300 Effect

- Bitycle Los
  Notes:

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- \* These items have been entered or edited to override calculated value

#### MD Existing plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:	Fa			
Direction	onal Two-Lane High	way Segment	Analysis	
Agency/Co. No Ag		ay (SR 29)		
	Input Da	ta		
Highway class Class 2 Shoulder width 8.0 Lane width 12.0 Segment length 2.0 Terrain type Leve Grade: Length Up/down -	ft % Truc ) ft % Truc mi Truck el % Recr mi % No-p	our factor, ks and buses ks crawling crawl speed eational veh assing zones point densi	0.0 0.0 0.0 icles 2 91	% % mi/hr % % /mi
Analysis direction volume Opposing direction volume	e, vd 1028 veh e, vo 1157 veh			
	Average Travel	Speed		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor Grade adj. factor,(note-: Directional flow rate,(no	r,(note-5) fHV L) fq	ysis(d) 1.0* 1.0* 1.000 1.000 1.00 pc/h	Opposing 1.0 1.0 1.000 1.000 1.00	
Free-Flow Speed from Fie' Field measured speed,(no Observed total demand,(no Estimated Free-Flow Spee	te-3) S FM ote-3) V	Ē	mi/h veh/h	
Base free-flow speed,(no Adj. for lane and shoulde Adj. for access point de	er width, (note-3)	fLS 0.0 3.7*	mi/h mi/h mi/h	
Free-flow speed, FFSd		61.3	mi/h	
Adjustment for no-passing Average travel speed, AT Percent Free Flow Speed,	śd	1.0* 43.0 70.1	mi/h mi/h %	
	Percent Time-Spen			

## No Existing plus Project.txt | Molecular Passing Lane Analysis regement. For the passing lane, Lu 2.0 ml length of two-lane highways lane, Lu 2.0 ml length of two-lane highways lane lane langth passing lane including tapers, Lpl and langth of two-lane lane langth of two-lane lane langth of two-lane l Percent ctime-spent-following, Frsed (from above) 88.4 Evel of service, Losd (from above) 88.4 Evel of Service and Other Performance Measures with Passing Lane Evel of Service (including abssing lane, Losd) A Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h \_\_\_\_\_ Bicycle Level of Service \_\_\_\_\_ Posted speed limit, Sp Percent of segment with occupied on-highway parking Pawement rating, P Page 2

Flow rate in outside lame, VOD Existing plus Project.tx! 1,049.0 Effective width of outside lame, We 28.00 Effective width of outside lame, We 28.00 Effective speed factors is 2.00 Effective speed factors in the control of the cont

- Bitycle Los
  Notes:

  And the set of the set o

- \* These items have been entered or edited to override calculated value

## PM Future plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:		Fax	-			
Direct	ional Two-La	ne Highw	ay Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del		Project Highwa	y (SR 29)			
	1	,				
Highway class Class 2 Shoulder width 8.1 Lane width 12 Segment length 2.1 Terrain type Le Grade: Length - Up/down -	.0 ft ) mi /el mi	% Truck % Truck Truck c % Recre % No-pa	ur factor, s and buse s crawling rawl speed ational ve ssing zone point dens	s hicles	0.94 4 0.0 0.0 2 91 14	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu	ne, vo 1846	veh/	h			
	Average					
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(i	-1) fq	1 1 1 1 1 1	sis(d) .1* .0* .996 .00 48 pc/		1.0 1.0 1.000 1.000 1.00	
Free-Flow Speed from Fi Field measured speed, (no Observed total demand, ( Estimated Free-Flow Spe	ote-3) S FM note-3) V	ent:	Ē	mi/h veh/h		
Base free-flow speed, (no Adj. for lane and should Adj. for access point do	ote-3) BFFS der width,(no	ote-3) f -3) fA	65.0 LS 0.0 3.7*	mi/h mi/h mi/h		
Free-flow speed, FFSd			61.3	mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	ršd	•	0.7* 38.8 63.3	mi/h mi/h %		
			-Following			

#### PM Future plus Project.txt

Direction PCE for trucks, ET PCE for trucks, ER Reavy-wehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1.00 845 n	c/h	0pposing 1.0* 1.0 1.000 1.000 1964 %	(o) pc/h
Level of Service and	Other Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak IS-min vehicle-miles of travel, Meak-hour wehicle-miles of travel, VM Peak IS-min total travel time, TTIS Capacity from ATS, CdATS Oirectional Capacity	т60		veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd ( Level of service, LOSd (from above)	rs, Lpl ¯ e)		2.0 Lu - 38.8 82.6 F	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream length of the passing lane for av Adj. factor for the effect of passing on average speed, follding passin Percent free flow speed including pass	e travel spee of effective erage travel lane g lane, ATSpl	d, Lde speed, L	- Ld - - - 0.0	mi mi
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing on percent time-spent-following, Percent time-spent-following.	spent-followi of effective -spent-follow lane	ng, Lde Tength	of -	mi mi
including passing lane, PTSFpl			-	%
Level of Service and Other Perf			n Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		
Posted speed limit, Sp Percent of segment with occupied on-h Pavement rating, P	ighway parkin	g	55 0 3	

PN Future plus Project.txt

### State plus Project.txt

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## PM Future plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail: Direc		Fax:				
Analyst Agency/Co. Oate Performed Analysis Time Period Highmay From/To Jurisdiction Analysis Year Description Piazza De	Kevin Rangel W-Trans 10/02/2018 PM Future + Saint Helena SB County of Na 2017 Dotto Winery	Project Highway	(SR 29)	мна гуз	15	
ane width 1. Segment length 2	2.0 ft .0 mi evel mi %	Peak hour % Trucks % Trucks Truck cra % Recreat % No-pass Access po veh/h	ind buses rawling vl speed ional veh ing zones	icles	0.94 4 0.0 0.0 2 91	% % mi/hr % % /mi
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor, (no) Directional flow rate,	2-1) fg	Analysi 1.0 1.0 1.0 HV 1.0	(d)		posing ( 1.1 1.0 0.996 1.00 848	o) pc/h
Free-Flow Speed from F Field measured speed, ( Observed total demand, Estimated Free-Flow Sp Base free-flow speed, ( Adj. for lane and shou Ad]. for access point	note-3) S FM (note-3) V ed: note-3) BFFS Ider width, (no	ote-3) fLS	- - 65.0 0.0 3.7*	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd			61.3	mi/h		
Adjustment for no-pass Average travel speed, Percent Free Flow Spee	ATŠd	•	1.4° 38.1 62.1	mi/h mi/h %		
Percent Free Flow Spee		e-Spent-F Page 1	62.1			

P	M Future plus Pro	ject.txt		
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adjustment factor, (note- orace adjustment factor, (note- orace adjustment factor, (note- orace adjustment factor, (note- orace adjustment for no- adjustment for no- passing zone Percent time-spent-following, time- orace adjustment for no- oracle adjustm	1) fg 1.00 vi 1964 ring,(note-4) BPTSI	pc/h	Opposing 1.0* 1.0 1.00 1.00 845	0
Level of Servi	ce and Other Perfe	ormance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of t Peak-hour vehicle-miles of tra Peak 15-min total travel time, Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	vel, VMT60 TT15	F 1.16 982 3692 25.8 0 1700		
F	assing Lane Analy:	sis		
Total length of analysis segme Length of two-lane highway ups Length of passing lane includi Average travel speed, ATSd (fr Percent time-spent-following Level of service, LOSd (from a	tream of the pass ng tapers, Lpl om above) PTSFd (from above	-		mi mi mi mi/h
Average Tra	vel Speed with Pa	assing Lan		
Downstream length of two-lane length of passing lane for Length of two-lane highway dow length of the passing lane Adj. factor for the effect of on average speed, fpl Average travel speed including Percent free flow speed including	average travel symptoms of effects for average traverage traverage traverage traverage assing lane. At:	peed, Lde ive el speed, i	- Ld - - 0.0	mi mi %
Percent Time-S	pent-Following wi	th Passing	Lane	
Downstream length of two-lane of passing lane for percentength of two-lane highway dow the passing lane for percentength of the effect of	t time-spent-follo nstream of effect ent time-spent-fol	owing, Lde ive length	of -	mi mi
on percent time-spent-foll Percent time-spent-following including passing lane, PT	owing, fpl		-	%
Level of Service and Oth				Lane _
Level of service including pas Peak 15-min total travel time,	sing lane, LOSpl	<u>A</u>	veh-h	
віс	ycle Level of Serv	vice		
Posted speed limit, Sp Percent of segment with occupi	ed on-highway parl		55 0 3	

#### MD Future plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:	F	ax:		
Direct	ional Two-Lane Hig	hway Segment	Analysis	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 MD Future + Proje Saint Helena High NB County of Napa 2017 Dotto Winery TIS			
	Input D	ata		
Highway class Class 2 Shoulder width 8.0 Lane width 12. Segment length 2.0 Terrain type Lev Grade: Length - Up/down -	0 ft % Tru 0 ft % Tru 0 mi Truck vel % Rec mi % No-	hour factor, cks and buse: cks crawling crawl speed reational vel passing zone: s point dens	0.0 0.0 0.0 nicles 2 91	% % mi/hr % % /mi
Analysis direction volum Opposing direction volum		h/h h/h 1 Speed		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor Grade adj. factor,(note Directional flow rate,(s	or,(note-5) fHV -1) fg	lysis(d) 1.0° 1.0° 1.000 1.00 1353 pc/	Opposing 1.0 1.0 1.00 1.00	10
Free-Flow Speed from Fir Field measured speed, (no Observed total demand, (no Estimated Free-Flow Spee Base free-flow speed, (no Adj. for lane and should Adj. for access point de	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3)		mi/h veh/h mi/h mi/h mi/h	
Free-flow speed, FFSd		61.3	mi/h	
Adjustment for no-passin Average travel speed, A Percent Free Flow Speed	ršd	0.7* 36.6 59.7	mi/h mi/h %	

## MD Future plus Project.txt Pice For Drucks, ET Analysis(d) Opposing (c) Pice For Nys, ER 1.0° 1.0° 1.0° Pice For Nys, ER 1.0° Pice For Nys Passing Line Analysis — Textal length of analysis separent. Lt — Length of two-lame highway opstream of the passing lane, Lu — mit Length of passing lane including tapers, Lpl — mit average travel speed, 1754 (from above) — 35.6 mi/h Level of service, Lodd (from above) — 7.2 mit average travel speed, 1754 (from above) — 35.6 mi/h Level of service, Lodd (from above) — 7.2 Percent ctime-spent-following, Frsed (from above) Average Travel Speed with Passing Lane Domstream length of two-lane highway within effective length of passing Jane for average travel speed, Lde - mi length of passing Jane for average travel speed, Lde - mi length of passing Jane for average travel speed, Lde - mi length of the passing Jane for average travel speed, Ld - mi Adj. factor for the effect of passing Jane Areape travel speed, Ld - mi passing Jane speed including passing lane, ATSpl - Average travel speed including passing Jane, PFSpl 0.0 X Percent Time-Spent-following with Passing Lane. Domstream length of two-lane highway within effective length of passing Jane for percent time-spent-following, Lde - mi passing Jane for percent time-spent-following, Lde - mi Adj. factor for the effect of passing Jane for percent time-spent-following, Lde - mi Adj. factor for the effect of passing Jane for percent time-spent-following, Lde - mi Adj. factor for the effect of passing Jane for percent time-spent-following. Lde - mi passing Jane, percent fime-spent-following, Lde - mi Adj. factor for the effect of passing Jane (passing Jane, Loss) Adj. factor for the effect of passing Jane (passing Jane, Loss) Advertised the passing Jane (passing Jane, Loss) Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h

\_\_\_\_\_ Bicycle Level of Service \_\_\_\_\_ Posted speed limit, Sp
Percent of segment with occupied on-highway parking

Pawement rating, P

Page 2 Flow rate in outside laws, Vol. MD Puture plus Project.txt 1353 1 Effective width of outside lame, We 28.00 Effective speed factor; St laws, We 28.00 Effect

- Notes: what the adjustment factor for level terrain is 1.00, as level terrain.

  Notes: what the adjustment factor for level terrain is 1.00, as level terrain.

  It is one of the base conditions. For the purpose of grade adjustment, specific demagnade segments are treated as level terrain.

  For the analysis direction only and for v-200 vehyh.

  For the analysis direction only and for v-200 vehyh.

  Some trucks operate at crawl speeds on a specific downgrade. It 12-18 if some trucks operate at crawl speeds on a specific downgrade.

- \* These items have been entered or edited to override calculated value

## MD Future plus Project.txt HCS7: Two-Lane Highways Release 7.5

Phone: E-Mail:	F	ax:			
Direct	ional Two-Lane Hig	hway Segment	Analysis		
Analyst Agency/Co. Date Performed Analysis Time Period Highmay From/To Jurisdiction Analysis Year Description Piazza Del	Kevin Rangel W-Trans 10/02/2018 MD Future + Proje Saint Helena High SB County of Napa 2017 Dotto Winery TIS	way (SR 29)			
Highway class Class 2 Shoulder width 8.1 Lane width 12. Segment length 2.1 Terrain type Le Grade: Length -	0 ft % Tru .0 ft % Tru 0 mi Truck vel % Rec mi % No-	hour factor, icks and buses icks crawling crawl speed reational veh passing zones is point densi	0 0 icles 2 9	.0 .0 1	% % mi/hr % % /mi
Analysis direction volu Opposing direction volu		eh/h eh/h e1 speed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,()	or,(note-5) fHV -1) fq	1)ysis(d) 1.0* 1.0* 1.000 1.00 1740 pc/h	.,,	sing (c 1.0 1.0 1.000 1.000 1.353	pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand,( Estimated Free-Flow Spe- Base free-flow speed, (n Adj. for lane and shoul Ad]. for access point d	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3)	- - 65.0 65.0 3.7*	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		61.3	mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TŠd	1.0* 36.3 59.2	mi/h mi/h %		
	Percent Time-Spe	ent-Following_ ige 1			

Direction PCE for trucks, ET PCE for trucks, ET PCE for trucks, ER Heavy-vehicle adjustment factor, five Grade adjustment factor, (note-1) vi prirectional flow rate, (note-2) vi Base percent time-spent-following, (n Adjustment for no-passing zones, fip Percent time-spent-following, PTSFd	1.00 1740 p ote-4) BPTSFd	c/h 92.8 8.8 97.8	1.0* 1.0 1.000 1.00 1353	(o) pc/h
Level of Service and	Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, V Peak 15-min total travel time, TTIS capacity from PTSF, CdPTSF Directional Capacity.	VMT15 MT60	1700 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream Length of passing lane including tap Average travel speed, ATSd (from abo Percent time-spent-following, PTSFd Level of service, LOSd (from above)	of the passing		2.0 - 36.3 97.8 F	mi mi mi mi/h
Average Travel Sp	eed with Pass	ing Lane.		
Downstream length of two-lane highwa length of passing lane for avera Length of passing lane for avera Length of the passing lane for a Adj. factor for the effect of passin on average speed, fpl Average travel speed including passi Percent free flow speed including base	ge travel spee m of effective verage travel g lane ng lane, ATSpl	d, Lde speed, Lo	1	mi mi
Percent Time-Spent-F	ollowing with	Passing I	ane	
Downstream length of two-lane highwa of passing lane for percent time Length of two-lane highway downstrea the passing lane for percent tim	-spent-followi m of effective	ng, Lde Tength	of	mi mi
Adj. factor for the effect of passin on percent time-spent-following,	g lane	ing, Lu	-	
Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Per				Lane
Level of service including passing l Peak 15-min total travel time, TT15	ane, LOSpl	A -	veh-h	
Bicycle L	evel of Servic	e		
Posted speed limit, Sp Percent of segment with occupied on- Pavement rating, P	highway parkin Page 2	g	55 0 3	

MD Future plus Project.txt

- Notes:

  1. Note the adjustment factor for level terrain is 1.00, as level terrain is none of the base conditions, for the purpose of grade adjustment, specific 1. For the adjustment of the purpose of grade adjustment, specific 2. If vi (vi or v) >= 1.700 pc/h, terminate analysis—the Los is r. 4. For the analysis direction offend for 2000 beth).

  3. In ordinary is direction offend for 2000 beth).

  4. For the analysis direction offend for 2000 beth).

  5. In ordinary is direction of the control of t

## **Appendix D**

**Traffic Count Data and Driveway Count Summary** 





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#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

Day: Saturday Date: 1/13/2018 City: Napa

Project #: CA18\_8026\_001

AM   Period   NB   SB   EB   WB   TOTAL   PW   PW   PW   PW   PW   PW   PW   P					NID	CD		- FD		NA/D					Tatal
AM Period   NB   SB   EB   WB   TOTAL   PM Period   NB   SB   EB   WB   TOTAL		<b>DAILY TOTALS</b>		-	NB	SB		EB		WB					Total
00000					0	0		68		68					136
0015 0 0 0 0 12215 0 0 0 0 0 0 12215 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AM Period	NB SB	EB		WB	TOT	AL	PM Period	NB	SB	EB		WB	1	TOTAL
0030	00:00		0		0	0		12:00			2		1	3	
00.45															
01:100												40			
01:15												10			
01:30						_									
02:00 0															
02:15											3	6			
02:30						_									
02:45															
03:00 0 0 0 0 15:00 3 2 5 5 5 100 03:15 0 0 0 15:15 0 3 5 2 5 5 100 03:15 0 0 0 0 0 15:15 1 2 1 1 3 3 7 7 1 16 16:15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1												10			
03:15												10			
03:45						_									
04:10 04:15 0 0 0 0 0 16:15 0 0 1 1 1 1 0 04:15 0 04:15 0 0 0 0 16:15 0 0 2 2 2 2 0 04:30 0 0 0 0 0 0 16:30 2 4 4 6 1 8 5 14 05:00 0 0 0 0 17:35 0 0 2 2 2 2 2 0 05:30 0 0 0 0 0 0 17:35 1 3 7 14 8 17 06:00 0 0 0 0 17:30 1 2 3 3 1 3 7 14 8 17 06:00 0 0 0 0 17:35 1 3 7 14 8 17 06:00 0 0 0 0 18:35 1 0 0 0 0 1 18:15 1 0 0 1 1 1 1 1 2 0 06:15 0 0 0 0 0 18:35 1 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1														7	
04:15												9			
04:30															
09:45															
05:00												6			
05:15 0 0 0 0 17:15 0 2 2 3 3 05:45 0 0 0 0 17:30 1 2 3 3 05:45 0 0 0 0 17:45 1 3 7 14 8 17 06:00 1 1 1 1 1 06:15 0 0 0 0 18:10 0 1 1 1 1 1 06:15 0 0 0 0 0 18:15 0 0 1 1 1 1 1 06:45 0 0 0 0 0 18:30 0 0 1 1 1 1 1 06:45 0 0 0 0 0 18:30 0 0 1 1 1 1 1 06:45 0 0 0 0 0 18:45 0 0 1 1 1 4 1 5 0 07:00 0 0 0 0 19:15 0 0 0 0 0 19:15 0 0 0 0 1 1 1 1 1 0 07:45 0 0 0 0 0 19:15 0 0 0 0 0 19:30 0 0 1 1 1 1 1 0 07:45 0 0 0 0 0 0 19:30 0 0 1 1 1 1 1 0 07:45 0 0 0 0 0 0 19:45 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0															
05:45	05:15		0		0			17:15					2		
06:00															
06:15 06:30 0 0 0 0 18:35 0 1 1 1 0 06:45 0 0 0 0 18:30 0 0 1 1 1 1 0 06:45 0 0 0 0 0 18:30 0 0 1 1 1 1 0 06:45 0 0 0 0 0 0 18:30 0 0 1 1 1 1 0 0 07:00 0 0 0 0 0 0 19:15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0												3			
06:30 0 0 0 0 18:30 0 1 1 1 5 06:30 06:45 0 0 0 0 18:45 0 1 1 4 1 5 5 07:00 0 0 0 0 19:00 0 0 0 0 0 0 19:00 0 0 0 0 0 0 19:15 0 0 0 0 0 19:15 0 0 0 0 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1															
O6:45															
07:00												1			
07:30														_	
O7:45															
08:00															
08:15 0 0 0 0 20:15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0															
08:30 0 0 0 0 20:30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0															
08:45															
09:15							3								
09:30 09:45         5 3         1 1 1 1 1 2 2 3 3 1 3 1 1 3 3 1 1 3 3 3 3															
09:45															
10:00				0			^								
10:15 10:30 11:00 10:45 11:00 11:00 11:15 11:30 11:15 11:30 11:45 11:30 11:45 11:30 11:45 11:30 11:45				8			9								
10:30 10:45 1 6 0 4 1 10 22:45 0 0 0 0 0 11:10 11:00 11:15 5 4 9 23:15 0 0 0 0 0 0 0 11:15 11:30 4 1 1 5 23:30 0 0 0 0 0 0 0 0 0 11:45 0 9 0 5 0 14 23:45 0 0 0 0 0 0 0 0 0 0 11:15 11:30 11:45 0 9 0 5 0 14 23:45 0															
11:00															
11:15 11:30 11:45 11:30 11:45 11:30 11:45 11:30 11:45				6	0 4	1	10								
11:30														_	
11:45															
TOTALS   23   13   36   TOTALS   45   55   100				9			14								
SPLIT %						Ŭ						15			
DAILY TOTALS         NB         SB         EB         WB         Total           AM Peak Hour         14:45         17:00         13:00           AM Peak Hour         14:45         17:00         13:30           AM Pk Volume         12         14         22           Pk Hr Factor         0.750         0.500         0.688           7 - 9 Volume         0         9         22         31           7 - 9 Peak Hour         16:15         17:00         16:15           7 - 9 Pk Volume         0         3         3         4 - 6 Volume         0         7         14         17:00         16:15           7 - 9 Pk Volume         0         7         14         17:00         16:15         17:00         16:15         17:00         16:15         17:00         16:15         17:00         16:15         17:00         <															
DAILY TOTALS         0         0         68         68         68         68         68         68         136           AM Peak Hour         14:45         17:00         13:30           AM Pk Volume         12         14         22           Pk Hr Factor         0.600         0.375         0.472         Pk Hr Factor         0.750         0.500         0.688           7 - 9 Volume         3         3         4 - 6 Volume         0         9         22         31           7 - 9 Peak Hour         08:00         08:00         08:00         4 - 6 Peak Hour         16:15         17:00         16:15           7 - 9 Pk Volume         0         7         14         17	SPLIT %			63.9%	36.1%	2	26.5%	SPLIT %				45.0%	55.0	%	73.5%
DAILY TOTALS         0         0         68         68         68         68         68         68         136           AM Peak Hour         14:45         17:00         13:30           AM Pk Volume         12         14         22           Pk Hr Factor         0.600         0.375         0.472         Pk Hr Factor         0.750         0.500         0.688           7 - 9 Volume         0         0         3         3         4 - 6 Volume         0         9         22         31           7 - 9 Peak Hour         08:00         08:00         08:00         4 - 6 Peak Hour         16:15         17:00         16:15           7 - 9 Pk Volume         0         0         7         14         17		DAILVEGE			NB	SB		EB		WB					Total
AM Peak Hour 09:30 10:30 11:15 PM Peak Hour 14:45 17:00 13:30 PM Pk Volume 12 6 17 PM Pk Volume 12 14 22 Pk Hr Factor 0.600 0.375 0.472 Pk Hr Factor 0.750 0.500 0.688 7 - 9 Volume 0 0 0 3 3 3 4 - 6 Volume 0 0 9 22 31 7 - 9 Peak Hour 0 0 0 3 3 3 4 - 6 Peak Hour 16:15 17:00 16:15 7 - 9 Pk Volume 0 0 0 3 3 3 4 - 6 Pk Volume 0 0 7 14 17		DAILY TOTALS													
AM Pk Volume         12         6         17         PM Pk Volume         12         14         22           Pk Hr Factor         0.600         0.375         0.472         Pk Hr Factor         0.750         0.500         0.688           7 - 9 Volume         0         0         3         3         4 - 6 Volume         0         9         22         31           7 - 9 Pek Hour         0         0         0         0         0         60:05         4 - 6 Pek Hour         16:15         17:00         16:15           7 - 9 Pk Volume         0         0         7         14         17															
Pk Hr Factor         0.600         0.375         0.472         Pk Hr Factor         0.750         0.500         0.688           7 - 9 Volume         0         0         3         3         4 - 6 Volume         0         9         22         31           7 - 9 Peak Hour         08:00         08:00         08:00         4 - 6 Peak Hour         16:15         17:00         16:15           7 - 9 Pk Volume         0         0         7         14         17															
7 - 9 Volume     0     0     3     3     4 - 6 Volume     0     9     22     31       7 - 9 Peak Hour     08:00     08:00     4 - 6 Peak Hour     16:15     17:00     16:15       7 - 9 Pk Volume     0     3     3     4 - 6 Pk Volume     0     7     14     17															
7 - 9 Peak Hour     08:00     08:00     4 - 6 Peak Hour     16:15     17:00     16:15       7 - 9 Pk Volume     0     0     3     3     4 - 6 Pk Volume     0     0     7     14     17		0		0.600						0	0				
<b>7 - 9 Pk Volume</b> 0 0 0 3 <b>3 4 - 6 Pk Volume</b> 0 0 7 14 <b>17</b>															
0.575 0.575 FATH FACUI 0.450 0.500 0.708															
	FK HI FACIUI	0.000		0.000	0.375		0.3/3	7 K III Factor		0.000	0.000	0.430	0.50	0	0.708

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

**Day:** Sunday **Date:** 1/14/2018

City: Napa
Project #: CA18\_8026\_001

	DAILY TOTALS		NB 0		SB 0		EB 69		NB_ 75						otal 44
AM Period 00:00	NB SB	<b>EB</b>	<b>W</b> B		0 0	TAL	PM Period 12:00	NB	SB	<b>EB</b>		WB 1		10	TAL
00:15		0	0		0		12:15			4		0		4	
00:30		0	0		0		12:30			2		2	_	4	
00:45 01:00		0	0		0		12:45 13:00			3	9	<u>2</u> 1	5	<u>5</u> 4	14
01:15		0	ő		0		13:15			3		3		6	
01:30		0	0		0		13:30			6 2	1.4	2	9	8 5	22
01:45 02:00		0	0		0		13:45 14:00			1	14	2	9	3	23
02:15		0	0		0		14:15			1		2		3	
02:30 02:45		0 0	0 0		0		14:30 14:45			0 2	4	1 1	6	1 3	10
03:00		0	0		0		15:00			2		5		7	10
03:15		0	0		0		15:15			4		4		8	
03:30 03:45		0 0	0		0		15:30 15:45			2 2	10	5 0	14	7 2	24
04:00		0	0		0		16:00			1	10	2	14	3	
04:15		0	0		0		16:15			1		0		1	
04:30 04:45		0 0	0		0		16:30 16:45			0 1	3	2	6	2	9
05:00		0	0		0		17:00			1		0		1	
05:15		0	0		0		17:15			0		2		2	
05:30 05:45		0 0	0 0		0		17:30 17:45			0 1	2	2 5	9	2 6	11
06:00		0	0		0		18:00			0		4		4	
06:15		0	0		0		18:15			0		1		1	
06:30 06:45		0 0	0 0		0		18:30 18:45			0 1	1	1 6	12	1 7	13
07:00		0	0		0		19:00			0		2		2	13
07:15		0	0		0		19:15			0		0		0	
07:30 07:45		0 0	0 0		0		19:30 19:45			0		0	2	0	2
08:00		0	0		0		20:00			0		0		0	
08:15		0	0		0		20:15			0		0		0	
08:30 08:45		0 0	0 0		0		20:30 20:45			0		0 0		0	
09:00		0	0		0		21:00			0		0		0	
09:15 09:30		1 4	2		3 6		21:15 21:30			0		0 0		0	
09:30		4 9	2 1	5	5	14	21:45			0		0		0	
10:00		1	1		2		22:00			0		0		0	
10:15 10:30		1 1	1 0		2 1		22:15 22:30			0		0 0		0	
10:45		2 5	0	2	2	7	22:45			0		0		0	
11:00		1	0		1		23:00			0		0		0	
11:15 11:30		4 3	3 1		7 4		23:15 23:30			0		0 0		0	
11:45		4 12		5	5	17	23:45			0		Ö		Ö	
TOTALS		26	i	12		38	TOTALS				43		63		106
SPLIT %		68.4	1%	31.6%		26.4%	SPLIT %				40.6%		59.4%		73.6%
	DAIIW = 0 = 11		NB		SB		EB		VΒ					To	otal
	DAILY TOTALS		0		0		69		75						44
AM Peak Hour		11:0	00	09:15		11:00	PM Peak Hour				12:45		14:45		14:45
AM Pk Volume		12		6		17	PM Pk Volume				15		15		25
Pk Hr Factor		0.75	50	0.750		0.607	Pk Hr Factor				0.625		0.750		0.781
7 - 9 Volume 7 - 9 Peak Hour							4 - 6 Volume 4 - 6 Peak Hour				5 16:00		15 17:00		20 17:00
7 - 9 Peak Hour 7 - 9 Pk Volume							4 - 6 Pk Volume				3		9		17:00
Pk Hr Factor	0.000 0.000	0.00	00	0.000		0.000	Pk Hr Factor	0.	.000	0.000	0.750		0.450		0.458

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

Day: Monday Date: 1/15/2018

City: Napa
Project #: CA18\_8026\_001

	DAILY TOTALS		_	NB	SB		EB	WB						otal
	DAILT TOTALS			0	0		23	28						51
<b>AM Period</b>	NB SB	EB		WB	T	OTAL	PM Period	NB	SB	EB		WB	ТО	TAL
00:00 00:15		0 0		0 0	0		12:00 12:15			0 1		1 0	1 1	
00:30		0		0	0		12:30			2		1	3	
00:45		0		0	0		12:45			1	4	1 3	2	7
01:00 01:15		0 0		0 0	0		13:00 13:15			1 0		1 0	2	
01:30		0		0	0		13:30			0		0	0	
01:45		0		0	0		13:45			0	1	0 1	0	2
02:00		0 0		0	0		14:00			2		2	4	
02:15 02:30		0		0 0	0		14:15 14:30			1 0		1 0	2	
02:45		Ő		0	0		14:45			Ö	3	0 3	0	6
03:00		0		0	0		15:00			0		0	0	
03:15 03:30		0 0		0 0	0		15:15 15:30			1 1		6 2	7	
03:45		0		0	0		15:45			2	4	0 8	2	12
04:00		0		0	0		16:00			0	•	3	3	
04:15		0		0	0		16:15			1		0	1	
04:30		0		0	0		16:30			0	1	1	1	_
04:45 05:00		0		0	0		16:45 17:00			0	1	0 4	2	5
05:15		0		0	0		17:15			0		2	2	
05:30		1		0	1		17:30			0		0	0	
05:45		0	1	0	0	1	17:45			0		1 5	1	5
06:00 06:15		0 0		0 1	0		18:00 18:15			0 0		2 0	2	
06:30		0		0	0		18:30			0		0	0	
06:45		0		0 1	0	1	18:45			0		0 2	0	2
07:00		0		0	0		19:00			0		0	0	
07:15 07:30		0 0		0 0	0		19:15 19:30			1 0		0	1	
07:45		0		0	0		19:45			0	1	0	0	1
08:00		0		0	0		20:00			0		0	0	
08:15		0		0	0		20:15			0		0	0	
08:30		0 0		0 0	0		20:30 20:45			0 0		0 0	0	
08:45 09:00		0		0	0		21:00			0		0	0	
09:15		Ő		0	0		21:15			0		0	0	
09:30		0		1	1		21:30			0		0	0	
09:45		3	3	0 1	3	4	21:45			0		0	0	
10:00 10:15		0 1		0 0	0		22:00 22:15			0 0		0 0	0	
10:30		1		0	1		22:30			0		0	0	
10:45		0	2	0	0	2	22:45			0		0	0	
11:00		1		0	1		23:00			0		0	0	
11:15 11:30		0 1		0 0	0		23:15 23:30			0 0		0 0	0	
11:45		1	3	0	1	3	23:45			0		0	0	
TOTALS			9	2		11	TOTALS				14	26		40
SPLIT %			81.8%	18.2	%	21.6%	SPLIT %				35.0%	65.0%		78.4%
				NID	.CP			1449						
	DAILY TOTALS		-	NB 0	SB 0		EB 23	WB 28						otal 51
				-0	U			Z8						71
AM Peak Hour			09:45	11:4	5	11:45	PM Peak Hour				12:15	15:15		15:15
AM Pk Volume			5	2		6	PM Pk Volume				5	11		15
Pk Hr Factor		0	0.417	0.50	)	0.500	Pk Hr Factor				0.625	0.458		0.536
7 - 9 Volume 7 - 9 Peak Hour							4 - 6 Volume 4 - 6 Peak Hour				1 16:00	9 16:30		10 16:00
7 - 9 Peak Hour 7 - 9 Pk Volume							4 - 6 Peak Hour 4 - 6 Pk Volume				16:00	16:30		16:00 5
Pk Hr Factor							Pk Hr Factor				0.250	0.625		0.417
	0.1			0.00					3.00		2.200	0.023		

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

**Day:** Tuesday **Date:** 1/16/2018

City: Napa

Project #: CA18\_8026\_001

	DAILY TOTALS		NB	SB	EB	WB				Total
	DAILT TOTALS		0	0	31	36				67
AM Period	NB SB	EB	WB	TOTAL	PM Period	NB	SB EE	3 W	В	TOTAL
00:00		0	0	0	12:00		1			3
00:15		0	0	0	12:15		0			1
00:30		0	0	0	12:30		1			3
00:45		0	0	0	12:45 13:00		0			0 7
01:00 01:15		0 0	0 0	0	13:15		0			0 0
01:30		0	0	0	13:30		0			0
01:45		0	0	0	13:45		0			0
02:00		0	0	0	14:00		2			5
02:15		0	0	0	14:15		0			1
02:30		0	0	0	14:30		0	1		1
02:45		0	0	0	14:45		1	3 0	5	1 8
03:00		0	0	0	15:00		1			5
03:15		0	0	0	15:15		0			0
03:30		0	0	0	15:30		0			0
03:45		0	0	0	15:45		0			1 6
04:00		0	0	0	16:00 16:15		0			0
04:15 04:30		0 0	0 0	0	16:30		1			1 0
04:45		0	0	0	16:45		0			0 1
05:00		0	0	0	17:00		0			0
05:15		Ö	Ö	Ö	17:15		0			2
05:30		Ō	0	0	17:30		0			1
05:45		0	0	0	17:45		0			0 3
06:00		0	1	1	18:00		0	1		1
06:15		0	0	0	18:15		0			0
06:30		0	0	0	18:30		0			0
06:45		1 1	0 1	1 2			0			0 1
07:00		0	0	0	19:00		0			0
07:15		0 0	0	0	19:15 19:30		0			0
07:30 07:45		0	1 0 1	0 1	19:45		0			0 0
08:00		0	0 1	0 1	20:00		0			0
08:15		0	1	1	20:15		0			0
08:30		Ö	0	0	20:30		Ő			0
08:45		Ō	0 1	0 1	20:45		0			0
09:00		0	0	0	21:00		0			0
09:15		0	1	1	21:15		0	0		0
09:30		2	1	3	21:30		0			0
09:45		7 9	1 3	8 12			0			0
10:00		1	0	1	22:00		0			0
10:15		1	0	1	22:15		0			0
10:30		1	3	4	22:30		0			0
10:45 11:00		2 5	2 <u>5</u>	4 10	22:45 23:00	-	0			0
11:00		4 1	0 1	2	23:15		0			0
11:30		3	3	6	23:30		0			0
11:45		1 9	2 6	3 15			0			0
TOTALS		24	17	41			<u> </u>	7	19	26
SPLIT %		58.5%						26.9%	73.1%	38.89
2. 2., 70									. 3.270	
	DAILY TOTALS		NB	SB	EB	WB				Total
	DAILT TOTALS		0	0	31	36				67
AM Peak Hour		09:30	11:1	5 <b>10</b> :	15 PM Peak Hour			14:00	14:15	14:0
AM Pk Volume		11	8	10. 16				3	6	8
Pk Hr Factor		0.393						0.375	0.375	0.40
7 - 9 Volume	0 0	0.555	2	2		0	0	1	3	4
7 - 9 Peak Hour			07:3					16:00	16:45	16:4
7 - 9 Pk Volume			2	o 07. 2				1	3	3
Pk Hr Factor			0.50			0.000		0.250	0.375	0.37
PK HI FACTOR	0.000 0.000	0.000	0.50	U.5	PK HI FACIOF	0.000	0.000	0.230	0.375	0.37

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

Day: Wednesday Date: 1/17/2018

City: Napa
Project #: CA18\_8026\_001

	DAILY TO	ΤΔΙς		NB		SB		EB	WB						Tot	tal
	DAILI 10	TALS		0		0		34	38						72	2
<b>AM Period</b>	NB S	SB	ЕВ	WB		TO	ΓAL	PM Period	NB	SB	ЕВ		WB		тот	AL
00:00 00:15			0	0		0		12:00 12:15			2 1		0 1		2	
00:30			0	0		0		12:30			1		0		1	
00:45			Ō	Ō		0		12:45			1	5	2	3	3	8
01:00			0	0		0		13:00			0		0		0	
01:15 01:30			0 0	0 0		0		13:15 13:30			0 0		1 0		1 0	
01:30			0	0		0		13:45			0		0	1	0	1
02:00			0	0		0		14:00			0		2		2	
02:15			0	0		0		14:15			0		1		1	
02:30 02:45			0 0	0 0		0		14:30 14:45			1 3	4	0 6	9	1 9	13
03:00			0	0		0		15:00			1	- 4	3	-	4	13
03:15			0	Õ		Ö		15:15			1		1		2	
03:30			0	0		0		15:30			1		2		3	
03:45 04:00			0	0		0		15:45 16:00			0 0	3	<u>0</u> 1	6	0	9
04:00			0	0		0		16:15			0		0		0	
04:30			Ö	0		0		16:30			0		0		0	
04:45			0	0		0		16:45			1	1	2	3	3	4
05:00			0	0		0		17:00			0		1		1	
05:15 05:30			0 0	0 0		0		17:15 17:30			1 0		3 1		4 1	
05:45			Ö	Ö		Ö		17:45			Ő	1	1	6	1	7
06:00			1	1		2		18:00			0		1		1	
06:15			0	0		0		18:15			0		0		0	
06:30 06:45			0 0 1	0 0	1	0	2	18:30 18:45			0 0		0 0	1	0	1
07:00			0 1	0		0		19:00			0		0		0	
07:15			0	1		1		19:15			0		0		0	
07:30			0	0	4	0	4	19:30			0		0		0	
07:45 08:00			0	0	1	0	1	19:45 20:00			0		0	-	0	
08:15			0	1		1		20:15			0		0		0	
08:30			1	0		1		20:30			0		0		0	
08:45			0 1	0	1	0	2	20:45			0		0		0	
09:00 09:15			0 0	0 0		0		21:00 21:15			0 0		0 0		0	
09:30			1	1		2		21:30			0		0		0	
09:45			2 3	0	1	2	4	21:45			0		0		0	
10:00			3	0		3		22:00			0		0		0	
10:15 10:30			3 3	0 1		3 4		22:15 22:30			0 0		0 0		0	
10:45			2 11	1	2	3	13	22:45			0		0		0	
11:00			0	0		0		23:00			0		0		0	
11:15			0	0		0		23:15			0		0		0	
11:30 11:45			0 4 4	1 2	3	1 6	7	23:30 23:45			0 0		0 0		0	
TOTALS			20		9	0	29	TOTALS				14		29	0	43
SPLIT %			69.09	6	31.0%		40.3%	SPLIT %				32.6%		7.4%		59.7%
									1110							
	DAILY TO	TALS		NB 0		SB 0		EB 34	WB 38						Tot	
				U		- 0										-
AM Peak Hour			09:45		11:30		10:00	PM Peak Hour				14:30	1	14:45		14:45
AM Pk Volume			11		4		13	PM Pk Volume				6		12		18
Pk Hr Factor 7 - 9 Volume	0	0	0.917		0.500		0.813	Pk Hr Factor 4 - 6 Volume			0	0.500 2	(	0.500 9		0.500 11
7 - 9 Peak Hour			07:45		07:00			4 - 6 Peak Hour				16:30	1	9 16:45		16:45
7 - 9 Pk Volume			1		1		2	4 - 6 Pk Volume				2		7		9
Pk Hr Factor	0.000	0.000	0.250		0.250		0.500	Pk Hr Factor	0.000	0	0.000	0.500		).583		0.563
· <del>-</del>																

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

Day: Thursday Date: 1/18/2018 , , City: Napa

City. Napa	
Project #: CA18 8026 00	1

	DAILY TOTAL	ç		NB	SB		EB	WB						Total
	DAILTIOTAL	3		0	0		41	48	_					89
AM Period	NB SB	EB		WB	ТО	TAL	PM Period	NB	SB	EB		WB	1	TOTAL
00:00		0		0	0		12:00			2		0	2	
00:15		0		0	0		12:15			1		4	5	
00:30		0		0	0		12:30			1	_	0	1	
00:45 01:00		0		0	0		12:45 13:00			<u>1</u> 1	5	4 8 0	5 1	
01:00		0		0	0		13:15			2		0	2	
01:30		0		Ö	ő		13:30			2		1	3	
01:45		0		0	0		13:45			1	6	1 2	2	
02:00		0		0	0		14:00			1		2	3	
02:15		0		0	0		14:15			0		0	0	
02:30 02:45		0 0		0 0	0		14:30 14:45			0 0	1	0 2	0	
03:00		0		0	0		15:00			1		3	4	
03:15		0		0	ő		15:15			Ō		4	4	
03:30		0		0	0		15:30			Ō		3	3	
03:45		0		0	0		15:45			1	2	1 11	2	
04:00		0		0	0		16:00			1		0	1	
04:15		0		0	0		16:15			1		1	2	
04:30 04:45		0 0		0 0	0		16:30 16:45			0 0	2	1 1 3	1	
05:00		0		0	0		17:00			0	2	1 3 5	5	5
05:15		0		0	Ö		17:15			0		4	4	
05:30		0		Ö	Ö		17:30			Ö		0	0	
05:45		0		0	0		17:45			0		0 9	0	9
06:00		0		0	0		18:00			0		0	0	
06:15		0		1	1		18:15			0		0	0	
06:30		0		0	0	_	18:30			1		1	2	
06:45 07:00		<u>1</u> 0	11	0 1	0	2	18:45 19:00			0	1	0 1	0	
07:00		0		0	0		19:15			0		0	0	
07:30		0		0	ő		19:30			Ő		0	ő	
07:45		0		0	0		19:45			Ō		0	0	
08:00		0		0	0		20:00			0		0	0	
08:15		0		0	0		20:15			0		0	0	
08:30		1	_	0	1		20:30			0		0	0	
08:45 09:00		0	1	3 3	3	4	20:45 21:00			0		0	0	
09:00		0		1	1		21:00 21:15			0		0	0	
09:30		2		2	4		21:30			0		0	ő	
09:45		6	8	2 5	8	13	21:45			Ö		0	Ő	
10:00		2		0	2		22:00			0		0	0	
10:15		2		0	2		22:15			0		0	0	
10:30		1	_	0	1	_	22:30			0		0	0	
10:45		<u>0</u> 4	5	0	0	5	22:45 23:00			0		0	0	
11:00 11:15		2		2	4		23:00 23:15			0		0	0	
11:30		2		1	3		23:30			0		0	0	
11:45		1	9	0 3	1	12	23:45			Ö		0	Ő	
TOTALS			24	12		36	TOTALS				17	36		53
SPLIT %			66.7%	33.39	6	40.4%	SPLIT %				32.1%	67.9	%	59.6%
	DAILY TOTAL	,		NB	SB		ЕВ	WB						Total
	DAILY TOTAL	5		0	0		41	48						89
AM Peak Hour			09:30	08:45		09:30	PM Peak Hour				12:45	15:0	0	12:00
AM Pk Volume			12	6		16	PM Pk Volume				6	11		13
Pk Hr Factor			0.500	0.500	)	0.500	Pk Hr Factor				0.750	0.68		0.650
7 - 9 Volume			1	3		4	4 - 6 Volume				2	12		14
7 - 9 Peak Hour			07:45	08:00	)	08:00	4 - 6 Peak Hour				16:00	16:3		16:30
7 - 9 Pk Volume			1	3		4	4 - 6 Pk Volume				2	11		11
Pk Hr Factor	0.000	0.000	0.250	0.250		0.333	Pk Hr Factor	0.000	0.000		0.500	0.55	0	0.550

#### **VOLUME**

#### 7466 SR 29 & Piazza Del Dotto Winery Dwy

Day: Friday Date: 1/19/2018 

	DAILY TO	TALS		NB	SB	EB	WB				Total
				0	0	47	53				100
AM Period	NB S	B E		WB	TOTAL	PM Period	NB	SB E		WB	TOTAL
00:00 00:15		0		0 0	0	12:00 12:15		2 2		1	3 3
00:30		0		0	0	12:30		1		1	2
00:45		0		0	0	12:45		2		2 5	4 12
01:00		0		0	0	13:00		1		1	2
01:15		0		0	0	13:15		2		0	2
01:30 01:45		0		0 0	0	13:30 13:45		2		2 1 4	4 2 10
02:00		0		0	0	14:00		0		3 4	3
02:15		0		0	Ö	14:15		2		1	3
02:30		0		0	0	14:30		0		1	1
02:45		0		0	0	14:45		1		2 7	3 10
03:00		0		0	0	15:00		0		2	2
03:15		0		0	0	15:15		4		3	7
03:30 03:45		0		0 0	0	15:30 15:45		0		3 0 8	3 0 12
04:00		0		0	0	16:00		1		0 8	1
04:15		0		Ö	Ö	16:15		0		ő	0
04:30		Ö		Ö	0	16:30	l	0		2	2
04:45		0		0	0	16:45		1		1 3	2 5
05:00		0		0	0	17:00		0		1	1
05:15		1		1	2	17:15		1		1	2
05:30 05:45		2		2 0 3	4 0 6	17:30 17:45		0		0 3 5	0 3 6
06:00		0		0 3	0 6	18:00		0		3 5	3
06:15		0		0	0	18:15		0		2	2
06:30		Ö		Ö	Ö	18:30		0		0	0
06:45		0		0	0	18:45		0		0 5	0 5
07:00		0		1	1	19:00		0		0	0
07:15		0		1	1	19:15		0		0	0
07:30		0		1	1	19:30		0		0	0
07:45 08:00		0		0 4	0 4	19:45 20:00		<u>0</u>		0	0
08:15		0		0	0	20:15		0		0	0
08:30		Ö		Ö	Ö	20:30		0		Ö	0
08:45		0		0	0	20:45		0		0	0
09:00		1		0	1	21:00		0		0	0
09:15		0		0	0	21:15		0		0	0
09:30		5		0	5	21:30		0		0	0
09:45 10:00		<u>1</u>	7	0	1 7	21:45 22:00		<u>0</u>		0	0
10:00		2		2	4	22:15		0		0	0
10:30		1		1	2	22:30		0		0	0
10:45		1	5	1 4	2 9	22:45		0		0	0
11:00	<u> </u>	2		1	3	23:00		0		0	0
11:15		2		0	2	23:15	l	0		0	0
11:30		2		1 3 5	3 6 14	23:30 23:45		0		0	0 0
11:45 TOTALS		3	24	3 5 16	6 14 <b>40</b>	TOTALS		0	23	37	60
SPLIT %			60.0%	40.0%							60.0%
JELII 70			00.0%						38.3%	61.7%	
	DAILY TO	TAIS		NB	SB	EB	WB				Total
	BAILT TO	TALS		0	0	47	53				100
AM Peak Hour			09:30	11:30	11:30	PM Peak Hour			12:00	14:45	14:45
AM Pk Volume			9	6	15	PM Pk Volume			7	10	15
Pk Hr Factor			0.450	0.500	0.625				0.875	0.833	0.536
7 - 9 Volume	0	0	0	4	4	4 - 6 Volume	0	0	3	8	11
7 - 9 Peak Hour				07:00	07:00				16:00	16:30	16:30
7 - 9 Pk Volume				4	4	4 - 6 Pk Volume			2	5	7
Pk Hr Factor	0.000	0.000	0.000	1.000	1.000	Pk Hr Factor	0.000	0.000	0.500	0.625	0.875

#### Piazza Del Dotto Winery Driveway Count Summary

	- Peak Hour of		Darah III		\ / - !	D-11 11 1	Barriella of 15 "
	Day	Date	Peak Hour	Peak Ho		Daily Vol	Peak Hour % of Daily
				In	Out		
	Monday		3:15-4:15	4	9	51	25.49%
	Tuesday	1/16/2018	2:00-3:00	3	5	67	11.94%
	Wednesday	1/17/2018	2:45-3:45	6	12	72	25.00%
	Thursday	1/18/2018	12:00-1:00	5	8	89	14.61%
	Friday	1/19/2018	2:45-3:45	5	10	100	15.00%
verage				5	9	76	18.41%
				36%	64%		
v	D   11	0					
Veekend	- Peak Hour of Day	Date Date	Peak Hour	Peak Ho	ır Vol	Daily Vol	Peak Hour % of Daily
	Day	Date	reak Houi		-	Daily Voi	reak Hour /6 Or Daily
	Catamalan	1/12/2010	1.20 2.20	In 11	Out	126	16 100/
	Saturday		1:30-2:30	11	11	136	16.18%
	Sunday	1/14/2018	2:45-3:45	10	15	144	17.36%
verage				11	13	140	16.77%
				45.8%	54.2%		
vеекіу - F	Peak Hour of Ge Day	Date	Peak Hour	Peak Ho	ır Vol	Daily Vol	Peak Hour % of Dails
	Day	Date	i cak i loui	In	Out	Daily Voi	r cak floar 70 of Daily
	Saturday	1/13/2018	1:30-2:30	11	11	136	16.18%
	Sunday		2:45-3:45	10	15	144	17.36%
	•						
	Monday		3:15-4:15	4	9	51	25.49%
	Tuesday		2:00-3:00	3	5	67	11.94%
	Wednesday		2:45-3:45	6	12	72	25.00%
	Thursday		12:00-1:00	5	8	89	14.61%
	Friday	1/19/2018	2:45-3:45	5	10	100	15.00%
verage				6	10	94	17.94%
				38%	63%		
Vooleday	- PM Peak Houi	~ (4 C DN4)					
vеекиау -	Day	Date	Peak Hour	Peak Ho	ır Vol	Daily Vol	Peak Hour % of Daily
	Day	Date	i cak i loui		Out	Daily Voi	r cak riour /0 or baily
	Monday	1/15/2010	4:00-5:00	In 1	4	51	9.80%
				1			
	Tuesday		4:45-5:45	0	3	67	4.48%
	Wednesday		4:45-5:46	2	7	72	12.50%
	Thursday		4:30-5:30	0	11	89	12.36%
	Friday	1/19/2018	4:30-5:30	2	5	100	7.00%
verage				1	6	76	9.23%
				14%	86%		
Veekend	- Midday Peak	Hour (2-4 DN	1)				
Veckellu	Day	Date	Peak Hour	Peak Ho	ır Vol	Daily Vol	Peak Hour % of Daily
	-			In	Out	•	
	Saturday	1/13/2018	2:00-3:00	10	9	136	13.97%
	-aca. au y						
	Sundav	1/14/2018	2:45-3:45	10	15	144	17.36%
	Sunday	1/14/2018	2:45-3:45	10	15	144	17.36%
verage	Sunday	1/14/2018	2:45-3:45	10 10 45%	15 12 55%	144	17.36% <b>15.67%</b>

## **Appendix E**

Napa County Winery Traffic Information/Trip Generation Forms





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### **Existing Conditions Winery Traffic Information / Trip Generation**

<u>Determine Winery Daily Trips.</u> Complete Sections A through H below to determine your winery project's estimated baseline daily and peak hour trips.

Project Name: Piazza Del Dotto Winer	y Project Scenario:	Permitted								
Section A. Maximum Daily Weekday Traffic (Friday, non-harvest season)										
<ol> <li>Total number of FT employees:</li> <li>Total number of PT employees:</li> <li>Maximum weekday visitors:</li> </ol>	x 3.05 one-way trips per emplor x 1.90 one-way trips per emplor /2.6 visitors per vehicle x 2 on /1,000 x 0.009 daily truck trips 2 x 2 on	loyee loyee le-way trips	= 39.7 daily trips = 3.8 daily trips = 38.5 daily trips = 0.9 daily trips = 83 daily trips							
	x 3.05 one-way trips per empl x 1.90 one-way trips per empl color /2.6 visitors per vehicle x 2 on x 0.009 daily truck trips 2 x 2 one-way x 1.90 / 1.44 truck trips x 2 one-way	loyee ne-way trips one-way trips	= 39.7 daily trips = 3.8 daily trips = 38.5 daily trips = 0.9 daily trips = 4.4 daily trips = 87 daily trips							
Section C. Maximum Daily Weekend T	raffic (Saturday, non-harvest sea	ason)								
<ul> <li>12. Total number of FT Sat. employees:</li> <li>13. Total number of PT Sat. employees:</li> <li>14. Maximum Saturday visitors:</li> <li>15.</li> </ul>	13 x 3.05 one-way trips pe 0 x 1.90 one-way trips pe 75 /2.8 visitors per vehicle x 2 on	r employee	= 39.7 daily trips = 0.0 daily trips = 53.6 daily trips = 93 daily trips							
Section D. Maximum Daily Weekend T	raffic (Saturday, harvest season									
<ul><li>16. Total number of FT Sat. employees:</li><li>17. Total number of PT Sat. employees:</li><li>18. Maximum Saturday visitors:</li></ul>	13 x 3.05 one-way trips pe 2 x 1.90 one-way trips pe 75 /2.8 visitors per vehicle x 2 on /1,000 x 0.009 daily truck trips 2 x 2 on 320 / 144 truck trips x 2 on	r employee r employee ne-way trips one-way trips	= 39.7 daily trips = 3.8 daily trips = 53.6 daily trips = 0.9 daily trips = 4.4 daily trips = 102 daily trips							
Sastian F. DNA Bank Have Trin Consenti	on (Friday, non hamiest social)									
(Sum of daily trips from Sec. A, lines		_	= 29 PM peak trips							
Section F. PM Peak Hour Trip Generati	on (Friday, harvest season)									
(Sum of daily trips, Sec. B, lines 8, 9,	10) x 0.38 + (No. of FTE) + (No. of P	TE / 2)	= 31 PM peak trips							
Section G. PM Peak Hour Trip Generation (Friday, non-harvest season)										
(Daily trips from Sec. C, line 14) x 0.	57 + (No. of FTE) + (No. of PTE / 2)		= 44 PM peak trips							
Section H. PM Peak Hour Trip Generation (Saturday, harvest season)										
(Sum of daily trips Sec. D, lines 18, 1	_	f PTE / 2)	= 48 PM peak trips							

### <u>Proposed Project Winery Traffic Information / Trip Generation</u>

<u>Determine Winery Daily Trips.</u> Complete Sections I through L below to determine your winery project's estimated future and peak hour trips.

Section I. Maximum Daily Weekday Traffic (Friday, non-harvest season	1							
1. Total number of FT employees: 17 x 3.05 one-way trips per employee	= 51.9 daily trips							
2. Total number of PT employees: 2 x 1.90 one-way trips per employee	= 3.8 daily trips							
3. Maximum weekday visitors: 125 /2.6 visitors per vehicle x 2 one-way tr								
4. Gallons of production: 100000 /1,000 x 0.009 daily truck trips2 x 2 one-way								
·	OTAL = 154 daily trips							
Section J. Maximum Daily Weekday Traffic (Friday, harvest season)								
6. Total number of FT employees: 17 x 3.05 one-way trips per employee	= 51.9 daily trips							
7. Total number of PT employees: 2 x 1.90 one-way trips per employee	= 3.8 daily trips							
8. Maximum weekday visitors: 125 /2.6 visitors per vehicle x 2 one-way tr								
9. Gallons of production: 100000 /1,000 x 0.009 daily truck trips2 x 2 one-way								
10. Avg. annual tons of grape on-haul: 667 / 144 truck trips x 2 one-way trips	= 9.3 daily trips							
	OTAL = 163 daily trips							
Section K. Maximum Daily Weekend Traffic (Saturday, non-harvest season)	= <u>105</u> daily (11p3							
	20.7							
12. Total number of FT Sat. employees: 13 x 3.05 one-way trips per employ								
13. Total number of PT Sat. employees: 0 x 1.90 one-way trips per employ								
14. Maximum Saturday visitors: 130 /2.8 visitors per vehicle x 2 one-way tr								
15.	ΓΟΤΑL = <u>133</u> daily trips							
Section L. Maximum Daily Weekend Traffic (Saturday, harvest season)								
16. Total number of FT Sat. employees: 17 x 3.05 one-way trips per employ	yee = 51.9 daily trips							
17. Total number of PT Sat. employees: 2 x 1.90 one-way trips per employ	ee = 3.8 daily trips							
18. Maximum Saturday visitors: 130 /2.8 visitors per vehicle x 2 one-way tr	$=$ ${92.9}$ daily trips							
19. Gallons of production: $100000 \overline{/1,000} \times 0.009$ daily truck trips2 x 2 one-way	trips = $\frac{1.8}{1.8}$ daily trips							
20. Avg. annual tons of grape on-haul: 667 / 144 truck trips x 2 one-way tr	ips = 9.3 daily trips							
	ΓΟΤΑL = 160 daily trips							
Section M. PM Peak Hour Trip Generation (Friday, non-harvest season)								
(Sum of daily trips from Sec. I, lines 3 and 4) x 0.38 + (No. of FTE) + (No. of PTE /	2) = 55 PM peak trips							
Section N. PM Peak Hour Trip Generation (Friday, harvest season)								
(Sum of daily trips, Sec. J, lines 8, 9, 10) $\times$ 0.38 + (No. of FTE) + (No. of PTE / 2)	= 59 PM peak trips							
	<del></del>							
Section O. PM Peak Hour Trip Generation (Friday, non-harvest season)								
	CC DNA monk twims							
(Daily trips from Sec. K, line 14) x 0.57 + (No. of FTE) + (No. of PTE / 2)	= 66 PM peak trips							
Section P. PM Peak Hour Trip Generation (Saturday, harvest season)								
(Sum of daily trips Sec. L, lines 18, 19, 20) x 0.57 + (No. of FTE) + (No. of PTE / 2)	= 77 PM peak trips							

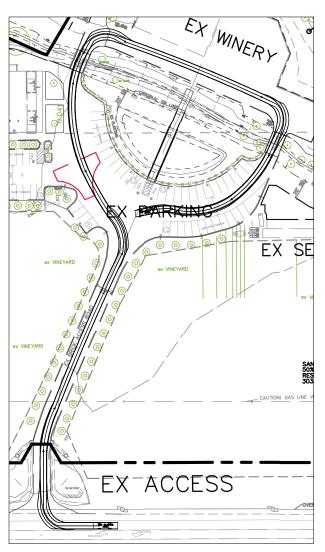
## **Appendix F**

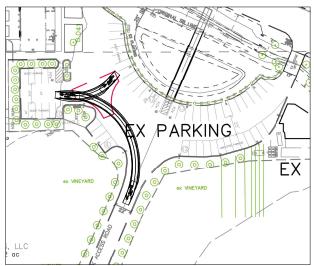
**AutoTURN Exhibits** 





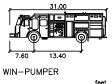
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Midth Frack Lock to Lock Time Steering Angle

Piazza Del Dotto Winery TIS

Fire Truck Access

NAX129 September 2018

