

# 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** 

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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





## **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		2.10	Yountville Town Limit	SR 29		
Proposed						
Vine Trail	I	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.



## 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 (%)			
А	>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			
E	≤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.
- 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	E	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	it 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.





Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification Figure 3 – Site Plan



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			eak 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		isting C	Conditio	ns	Existing plus Project			
Direction	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	Е	78.2	D	90.6	Е
SB – Oakville Grade Rd to Washington St	91.4	Е	87.7	Е	91.3	Е	88.4	Е

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		ture C	onditio	ns	Fut	Future plus Project			
Direction	PM Peak		Weekend Peak		PM Peak		Weekend Peak		
	PTSF	LOS	PTSF	LOS	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.



## **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

- 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 project-generated 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 120-person 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

2014 Collision Data on California State Highways, California Department of Transportation, 2017
City of Napa Traffic Impact Study Guidelines, City of Napa, 2004
Guide for the Preparation of Traffic Impact Studies, California Department of Transportation, 2002
Guidelines for Interpretation of General Plan Circulation Policies on Significance Criteria, Fehr & Peers, 2015
Highway Capacity Manual, Transportation Research Board, 2010
Highway Design Manual, 6<sup>th</sup> Edition, California Department of Transportation, 2017
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

## NAX129





# Appendix A

**Collision Rate Calculations** 





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SEGMENT CC	SEGMENT COLLISION RATE CALCULATIONS							
Pi	Piazza Del Dotto Winery							
Location	: SR 29 between Oakville Grade Rd and Washington St							
Date of Coun AD	t: Saturda 7: 27,500	y, June 30, 2018						
Number of Collisions Number of Injuries Number of Fatalities Start Date End Date Number of Years	Number of Collisions:59Number of Injuries:25Number of Fatalities:3Start Date:July 1, 2013End Date:June 30, 2018Number of Years:5							
Highway Type Are: Design Speec Terrair Segment Length Direction	Highway Type: Conventional 2 lanes or less Area: Rural Design Speed: ≤55 Terrain: Flat Segment Length: 2.0 miles							
١	lumber of C	Collisions x 1 Millio	on					
ADT x 365 Days	per Year x S	Segment Length x	Number of Years	;				
59	х	1,000,000						
27,500 x	365	x 2	x 5					
Study Segment 0.5	ollision Rate Fatality Rate Injury Rate							
Statewide Average* 0.8	83 c/mvm 2.4% 40.1%							
ADT = average daily traffic volume c/mvm = collisions per million vehicle m * 2014 Collision Data on California Stat	3 c/mvm les e Highways	2.4%	40.1%					



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# Appendix **B**

**City of Napa Seasonal Adjustment Factors** 





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## **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 February	1.179 1.161
March	1.133
April	1.083
Мау	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: E-Mail:		Fax:				
Directional Two-Lane Highway Segment Analysis						
Analyst Kevin Anagel Krangel Analyst Agency Comment Analyst Kevin Anagel Krang Agency Comment Krangel Krang Agency Comment Keving Agency Comment Analysis The Period PK Kristing Highway (SR 29) From Toric Mag Juaj Stist Vara 2017 Description Plazza Del Dotto winery TIS						
	Input	Data				
Highway class Class 2 shoulder width 8. Lane width 12 Segment length 2. Ferrain type Le Grade: Length - Up/down -	0 ft % Tri .0 ft % Tri 0 mi Truci vel % No % Acce	hour ucks a ucks c k craw creati passi ss poi	factor, nd buses rawling l speed onal veh ng zones nt densi	PHF icles ty	0.94 4 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volu Opposing direction volu	me, Vd 688 v me, Vo 1106 v	eh/h eh/h				
	Average Trav	ei spe	ed			
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adj. fact Grade adj. factor.(note Directional flow rate.(	An or,(note-5) fHV -1) fg note-2) vi	alysis 1.1* 1.0* 0.99 1.00 735	(d) 6 pc/h	Op	posing ( 1.0 1.00 1.000 1.00 1177	pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, ( Estimated Free-Flow Speed, (n Adj. for lane and shoul Adj. for arcress point d	eld Measurement: ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3) ensity.(note-3) f	) fls	- - 65.0 0.0 3.7*	mi/h veh/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	ng zones, fnp TSd , PFFS		1.0* 45.5 74.2	mi∕h mi/h %		

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

P	M Existing.txt			
Direction PCE for RVS, ET PCE for RVS, ER Heavy-whicke adjustment factor. FH Heavy-whicke adjustment factor. (note-1) fg Grade adjustment rate.(not-2) vi Discontent time-specific adjustment Adjustment for no-passing zones, fm Percent time-spent-following, PTSFd	Analysis(d) 1.0* 1.0* 1.000 1.000 732 pc hote-4) BPTSFd	/h 70.6 % 18.0 77.5 %	posing ( 1.0* 1.0 1.000 1.000 1.00 1177	o) pc/h
Level of service an	d Other Performa	nce Measu	ires	
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, TT15 Capacity from AT5, CdAT5 Capacity from AT5, CdAT5 Directional Capacity	VMT15 /MT60	D 0.43 366 v 1376 v 8.1 v 1700 v 1700 v 1700 v	eh-mi eh-mi eh-h eh/h eh/h eh/h	
Passin	g Lane Analysis_			
Total length of analysis segment, L Length of two-lane highway upstream Length of passing lane including ta Average travel speed, ATSd (from ab Percent time-spent-following, PTSFd Level of service, LOSd (from above)	t of the passing pers, Lpl pve) (from above)	lane, Lu	2.0 - 45.5 77.5 D	mi mi mi mi/h
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Downstream length of two-lane highw length of passing lame for aver. Length of two-lane highway downstre. Adj. factor for the effect of passi on average speed, fpl Average travel speed including pass Percent free flow speed including pas	ay within effect age travel speed am of effective average travel s ing lane ing lane, ATSpl assing lane, PFF	ive , Lde peed, Ld spl	- - - 0.0	mi mi %
Percent Time-Spent-	ollowing with P	assing La	ine	
Downstream length of two-lane highw of passing lane for percent tim Length of two-lane highway downstre. the passing lane for percent ti Adj. factor for the effect of passi on percent time-spent-following Percent time-spent-following	ay within effect spent-followin am of effective ne-spent-followin g lane fpl	ive lengt g, Lde length of ng, Ld	h - -	mi mi
including passing lane, PTSFpl			-	%
Level of Service and Other Pe	formance Measur	es with P	assing L	ane
Level of service including passing Peak 15-min total travel time, TT15	lane, LOSpl	v	eh-h	
Bicycle	evel of Service			
Posted speed limit, Sp Percent of segment with occupied on Pavement rating, P	-highway parking Page 2	55 0 3		

# Flow rate in outside lane, vol. PM Existing.txt 731.9 Frective speed factor, st lane, ve 24.79 Frective speed factor

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

### ......

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment A	unalysi	s	
Analyst Kevin Rangel W-Trans Agency/coroned W-Trans Agency/coroned W-Trans Distribution of the Corone Balaysta The Period W Exist Balaysta The Period W Exist From/To Balaysta The Period W Exist From/To Balaysta State State Description Plazza bel botto winery TIS				
Input Data				
Highway class Class 2 Peak hour Shoulder width 8.0 ft % Trucks a Lane width 12.0 ft % Trucks craw Segment length 2.0 mi Truck craw Terrain type Level % Recreati Grade: Length - mi % No-passi Order & Access poi	factor, P nd buses rawling l speed onal vehi ng zones nt densit	чнғ cles y	0.94 4 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volume, Vd 1106 veh/h Opposing direction volume, Vo 688 veh/h				
Average Travel Spe	ed			
pirection     Analysis       PCE for trucks, ET     1.0°       PCE for Rvs, ER     1.0°       Heavy-vehicle adj. factor,(note-5) fHV     1.00       Directional flow rate,(note-2) vi     1.00	(d) 0 pc/h	Opp	osing ( 1.1 1.0 0.996 1.00 735	pc/h
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed, (note-3) BFFS Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note-3) fLS Adj. for access point demsity, (note-3) fA	- - 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-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.7* 44.8 73.0	mi∕h mi/h %		

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

PM Existing.t	xt
Direction Analysis PCE for trucks, ET 1.0° PCE for trucks, ET 1.0° PCE for Rvs, ER Heavy-vehicle adjustment factor, (nov: 1.00 Grade adjustment factor, (nov: 1.00 1.00 Base percent time-spent-following, (note-0) BPTS Adjustment for no-passing zones, fnp Percent time-spent-following, fristed	d) opposing (o) 1.0° 1.00 1.000 1.000 1.000 1.000 732 pc/h 732 pc/h 18.00 91.4 %
Level of Service and Other Perf	ormance Measures
Level of service, LOS Volume to Capacity ratio, v/c Peak JS-min vehicle-miles of travel, VMT05 Peak-hour vehicle-miles of travel, VMT60 Peak JS-min total travel time, T15 Capacity from ATS, CddTS Directional Capacity	E 0.69 588 veh-mi 2212 veh-mi 13.1 veh-h 0 veh/h 1700 veh/h
Passing Lane Analy	sis
Total length of analysis segment. Lt Length of two-lane highway upstreams of the pass 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 mi ing lane, Lu – mi – mi 44.8 mi/h ) 91.4 E
Average Travel Speed with P	assing Lane
Downstream length of two-lame highway within ef- length of passing lame for average travels length of the passing lame for average trav Adj. factor for the effect of passing lame on average speed, fpl Average travel speed including passing lame, AT Percent free flow speed including passing lame, AT	fective peed, Lde - mi ive el speed, Ld - mi - spl - PFFspl 0.0 %
Percent Time-Spent-Following wi	th Passing Lane
Downstream length of two-lane highway within eff of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect the passing lane for percent time-spent-fol Adj. factor for the effect of passing lane on percent time-spent-following, fpl	fective length owing, Lde - mi ive length of lowing, Ld - mi -
Percent time-spent-following including passing lane, PTSFpl	- %
Level of Service and Other Performance Me	asures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TTIS	A - veh-h
Bicycle Level of Ser	vice
Posted speed limit, sp Percent of segment with occupied on-highway par Pavement rating, P Page 2	king 0 3

### Flow rate in outside laws, you PM Existing.txt 1176.6 effective width off outside laws, we 28.00 Effective speed factor, st Elocycle Los Sorre, BLOS Los Sorre, BLOS Nettione has the adjustment factor for level terrain (s.1.00, as level terrain is one of the basis conditions, for the purpose of grade adjustment, specific

	dewngrade segments are treated as level terrain.
2.	If vi (vd or vo ) >= 1,700 pc/h, terminate analysis-the LOS is F.
3.	For the analysis direction only and for v>200 veh/h.
4.	For the analysis direction only.
5.	Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a

 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on specific domgrade.
 \* These items have been entered or edited to override calculated value

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

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Phone: Fax: E-Mail:				
Directional Two-Lane Highway	y Segment Analysis	_		
Analyst Kevin Rangel Agency/formed Joint Sama Analysis The Markowski Skisting Highmay Program Saint Helma Highmay (SR 29) Front/To tron Na Bescription Plazza bel Dotto winery TIS				
Input Data	L	_		
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Analysis direction volume, Vd 1153 veh/h Opposing direction volume, Vo 1022 veh/h				
Average Travel S	peed			
Direction Analys: PCE for trucks, ET 1.4 PCE for Rys, ER, 1.4 Heavy-vehicle adj. factor,(note-5) fHV 1.4 Grade adj. factor,(note-1) fg 1.4 Directional flow rate,(note-2) vi 111	is(d) Opposing (o) 0 1.0 0 1.0 00 1.00 00 1.000 00 1.000 77 pc/h 1043 pc/h			
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) BFS Adj. for lane and shoulder width, (note-3) fL: Adj. for access point density, (note-3) fA	- mi/h - veh/h .65.0 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 %			

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

MD Existing.tx	t
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Level of Service and Other Perfo	rmance Measures
Level of service, LOS Volume to capacity ratio, v/c Peak IS-min vehicle-miles of travel, VMTIS Peak-hour vehicle-miles of travel, VMT60 Peak IS-min total travel time, TTIS Capacity from ATS, CAMTS Capacity from ATS, CAMTS Directional Capacity	E 0.69 2306 veh-mi 13.7 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analys	is
Total length of analysis segment. Lt Length of two-lane highway upstream of the passi 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 mi ng lane, Lu - mi - mi 43.1 mi/h 90.6 E
Average Travel Speed with Pa	ssing Lane
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Domstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway domstream of effecti the passing lane for percent time spent-follo different time-spent-following, fpl ercent time-spent-following, fpl including nasking lane prsml	ective length wing, Lde - mi ve length of wing, Ld - mi %
Level of Service and Other Performance Mea	sures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A _ veh-h
Bicycle Level of Serv	ice
Posted speed limit, Sp Percent of segment with occupied on-highway park Pavement rating, P Page 2	55 0 3

### Flow rate in autside lane, vo. MD Existing.txt 1176.5 effective width of outside lane, we 28.00 effective speed factor, st 27.0 effective speed factor, st 27.0 effective loss Store, sLOS 2.61 2.61 2.61 2.63 2.64 2.65 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55 2.55

	dewngrade segments are treated as level terrain.
2.	If vi (vd or vo ) >= 1,700 pc/h, terminate analysis-the LOS is F.
3.	For the analysis direction only and for v>200 veh/h.
4.	For the analysis direction only.
5.	Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a
	and all a decimentals

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

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

Phone: E-Mail:		Fax:				
Direct	ional Two-Lane Hig	ghway :	Segment	Analys	is	
Analyst Kevin Rangel V-Trans Agency/rotromed V-Trans Agency/rotromed V-Trans Analysis Trans Highway (SR 29) Front/To- Highway (SR 29) Front/To- Bescription Plazza bel Dotto winery TIS						
	Input (	oata				
Highway class Class 2 shoulder width 8. Lane width 12 Segment length 2. Terrain type Le Grade: Length - Up/down -	0 ft % Tru .0 ft % Tru 0 mi Truci vel % Ro % Acces	hour ucks a ucks c craw reati passi as poi	factor, nd buses rawling l speed onal veh ng zones nt densi	PHF icles ty	0.98 2 0.0 0.0 2 91 14	% mi/hr % % /mi
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	Average Trave	el Spe	ed			
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	Ani or,(note-5) fHv -1) fg note-2) vi	1)ysis 1.0* 1.0* 1.00 1.00 1043	(d) 0 pc/h	Op	posing ( 1.0 1.00 1.000 1.000 1177	o) pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, ( Estimated Free-Flow Spee Base free-flow speed, (n Adj. for lane and shoul Adj. for laccess point d	eld Measurement: ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3) ensity,(note-3) fi	) 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-passi Average travel speed, A Percent Free Flow Speed	ng zones, fnp TSd , PFFS		1.0* 43.1 70.3	mi∕h mi∕h %		

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

MD Existing.txt			
Direction Analysis(d) PCE for trucks, ET 1.0° PCE for rkvs, EK 1.0° Heav-vehic adjustment factor, five 1.000 Grade adjustment factor, five 1.000 Base percent time-spent-following, (note-d) BPTSPd Adjustment for no-spent-following, PTSPd	c/h 80.6 % 15.2 87.7 %	0pposing ( 1.0 1.0 1.000 1.000 1.00 1177 6	o) pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service.LOS volume to capacity ratio, v/c Peak JS-min vehicle-miles of travel, WMT15 Peak-hour vehicle-miles of travel, WMT60 Peak JS-min total travel time, TT15 capacity from ATS, cdATS capacity from ATS, cdATS Directional Capacity	E 0.61 521 2044 12.1 1700 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 woo-lame highway upstreams of the passing Length of passing lame including tapers, Lpl Average travel speed, arsd (from above) Percent time-spent-following, PTSFd (from above) Level of service, Losd (from above)	lane, Lu	2.0 - 43.1 87.7 E	mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel spee Length of two-lane highway downstream of effective Adj. factor for the effect of passing lane on average speed, fol Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PATSPL Average travel speed including passing lane, PATSPL	tive d, Lde speed, Ld FSpl	- - - 0.0	mi mi %
Percent Time-Spent-Following with	Passing L	ane	
Domstream length of two-lane highway within effec of passing lane for percent time-spent-follow Length of two-lane highway domstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fol	tive leng ng, Lde length c ing, Ld	of	mi mi
including passing lane, PTSFpl		-	%
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, TT15	A -	veh-h	
Bicycle Level of Servic	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	g 0 3	15 )	

Flow rate in outside lane, VOL	1042.9
Effective width of outside lane, we	28.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.55
Bicycle LOS	C
Notes: 1. Note that the adjustment factor for level terrain is one of the base conditions. For the purpose of demograde segments are treated as level terrain. 2. If wi (wi or wo.) = 1.700 m/c/h. terriate analysis	is 1.00, as level terrain grade adjustment, specific

demigrade seguents are tracted as level terrain. of the seguents are tracted as level terrain. Siror the analysis direction only and for v200 velyh. 4. For the analysis direction only 5. specific domograde. 1. Siro terrain the second s

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

Phone: E-Mail:	Fi	ax:			
Direct	ional Two-Lane High	way Segme	ent Analys	is	
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 Highw NB County of Napa 2017 Dotto Winery TIS	vay (SR 29	))		
	Input D	ata			
Highway class Class 2 Shoulder width 8 Lane width 12 Segment length 2 Grade: Length - Up/down -	0 ft % True 0 ft % True 0 mi Truck evel % Reci % Acces	nour facto cks and bu cks crawl crawl spe reational bassing zo s point de	or, PHF uses ed vehicles ones ensity	0.94 4 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volu Opposing direction volu	ime, Vd 789 vel ime, Vo 1838 vel	1/h 1/h L Sneed			
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	Ana cor, (note-5) fHV 1) fg note-2) vi	lysis(d) 1.1* 1.0* 0.996 1.00 843 p	Op oc/h	posing ( 1.0 1.00 1.000 1.00 1955	0) pc/h
Free-Flow Speed from Fi Field measured speed, (r Observed total demand, ( Estimated Free-Flow Speed, (r Adj. for lane and shoul Adj. for access point C	eld Measurement: ote-3) S FM note-3) V red: ote-3) BFFS der width,(note-3) lensity,(note-3) FA	- - fls 0.0 3.7	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		61.3	8 mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	ng zones, fnp <sup>TSd</sup> I, PFFS	0.7 38.9 63.4	r mi∕h 9 mi/h 1 %		

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

DM Enture tyt			
Direction Analysis(d) performation of the adjustment factor, five 1.000 Grade adjustment factor, five 1.000 Grade adjustment factor, five 1.000 Grade adjustment factor, fore-1.010 Disse pional itom rates(=-formation) Disse pional itom rates(=-formation) Adjustment for no-passing zones, fing Percent time-spent-following, prSrd	c/h 78.1 9 14.3 82.4 9	0pposing 1.0* 1.00 1.000 1.00 1955	(o) pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS Volmet to Capacity ratio, V/C Peak JS-min vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, WHIS Peak JS-min total travel time, THIS Capacity from ATS, CdATS Capacity from ATS, CdATS Directional Capacity	F 0.49 420 1578 10.8 1700 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-lame highway upstream of the passing Length of passing lame including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LoSd (from above)	l lane, Lu	2.0 - 38.9 82.4 F	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Domstream langth of two-lane highway within ffca langth of passing lane for average travel spee Length of two-lane highway domstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane travel on average speed, fpl average travel speed including passing lane, ATSp Percent free flow speed including passing lane, PF	tive d, Lde speed, Lo FSpl	- 1 - - 0.0	mi mi %
Percent Time-Spent-Following with	Passing L	.ane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-follow 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, fpl including passing lane, PTSFpl	tive leng ng, Lde length c ring, Ld	1th - - -	mi mi %
Level of Service and Other Performance Measu	res with	Passing I	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	.e		
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	ig G	5 ) 8	

# PM Future.txt 839.4 Flow rate in outside lane, vol. 839.4 Effective speed factor, st lane, ve 24.79 Effective speed factor, st lane, ve 24.79 Effective speed factor, st lane, ve 2.96 Singer 1000 Noise that the adjustment factor for level terrain is 1.000, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific 2. If vi (vd or vo ) >= 1.700 pc/h, terminate analysis-the tos is F. 5. For the analysis direction only and for va20 ve/h. 5. We ellerraitive Subbit 13-14 if some trucks operate at crawl speeds on a specific domgrade. \* These items have been entered or edited to override calculated value

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

Phone: E-Mail:	Fa	іх :			
Direct	ional Two-Lane High	way Segment	Analys	is	
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 Highw SB County of Napa 2017 Dotto Winery TIS	ay (SR 29)			
	Input Da	ita			
Highway class Class 2 Shoulder width 8 Lane width 12 Segment length 2 Grade: Length - Up/down -	0 ft % Truc 0 ft % Truc 0 mi Truck vel % Recr mi % No-p % Access	our factor, ks and buse ks crawling crawl speed eational ve assing zone point dens	PHF s hicles s ity	0.94 4 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volu Opposing direction volu	ime, Vd 1838 veh ime, Vo 789 veh	i/h i/h Sneed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	Anal cor,(note-5) fHV 1) fg note-2) vi	ysis(d) 1.0* 1.0* 1.000 1.00 1955 pc/	Opp	posing ( 1.1 1.0 0.996 1.00 843	o) pc/h
Free-Flow Speed from Fi Field measured speed, (r observed total demand, Estimated Free-Flow Speed, Adj. for lane and shoul Adj. for access point of Free-flow speed, FFSd	eld Measurement: (ote-3) S FM (note-3) V (ed: (ote-3) BFFS der width,(note-3) lensity,(note-3) fA	- - fLS 0.0 3.7* 61.3	mi/h veh/h mi/h mi/h mi/h mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	ng zones, fnp TSd I, PFFS	1.4* 38.2 62.3	mi/h mi/h %		

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

PM Future.txt	
Direction Analysis(d) PCE for rucks, ET 1.0° PCE for rucks, EX 1.0° Heav-vehic adjustment factor, fwv 1.000 Grade adjustment factor, funct-3) 1.00 Base percent lime-spent-following, (note-4) BPTSef Adjustment for no-spent-following, PTSed	Opposing (o) 1.0 <sup>4</sup> 1.00 1.000 1.000 1.000 91.9 % 14.3 100.0 %
Level of Service and Other Perform	ance Measures
Level of service. LOS Volume to capacity ratio, v/c Peak.JS-min vehicle-miles of travel, WMTIS Peak-hour vehicle-miles of travel, WMT60 Peak JS-min total travel time, TTIS capacity from PTSF, CdPTSF Directional Capacity	F 1.15 978 veh-mi 3676 veh-mi 25.6 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analysis	
Total length of analysis segment. Lt Length of woo-lawe hidway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, arSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LoSd (from above)	2.0 mi lane, Lu – mi 38.2 mi/h F
Average Travel Speed with Pass	ing Lane
Domstraan langth of two-lane highway within effect langth of gassing lane for average travel spee Length of two-lane highway domstraan of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, PF Percent free flow speed including passing lane, PF	tive d, Lde - mi speed, Ld - mi - FSp1 0.0 %
Percent Time-Spent-Following with	Passing Lane
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi 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, fpl including passing lane, PTSF1	tive length ng, Lde - mi Iength of ing, Ld - mi - - - %
Level of Service and Other Performance Measu	res with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - veh-h
Bicycle Level of Servic	e
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	g 0 3

### Flow rate in outside lane, vol. PM Puture.txt 1955.3 Effective width of outside lane, we 28.00 Effective speed factor, st 21.9 Bio/Cle LOS Score, BLOS Bio/Cle LOS Score, BLOS Notes: 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the basis conditions, for the purpose of orade adjustment, specific

	dewngrade segments are treated as level terrain.
2.	If vi (vd or vo ) >= 1,700 pc/h, terminate analysis-the LOS is F.
3.	For the analysis direction only and for v>200 veh/h.
4.	For the analysis direction only.
5.	Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a
	specific downgrade

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

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

Phone: E-Mail:		Fax:				
Direct	ional Two-Lane Hig	ghway :	Segment	Analys	is	
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 Saint Helena Higi NB County of Napa 2017 Dotto Winery TIS	way (	SR 29)			
	Input (	oata				
Highway class Class 2 shoulder width 8. Lane width 12 Segment length 2. Terrain type Le Grade: Length - Up/down -	0 ft % Tru .0 ft % Tru 0 mi Truci vel % Rev mi % No % Acces	hour ucks a ucks c craw reati passi as poi	factor, nd buses rawling l speed onal veh ng zones nt densi	PHF icles ty	0.98 2 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volu Opposing direction volu	me, Vd 1322 ve me, Vo 1699 ve	eh/h eh/h	ed			
Direction	Average 11ave	i spe	(d)	0.0	ocina (	(a)
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	or,(note-5) fHV -1) fg note-2) vi	1.0* 1.0* 1.00 1.00 1349	0 pc/h	opi	1.0 1.00 1.000 1.000 1.734	pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, ( Estimated Free-Flow Spe	eld Measurement: ote-3) S FM note-3) V ed:		-	mi/h veh/h		
Base free-flow speed, (n Adj. for lane and shoul Adj. for access point d	ote-3) BFFS der width,(note-3) ensity,(note-3) fi	) fls	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	ng zones, fnp TSd , PFFS		0.7* 36.7 59.8	mi∕h mi∕h %		

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

MD Future.txt	
Direction Analysis(d) PCE for trucks, ET 1.0° PCE for rows, ER Heav-vehicle. ad factor, fiv 1.0° Neav-vehicle. ad factor, ficat-1) fit 1.000 Directional flow rate, (note-2) vi 1.000 Directional flow rate, (note-2) vi 1.000 Base percent time-spent-following, (note-4) BPFS Percent time-spent-following, PTSF4	) opposing (o) 1.0° 1.00 1.000 1.000 pc/h 1734 pc/h 8.8 93.2 %
Level of Service and Other Perfo	rmance Measures
Level of service, LOS Volume to Capacity ratio, v/c Peak JS-min vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, VHT60 Peak JS-min total travel time, TTIS Capacity from ATS, CAPTS Directional Capacity Directional Capacity	F 0.79 674 veh-mi 18.4 veh-mi 1700 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analys	is
Total length of analysis segment. Lt Length of two-lame highway upstream of the passi Length of passing lame including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	2.0 mi ng lane, Lu – mi – mi 36.7 mi/h 93.2 F
Average Travel Speed with Pa:	ssing Lane
Downstream length of two-lane highway within effi length of passing lane for average travel sp. Length of two-lane highway downstream of effectiv length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSj	ective eed, Lde – mi Vspeed, Ld – mi pl – precel 0.0 %
Percent tree tiow speed including passing lane, i	PFFSp1 0.0 %
Percent Time-Spent-Following with observation of the second second second second constraints of the second second second second constant of two second second second second constant second second second second second second second	n Passing Lane ective length ve length of wwing, Ld -  - %
Level of Service and Other Performance Mea	sures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TTIS	A - veh-h
Bicycle Level of Serv	ice
Posted speed limit, Sp Percent of segment with occupied on-highway park Pavement rating, P Page 2	ing 0 3

F E E	MD Future.txt iffective width of ourside lane, we iffective speed factor, st icycle LOS Score, BLOS icycle LOS	1349.0 28.00 4.79 2.68 C	
N	Notes: 1. Note that the adjustment factor for level terrain is is one of the base conditions. For the purpose of g dewngrade segments are treated as level terrain.	s 1.00, as level rade adjustment,	t s

Notes:
Note adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific demandation segments are related as level terrain.
Server the analysis direction only and for v200 veh/h.
For the analysis direction only.
For the analysis direction only.
Specific downgrade.
\* These items have been entered or edited to override calculated value

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

Phone: Fa E-Mail:	ax:	
Directional Two-Lane High	hway Segment Analysis	
Analyst Kevin Rangel Agency/co. W-Trans Date Performed Analysis Time Period W For Work Sant Welena High W For Work Sant Welena High Durisdiction Analysis Year Description Piazza Del Dotto Winery TIS	way (SR 29)	
Input Da	ata	
<pre>Highway class class 2 Peak b Shoulder with 8.0 ft % Truc Lame width 12.0 ft % Truc Segment length 2.0 mi Truck Terrain typeh Level % Recr Grade: Length - mi % Nor- Grade: Access</pre>	hour factor, PHF 0.98 Cks and buses 2 % cks crawling 0.0 % .crawl speed 0.0 mi/hr reational vehicles 2 % passing zones 91 % s point density 14 /mi	
Analysis direction volume, Vd 1699 ver Opposing direction volume, Vo 1322 ver	h/h h/h	
Average Traver	T speed	
PCE for trucks, ET PCE for trucks, ET PCE for rus, ER Heavy-vehicle adj. factor, (note-5) fHV Grade adj. factor, (note-1) fg Directional flow rate, (note-2) vi	Io*         Io           1.0*         1.0           1.000         1.000           1.000         1.000           1.00         1.00           1.00         1.00           1.734         pc/h	
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: Adj. for lane and shoulder width, (note-3) Adj. for acress noirt demsity. (note-3)	- mi/h - veh/h fLS 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 36.4 mi/h 59.3 %	

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

MD Future.txt	
Direction Analysis(d) PCE for trucks, ET 1.0° PCE for rucks, EK 1.0° PCE to adjustment factor.fnot5) 10 Grade adjustment factor.fnot5) 10 Base percent time-spent-following, (note-4) BFFSF Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFG	) Opposing (o) 1.0° 1.0° 1.00 1.000 1.000 92.7 % 8.8 97.6 %
Level of Service and Other Perfor	rmance Measures
Level of service, LOS Volume to capacity ratio, v/c Peak JS-min vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, WHIG Peak JS-min total travel time, THIS Capacity from ATS, CdATS Capacity from ATS, CdATS Directional Capacity	F 1.02 867 veh-mi 3398 veh-mi 23.8 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analysi	is
Total length of analysis segment. Lt Length of two-lane highway upstreams of the passir Length of passing lane including tapers, Lpl Average travel speed, ArSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LoSd (from above)	2.0 mi ng lane, Lu – mi - mi 36.4 mi/h 97.6 F
Average Travel Speed with Pas	ssing Lane
Domstream length of two-lame highway within effo length of passing lame for average travel sp Length of two-lame highway dowstream of effectiv length of the passing lame for average travel Adj. factor for the effect of passing lame on average speed, fol average travel speed including passing lame, ATSp Percent free flow speed including passing lame, the	ective eed, Lde - mi l speed, Ld - mi - pl - PFFSpl 0.0 %
Percent Time-Spent-Following with	h Passing Lane
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follou Length of two-lane highway downstream of effectiv the passing lane for percent time-spent-follo Agi. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following,	ective length ving, Lde - mi ve length of wing, Ld - mi - -
Level of Service and Other Derformance Marc	- 70
Level of service and other Performance Meas	sures with rassing Lane
Peak 15-min total travel time, TT15	- veh-h
Bicycle Level of Servi	ice
Posted speed limit, sp Percent of segment with occupied on-highway parki Pavement rating, P Page 2	55 0 3

Flow rate in outside lane, vol MD Future.txt Effective width of outside lane, we Effective speed factor, Stane, we Bicycle LOS Score, BLOS Bicycle LOS Score, BLOS	1733.7 28.00 4.79 2.80 C
Notes: 1. Note that the adjustment factor for level terrain is one of the base conditions. For the purpose of demgrade segments are tracted as level terrain. 2. For the analysis direction only. and finates and 4. For the analysis direction only. 5. Use alternative Exhibit 15-14 if some trucks oper specific domgrade.	is 1.00, as level terrain grade adjustment, specific is-the LOS is F. /h. ate at crawl speeds on a
* These items have been entered or edited to override	e calculated value

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

Phone: E-Mail:	Fi	ax:			
Direct	ional Two-Lane High	hway Segment	Analys	is	
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 Highi NB County of Napa 2017 Dotto Winery TIS	ject way (SR 29)			
	Input Da	ata			
Highway class Class 2 shoulder width 8. Lane width 12 Segment length 2. Terrain type Le Grade: Length - Up/down -	0 ft % True .0 ft % True 0 mi Truck vel % Rec % Acces	hour factor, cks and buse cks crawling crawl speed reational ve passing zone s point dens	PHF s hicles s ity	0.94 4 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volu Opposing direction volu	me, Vd 693 vel me, Vo 1114 vel	h/h h/h			
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) fg note-2) vi	lysis(d) 1.1* 1.0* 0.996 1.00 740 pc/	Op h	posing ( 1.0 1.00 1.000 1.00 1.85	(o) pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, ( Estimated Free-Flow Spee Base free-flow speed, (n Adj. for lane and shoul Adj. for lacess point d	eld Measurement: ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3) ensity,(note-3) fA	- 65.0 fls 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-passi Average travel speed, A Percent Free Flow Speed	ng zones, fnp TSd , PFFS	1.0* 45.4 74.0	mi∕h mi/h %		

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

DM EV	isting plus proje	CT TYT		
Direction PCE for trucks, ET PCE for RVS, ER Heavy-vehicle adjustment factor, (note-1) Directional flow rate, (note-2) vi Base percent time-spent-following, PTS Percent time-spent-following, PTS	Analysis(d) 1.0* 1.0* fHV 1.000 fg 1.00 fg 1.00 737 p (note-4) BPTSFd fnp Fd	c/h 71.4 17.8 78.2	Opposing 1.0* 1.0 1.000 1.00 1185 %	(o) pc/h
Level of Service	and Other Perform	ance 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 Peak 15-min total travel time, TT Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	el, VMT15 , VMT60 15	D 0.43 369 1386 8.1 1700 1700 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Pass	ing Lane Analysis			
Total length of analysis segment, Length of two-lane highway upstre Length of passing lane including Average travel speed, ATSd (from Percent time-spent-following, PTS Level of service, LoSd (from abov	Lt am of the passing tapers, Lpl above) Fd (from above) e)	lane, I	2.0 - 45.4 78.2 D	mi mi mi/h
Average Travel	Speed with Pass	ing Lan		
Downstream length of two-lane hig length of passing lane for av Length of two-lane highway downst length of the passing lane fo Adj. factor for the effect of pas on average speed, fpl Average travel speed including pa Percent free flow speed including	hway within effec erage travel spee ream of effective r average travel sing lane ssing lane, ATSpl passing lane, PF	tive d, Lde speed, I FSpl	- - - 0.0	mi mi %
Percent Time-Spen	t-Following with	Passing	Lane	
Downstream length of two-lane hig of passing lane for percent t Length of two-lane highway downst the passing lane for percent adj. factor for the effect of pas percent time-spint-following including passing lane prssn including passing lane prssn	hway within effec ime-spent-followi ream of effective time-spent-follow sing lane ng, fpl 1	tive le ng, Lde length ing, Ld	of -	mi mi
Lougl of Convice and Other	Derformance Meacure	non witt	Deceine	
Level of service including passin Peak 15-min total travel time, TT	perrormance Measu g lane, LOSpl 15	A -	veh-h	Lane
Bicycl	e Level of Servic	e		
Posted speed limit, Sp Percent of segment with occupied Pavement rating, P	on-highway parkin Page 2	g	55 0 3	

PM Existing plus Project.txt	737.2
Effective width of outside vol.	28.00
Effective speed factor, st	4.79
Bicycle LOS Score, BLOS	2.89
Bicycle LOS	C
Notes: 1. Note that the adjustment factor for level terrain is 1 is one of the base conditions. For the purpose of grad- demgrade segments are treated as level terrain. 2. If vi (vd or vo ) $>= 1.700 \text{ pc/h}$ , terminate analysis-th 3. For the analysis direction only and for v>200 veh/h.	.00, as level terrain le adjustment, specific le LOS is F.

For the analysis direction only and for v>200 wh/h.
 For the analysis direction only,
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific domignade.
 \* These items have been entered or edited to override calculated value

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

Phone: Fax: E-Mail:			
Directional Two-Lane Highway	Segment A	nalysis	
Analyst Kevin Rangel Agency/co. W-Trans Date Performed 10/02/2018 Analysis Time Period M Stisting + Project Arosti Kellen Highway ( From/Yo SB trit Melena Highway) Jurisdiction County of Napa Analysis Year Description Piazza Del botto winery TIS	SR 29)		
Input Data			
Highway class class 2 Peak hour Shoulder width 8.0 ft % Trucks a Lane width 12.0 ft % Trucks a Segment length 2.0 mi Terrain type Level % Recreati Grade: Length - mi % No-passi Up/down - % Access poi	factor, P nd buses rawling 1 speed onal vehi- ng zones nt densit	HF 0.94 4 0.0 0.0 cles 2 91 y 14	% mi/hr % % /mi
Analysis direction volume, vd 1114 veh/h Opposing direction volume, vo 693 veh/h			
Average Travel Spe	ed		
Direction Analysis PCE for trucks, ET 1.0° PCE for Rvs, E& 1.0° Heavy-vehicle adj. factor,(note-5) fiv 1.00 Grade adj. factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 1185	(d) 0 pc/h	Opposing 1.1 1.0 0.996 1.00 740	(o) pc/h
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	- 65.0 0.0 3.7*	ni/h veh/h ni/h ni/h ni/h	
Free-flow speed, FFSd	61.3	mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.7* 44.7 72.9	mi∕h mi∕h ‰	

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

PM Existing plus Pro	ject.txt
plraction Analysis PEE for rurks, ET 1.0° PEE for rws, EK 1.0° Heav-vehicle adjustment factor, fiv. 1.000 Grade adjustment factor, (nots-1)/f 1.000 Base percent time-spent-following, (note-4) BMTS Adjustment for no-bassing zones, fing Hercent time-spent-following, fitsd	i) Opposing (o) 1.0° 1.0° 1.00 1
Level of Service and Other Perfo	rmance Measures
Level of service, LOS Volume to capacity ratio, v/c Peak JS-min vehicle-miles of travel, WHID Peak-hour vehicle-miles of travel, WHT60 Peak JS-min total travel time, THIS Capacity from ATS, CAMTS Capacity from PTSF, CAMTSF Directional Capacity	E 0.70 593 veh-mi 2228 veh-mi 13.3 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analys	is
Total length of analysis segment. Lt Length of two-lane highway upstreams of the passi 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 mi - mi - mi 44.7 mi/h 91.3 E
Average Travel Speed with Pa	ssing Lane
Downstream length of two-lane highway within eff length of passing lane for average travel sp used the passing blane for an off off true states of the passing blane for an off off true and the space speed, for average travel speed including passing lane, ATS Percent free flow speed including passing lane, ATS	fective ved, Lde - mi tre spl - PFFSpl 0.0 %
Percent Time-Spent-Following wit	h Passing Lane
Downstream length of two-lane highway within aff of passing lane for percent time-spent-foll the passing lane for percent time-spent-foll the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	fective length wing, Lde - mi ive length of lowing, Ld - mi - - %
Level of Service and Other Performance Mea	sures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - veh-h
Bicycle Level of Serv	rice
Posted speed limit, Sp Percent of segment with occupied on-highway park Pavement rating, P Page 2	55 0 3

PM Existing plus Project.txt	1185.1
Effective width of outside vol.	28.00
Effective speed factor, st	4.79
Bicycle LOS Sore, BLOS	3.13
Bicycle LOS Sore, BLOS	C
Notes: 1. Note that the adjustment factor for level terrain is i is one of the base conditions. For the purpose of gra- demograde segments are treated as level terrain. 2. If vi (vd or vo ) >= 1.700 pc/h, terminate analysis-ti 3. For the analysis direction only and for v>200 web/h	L.OO, as level terrain de adjustment, specific ne LOS is F.

For the analysis direction only. Herminate analysis-the Lus is F.
 For the analysis direction only.
 Grant analysis direction only.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific domgrade.
 These items have been entered or edited to override calculated value

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

Phone: Fax: E-Mail:		
Directional Two-Lane Highway	Segment Anal	/sis
Analyst Kevin Rangel Agency/co. W-Trans Date Performe 10/02/2018 Analysis Time Period Skisting + Project Hrom/Yo Sint Helena Highway ( Jurisdiction County of Napa Analysis Year Description Plazza Del Dotto Winery TIS	SR 29)	
Input Data		
Highway class class 2 Shoulder with 8.0 ft % Trucks a Lane width 12.0 ft % Trucks c Segment length 2.0 mi Tuck craw Terrain typeh Grade: Length - mi % Norpassi Access poi	factor, PHF nd buses rawling 1 speed onal vehicle ng zones nt density	0.98 2 % 0.0 % 0.0 mi/hr 2 % 91 % 14 /mi
Analysis direction volume, Vd 1157 veh/h Opposing direction volume, Vo 1028 veh/h	ad	
Direction Analysis PCE for trucks, ET 1.0° PCE for RNS ER 1.0° Heavy-vehicle adj. factor, (note-5) fHV 1.00 Grade adj. factor, (note-1) fg 1.00 Directional flow rate, (note-2) vi 1183	(d) 0 pc/h	Dpposing (o) 1.0 1.00 1.000 1.00 1.00 1049 pc/h
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) fA Adj. for access point demsity,(note-3) fA	- mi/ - veh 65.0 mi/ 0.0 mi/ 3.7* mi/	h h h
Free-flow speed, FFSd	61.3 mi/	n
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.0* mi/ 43.0 mi/ 70.1 %	1

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

MD Existing plus Proje	ct.txt			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	c/h 82.6 15.1 90.6	opp % %	osing 1.0* 1.00 1.000 1.00 1049	(o) pc/h
Level of Service and Other Perform	ance Me	asu	res	
Lavel of service, LOS Volmeto capacity ratio, v/c Peak IS-win vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, WHOO Peak IS-min total travel time, THIS Capacity from ATS, CATS Capacity from ATS, CATS Directional Capacity	E 0.69 590 2314 13.7 0 1700 1700	VI VI VI VI VI	eh-mi eh-mi eh-h eh/h eh/h eh/h	
Passing Lane Analysis				
Total length of analysis segment. Lt Length of woo-lame hidway upstream of the passing Length of passing lame including tapers, Lpl Average travel speed, Arsd (from above) Percent time-spent-following, PTSFd (from above) Level of service, Losd (from above)	lane,	LU	2.0 - 43.0 90.6 E	mi mi mi/h
Average Travel Speed with Pass	ing Lan	ne		
Domstraan langth of two-lane highway within effect langth of gassing lane for average travel spee Length of two-lane highway domstraan of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, PF Percent free flow speed including passing lane, PF	tive d, Lde speed, FSpl	Ld	- - 0.0	mi mi %
Percent Time-Spent-Following with	Passing	) Lai	ne	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-follow 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, fpl including passing lane, PTSFpl	tive le ng, Lde length ing, Ld	of	1 	mi mi %
Level of Service and Other Performance Measu	res wit	h Pi	assing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	v	eh-h	
Bicycle Level of Servic	e			
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	g	55 0 3		

Flow rate in outside lane. ND Existing plus Project.txt	1180.6
Effective width of outside lane, we	28.00
Effective speed factor st	4.79
Bicycle LOS Score, BLOS	2.61
Bicycle LOS Score, BLOS	C
Notes: 1. Note that the adjustment factor for level terrain is is one of the base conditions. For the purpose of gr demograde segments are treated as level terrain. 2. If vi (vd or vo ) >= 1.700 pc/h, terminate analysis. 3. For the analysis direction only and for v>200 veh/h.	1.00, as level terrain ade adjustment, specific the LOS is F.

For the analysis direction only. Herminate analysis-the Lus is F.
 For the analysis direction only.
 Grant analysis direction only.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific domgrade.
 These items have been entered or edited to override calculated value

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

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment	Analysi	s	
Analyst Kevin Rangel Agency/Co. W-Trans Date Performed 10/02/2018 Analysis Time Period Wo Existing = Project Work Stating = Project From/Yo Sant Helena Highway ( Jurisdiction County of Napa Analysis Year Description Piazza Del Dotto Winery TIS	SR 29)			
Input Data				
Highway class Class 2 Shoulder with 8.0 ft % Trucks a Soulder with 12.0 ft % Trucks ( Segment length 2.0 mi Trucks ( Terrain type Level % Recreati Grade: Length - mi % No-passi Up/Gown - % Access poi	factor, nd buses rawling l speed onal veh ng zones nt densi	PHF icles ty	0.98 0.0 0.0 91 14	% mi/hr % % /mi
Analysis direction volume, Vd 1028 veh/h Opposing direction volume, Vo 1157 veh/h				
Average Travel Spe	ed			
Direction Analysis PCE for trucks, ET 1.0° PCE for RVs, ER 1.0° Heavy-vehicle adj. factor,(note-5) fHV 1.00 Grade adj. factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 1.049	(d) 0 pc/h	Opp	osing ( 1.0 1.00 1.000 1.00 1.81	o) pc/h
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed, (note-3) BFFS Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note-3) fAS	- - 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-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.0* 43.0 70.1	mi∕h mi/h %		

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

MD Existing plus Proj	ect.txt
plenetion Analysis(d) PCE for trucks, ET 1.0° PCE for rucks, ER 1.0° Heavy-vehicle adjustment factor, finv Grade adjustment factor, finote 1.0° Grade adjustment factor, finote 1.0° Base percent time-spent-following (note-4) BPFSF4 Adjustment for no-passing zones, fino Percent time-spent-following, PTSF4	opposing (o) 1.0* 1.00 1.00 1.000 1.000 1.
Level of Service and Other Perfor	mance Measures
Level of service, LOS Volume to capacity ratio, v/c Peak JS-min vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, WHEO Peak JS-min total travel time, THIS Capacity from ATS, CdATS Capacity from ATS, CdATS Directional Capacity	E 0.62 524 veh-mi 2056 veh-mi 12.2 veh-h 1700 veh/h 1700 veh/h
Passing Lane Analysi	s
Total length of analysis segment. Lt Length of woo-lame highway upstream of the passin Length of passing lame including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	g lane, Lu – mi – mi 43.0 mi/h 88.4 E
Average Travel Speed with Pas	sing Lane
Downstream length of two-lane highway within effe length of passing lane for average travel spo length of the passing lane for average travel Adj. factor for the effect of passing lane for average travel speed including passing lane, ATSP Percent free flow speed including passing lane, ATSP	ctive ed, Lde - mi speed, Ld - mi ,1 - FFFSp1 0.0 %
Percent Time-Spent-Following with	Passing Lane
Domstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway domstream of effectiv the passing lane for percent time-spent-follo Adj. Tactor for the effect of passing lane Percent time-spent-following or	ctive length ring, Lde – mi e length of wing, Ld – mi –
including passing lane, PTSFpl	- %
Level of Service and Other Performance Meas	ures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - veh-h
Bicycle Level of Servi	ce
Posted speed limit, Sp Percent of segment with occupied on-highway parki Pavement rating, P Page 2	ng 0 3

ND Existing plus Project.tx	t
Effective width of outside lane, we	28.00
Effective speed factor, st	4.79
Bicycle LOS Score, BLOS	2.55
Bicycle LOS	C
Notes: 1. Note that the adjustment factor for level terrain is is one of the base conditions. For the purpose of gr demograde segments are treated as level terrain. 2. If vi (vod or vo) = 1,700 pc/h, terminate analysis-	1.00, as level terrain ade adjustment, specific the LOS is F.

If vi (vd or vo ) = 1,700 pc/m, terminate analysis-the LOS is F.
 For the analysis direction only and for vs200 vel/h.
 For the analysis direction only
 For the analysis direction only
 Signification of the state of t

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

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment A	nalysis		
Analysto. Kevin Rangel Agency/co. W-Trans Date Performed 10/02/2018 Analysis Time Period Picture + Project Analysis Time Period Picture + Project Prom/ro Net Time Picture + Picture Jurisdiction County of Napa Analysis Year Description Piazza Del Dotto winery TIS	(SR 29)			
Input Data				
Highway class Class 2 Peak hour Shoulder width 8.0 ft % Trucks Lane width 12.0 ft % Trucks Segment length 2.0 mi Truck cr: Terrain type Level % Recreat Grade: Length - mi % No-pass Up/down - % Access pr	factor, P and buses crawling wl speed ional vehi ing zones int densit	HF 0 4 cles 2 9 y 1	.94 .0 .0 1 4	ն Մi/hr Տ Հ/mi
Analysis direction volume, Vd 794 veh/h Opposing direction volume, Vo 1846 veh/h Average Travel Sr	eed			
Direction Analysi PCE for trucks, ET 1.1 PCE for RVS, ER 1.1 PCE for RVS, ER 1.1 Evay-vehicle adj. factor,(note-3) fHV 0.5 Grade adj. factor,(note-2) fg 1.6 Directional flow rate,(note-2) vi 844	s(d) 96 0 pc/h	Орро	sing (o 1.0 1.00 1.000 1.00 1964	) pc/h
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) 5 FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFS Adj. for lane and shoulder width, (note-3) fil Adj. for access point demsity, (note-3) fa	- - 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-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	0.7* 38.8 63.3	mi∕h mi∕h %		

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

PM Future plus Project	t.txt		
oirection analysis(d) PCE for rucks, ET 1.0* PCE for rucks, ET 1.0* 1.0* Grade adjustment factor, fwv 1.000 Grade adjustment factor, (not+1) fg 1.00 Base percent lime-spent-following, (not+4) BFTSF Adjustment for no-passing zones, fng, PTSF	c/h 78.3 14.2 82.6	0pposing ( 1.0 1.0 1.000 1.000 1.00 1964 %	o) pc/h
Level of Service and Other Perform	ance Mea	sures	
Level of service. LOS volume to capacity ratio, v/C Peak JS-min vehicle-miles of travel, VMTIS Peak-hour vehicle-miles of travel, VMT60 Peak JS-min total travel time, TTIS Capacity from PTSF, CdPTSF Directional Capacity	F 0.50 422 1588 10.9 1700 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 Average travel speed, ArtSd (from above) Percent time-spent-following, PTSd (from above) Level of service, LOSd (from above)	lane, L	2.0 - - 38.8 82.6 F	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel spee length of the passing lane for average travel, adj. factor for the effect of passing lane on average speed, fpl average travel speed including passing lane, FFP Percent free flow speed including passing lane, FFP	tive d, Lde speed, L FSpl	- d - - 0.0	mi mi %
Percent Time-Spent-Following with	Passing	Lane	
Domstream length of two-lame highway within effect of passing lame for percent time-spent-followi Length of two-lame highway downstream of effective the passing lame for percent time-spent-follow Adj. factor for the effect of passing lame on percent time-spent-following, fpl	tive len ng, Lde length ing, Ld	gth of -	mi mi
Percent time-spent-following including passing lane, PTSFpl		-	%
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, TT15	A -	veh-h	
Bicycle Level of Service	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	9	55 D 3	

# PW Puture plus Project.tt 844.7 Effective width of outside lane, we 24.00 Effective width of outside lane, we 24.00 Effective width of outside lane, we 24.00 Effective los score, BLOS Effective los score, BLOS Effective los score, BLOS Notes: ta one of the base conditions. For the purpose, of grade adjustment, specific 1: sone of the base conditions. For the purpose, of grade adjustment, specific 2: If v1 (vd or vo ) >= 1700 pc/h, terminate analysis-the LOS is F. 1: For the analysis direction only and for vo 200 ve/h. 4: be ilternative Schibit 13-14 if some trucks operate at crawl speeds on a specific domograde. \* 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:	F	ax:			
Direct	ional Two-Lane Hig	hway Segment	Analys	is	
Analyst Kevin Rangel w-Trans Rangel Agency/Co. w-Trans Back performed J0/C/2018 Highway Experiment Analysis From/To Saint Helman Highway (Sk 29) From/To Sa Jurisdic var Bescription Plazza Del Dotto winery TIS					
	Input D	ata			
Highway class Class 2 shoulder width 8. Lane width 12 Segment length 2. Terrain type Le Grade: Length - Up/down -	0 ft % Tru .0 ft % Tru 0 mi Truck vel % Rec mi % No- % Acces	hour factor, icks and buse icks crawling crawl speed reational ve passing zone is point dens	PHF s hicles s ity	0.94 4 0.0 0.0 2 91 14	% mi/hr % % /mi
Analysis direction volu Opposing direction volu	me, Vd 1846 ve me, Vo 794 ve	eh/h eh/h			
	Average Trave	i speed			->
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(	or,(note-5) fHV -1) fg note-2) vi	1.0* 1.0* 1.000 1.000 1964 pc/	h	1.1 1.0 0.996 1.00 848	pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, ( Estimated Free-Flow Spee Base free-flow speed, (n Adj. for lane and shoul Adj. for laccess point d	eld Measurement: ote-3) S FM note-3) V ed: ote-3) BFFS der width,(note-3) ensity,(note-3) ff	- - fls 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-passi Average travel speed, A Percent Free Flow Speed	ng zones, fnp TSd , PFFS	1.4* 38.1 62.1	mi/h mi/h %		

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

PM Future plus Project	t.txt
oirsettion         Analysis(d)           PCE for rucks, ET         1.0*           PCE for rucks, ET         1.0*           Of ade adjustment factor, fwv         1.00           Grade adjustment factor, fore-3.1         1.00           Base percent lime-spent-following, (note-4.)         1.00           Adjustment factor, fore-3.1         1.00           Percent lime-spent-following, note-4.)         1.00           Adjustment factor, fore-3.1         1.00           Percent lime-spent-following, Prised         1.00	Opposing (o) 1.0° 1.00 1.00 1.00 2.00 % 92.0 % 14.2 100.0 %
Level of Service and Other Perform	ance Measures
Level of service, LOS Volume to Capacity ratio, v/C Peak JS-min vehicle-miles of travel, WHIS Peak-hour vehicle-miles of travel, WHF0 Peak JS-min total travel time, THIS Capacity from PTSF, CdPTSF Directional Capacity	F 1.16 982 veh-mi 3692 veh-mi 25.8 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analysis	
Total length of analysis segment. Lt length of woo-lame highway usprtaams of the passing Length of massing lame including tapers, Lpl Average travel speed, Arsd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, Lu 2.0 mi - mi - mi - 38.1 mi/h - 00.0 F
Average Travel Speed with Pass	ing Lane
Domstream length of two-lame highway within effect length of passing lame for average travel spee Length of two-lame highway domstream of effective length of the passing lame for average travel add. factor for the effect of passing lame active speed, fpl average travel speed including passing lame, ATSpl Percent free flow speed including passing lame, PF	tive d,Lde – mi speed,Ld – mi - - FSp1 0.0 %
Percent Time-Spent-Following with	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 Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	tive length ng, Lde - mi Iength of ing, Ld - mi -
Lough of Convice and Other Declements Measure	- ,o
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 parkin Pavement rating, P Page 2	55 0 3

PM Future plus	Project.txt
Flow rate in outside lane, vol.	1963.8
Effective width of outside lane, we	28.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.39
Bicycle LOS	C
Notes:	terrain is 1.00, as level terrain
1. Note that the adjustment factor for level	rpose of grade adjustment, specific
is one of the basic conditions, for the pu	errain.
2. If Vi (dor vo ) >= .1700 pc/h. terminat	e analysis-the LOS is F.
2. or the analysis direction only and for v	2200 veh/h.
5. Use alternative Exhibit 15-14 <sup>1</sup> F some tru	cks operate at crawl speeds on a
specific downgrade.	override calculated value

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

Phone: Fax: E-Mail:				
Directional Two-Lane Highway	Segment	Analys	is	
Analyst Kevin Kangel Agency/Co. W-Trans Back performer Data performer Highway From/To Saint Heina Highway (SR 29) From/To Saint Heina Highway (SR 29) From/To Bescription Bescription Bescription Bescription Plazza Del Dotto winery TIS				
Input Data				
Highway class Class 2 Peak hour Shoulder width 8.0 ft % Trucks a Lane width 12.0 ft % Trucks of Segment length 2.0 mi Truck craw Terrain type Level % Recreati Grade: Length - mi % No-passi Qrode: Access poi	factor, nd buses rawling 1 speed onal ver ng zones nt densi	PHF icles ty	0.98 2 0.0 0.0 2 91 14	% mi/hr % /mi
Analysis direction volume, Vd 1326 veh/h Opposing direction volume, Vo 1705 veh/h				
Average Travel Spe	ed			
Direction Analysis PCE for trucks, ET 1.00 PCE for RVS, ER 1.00 Heavy-vehicle adj. factor,(note-5) fHV 1.00 Grade adj. factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 1353	(d) 0 pc/ł	Op	005ing ( 1.0 1.00 1.000 1.00 1740	o) pc/h
Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed, (note-3) BFFS Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note-3) fLS Adj. for access point demsity, (note-3) fA	- - 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-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	0.7* 36.6 59.7	mi∕h mi∕h %		

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

MD Future plus Pro	iect.txt
pirection analysis PEE For ruxes, ET align PEE for rux, ER Haav-vehicle adjustment factor, fiv 1.000 Grade adjustment factor, fiv 1.000 Grade adjustment factor, fiv 1.000 Base percent lime-spent-following, (note-4) BPTS Adjustment for no-passing zones, fip Percent lime-spent-following, FISFd	- d) opposing (o) 1.0° 1.00 1.000 1.000 pc/h 1740 pc/h Fd 89.4 % 8.8 93.2 %
Level of Service and Other Perf	ormance Measures
Level of service. LOS volume to Capacity ratio, v/c Peak.JS-min vehicle-miles of ravel, WHIS Peak-hour vehicle-miles of ravel, WHSO Peak-JS-min total travel time, TLIS capacity from ATS, CdATS Capacity from ATS, CdATS Directional Capacity	F 0.80 677 veh-mi 2652 veh-mi 18.5 veh-h 1700 veh/h 1700 veh/h 1700 veh/h
Passing Lane Analy	sis
Total length of analysis segment, Lt length of two-lane highway ustreams of the pass Length of passing lane including tapers, Lpl Average travel speed, Arts (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	2.0 mi - mi - mi 36.6 mi/h 93.2 F
Average Travel Speed with P	assing Lane
Downstream length of two-lame highway within ef- length of passing lame for average travels length of the passing lame for average travel Adj. factor for the effect of passing lame on average speed, fpl Average travel speed including passing lame, AT Percent free flow speed including passing lame, AT	fective peed,Lde - mi ive el'speed,Ld - mi spl - PFFSpl 0.0 %
Percent Time-Spent-Following wi	th Passing Lane
Downstream length of two-lane highway within ef of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect the passing lane for percent time-spent-fol Adj. factor for the effect of passing lane on percent time-spent-following fml	fective length owing, Lde - mi ive length of lowing, Ld - mi -
Percent time-spent-following including passing lane, PTSFpl	- %
Level of Service and Other Performance Me	asures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - veh-h
Bicycle Level of Ser	vice
Posted speed limit, Sp Percent of segment with occupied on-highway par Pavement rating, P Page 2	55 0 3

Flow rate in outside lane, vO Future plus Project.	txt
Effective width of outside lane, we	1353.1
Effective south of across	28.00
Effective south of across	4.79
Bicycle LOS score, BLOS	2.68
Bicycle LOS score, BLOS	C
Notes: 1. Note that the adjustment factor for level terrain is one of the base conditions. For the purpose or dewngrade segments are treated as level terrain. 2. If vi (vd or vo) >= 1.700 uc/h. terminate analy:	n is 1.00, as level terrain f grade adjustment, specific sis-the LOS is F.

If wi (vd or vo) >= 1,700 pc/n, terminate analysis-the LOS is F.
 For the analysis direction only and for v=200 velv/h.
 For the analysis direction only
 Some the dominate of the provided o

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

Phone: Fax: E-Mail:			
Directional Two-Lane Highway	Segment Analysis		
Analyst Kevin Kangel W-Trans Agency/comed W-Trans Agency/comed W-Trans Baging State Period Highway Saint Helena Highway (SR 29) From/To Basint Helena Highway (SR 29) From/To Basint Helena Highway (SR 29) Basint Helena Highway (SR 20) Basint Helen			
Input Data			
Highway class class 2 Shoulder with 8.0 ft % Trucks a Lane width 12.0 ft % Trucks c Segment length 2.0 mi Tuck craw Terrain typeh Grade: Length - mi % Norpassi Access poi	factor, PHF 0.98 nd buses 2 rawling 0.0 l speed 0.0 onal vehicles 2 ng zones 91 nt density 14	% mi/hr % /mi	
Analysis direction volume, Vd 1705 veh/h Opposing direction volume, Vo 1326 veh/h	ed		
Direction Analysis PCE for trucks, ET 1.0° PCE for RNS ER 1.0° Heavy-vehicle adj. factor, (note-5) fHV 1.00 Grade adj. factor, (note-1) fg 1.00 Directional flow rate, (note-2) vi 1744	(d) Opposing (d 1.0 0 1.00 0 1.000 pc/h 1353	pc/h	
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) fA 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 36.3 mi/h 59.2 %		

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

MD Future plus Projec	t.txt		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	c/h 92.8 8.8 97.8	Opposi 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ng (o) 0 000 000 53 pc/h
Level of Service and Other Perform	ance Me	asures_	
Level of service, Los Volume to capacity ratio, v/c Peak JS-min vehicle-miles of travel, WMT15 Peak-hour vehicle-miles of travel, VMT60 Peak JS-min total travel time, TT15 Capacity from ATS, CAPTSF Directional Capacity	F 870 3410 24.0 0 1700 1700	veh-n veh-n veh-h veh/h veh/h	ni 11
Passing Lane Analysis			
Total length of analysis segment. Lt Length of woo-lawe hidway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, arSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LoSd (from above)	lane,	2.0 - - 36. 97. F	0 mi mi 3 mi/h 8
Average Travel Speed with Pass	ing Lan	e	
Downstream length of two-lane highway within effect length of passing lane for average travel spee Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel, speed including passing lane, ATSpl	tive d, Lde speed,	- Ld -	mi mi
Percent tree flow speed including passing lane, PF	FSpT	0.0	5
Percent Time-Spent-Following with Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow	Passing tive le ng, Lde length ing, Ld	Lane ngth of	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res wit	h Passi	ng Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TTIS	A -	veh-h	
Bicycle Level of Servic	e		
Posted speed limit, Sp Percent of segment with occupied on-highway parkin Pavement rating, P Page 2	9	55 0 3	

MO Future plus Project.tx Effective width of outside lane, we Effective speed factor, St. Bicycle LOS Score, BLOS Bicycle LOS Score, BLOS	t 1739.8 28.00 4.79 2.81 C
Notes: 1. Note that the adjustment factor for level terrain i is one of the base conditions. For the purpose of o	s 1.00, as level terrain rade adjustment, specific
dewngrade segments are treated as level terrain.	-the LOS is E

demigrade Seguents are treated as level terrain. Second and the seguent of the second as the second

# Appendix D

Traffic Count Data and Driveway Count Summary





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Day: Saturday Date: 1/13/2018

			NB		SB		EB		WB						T	otal		
	DAILT	IUTALS			0		0		68		68						1	136
AM Period	NB	SB	EB		WB		тот	<b>TAL</b>	PM Period	NB		SB	EB		WB		TC	DTAL
00:00			0		0		0		12:00				2		1		3	
00:15			0		0		0		12:15				0		0		0	
00:30			0		0		0		12:30				6		3		9	
00:45			0		0		0		12:45				2	10	1	5	3	15
01:00			0		0		0		13:00				1		1		2	
01:15			0		0		0		13:15				0		1		1	
01:30			0		0		0		13:30				2	c	2	-	4	12
01:45			0		0		0		13:45				3	6	3	/	0	13
02.00			0		0		0		14.00				4		4		0	
02:13			0		0		0		14.15				2		1		2	
02:30			0		0		0		14:30				3	10	2	9	5	19
03:00			0		0		0		15:00				3	10	2		5	15
03:15			Ő		õ		Ő		15:15				2		1		3	
03:30			Ő		õ		Ő		15:30				4		3		7	
03:45			Ō		Ō		0		15:45				0	9	1	7	1	16
04:00			0		0		0		16:00				0		1		1	
04:15			0		0		0		16:15				0		2		2	
04:30			0		0		0		16:30				2		4		6	
04:45			0		0		0		16:45				4	6	1	8	5	14
05:00			0		0		0		17:00				1		3		4	
05:15			0		0		0		17:15				0		2		2	
05:30			0		0		0		17:30				1		2		3	
05:45			0		0		0		17:45				1	3	7	14	8	17
06:00			0		0		0		18:00				1		1		2	
06:15			0		0		0		18:15				0		1		1	
06:30			0		0		0		18:30				0		1		1	_
06:45			0		0		0		18:45				0	1	1	4	1	5
07:00			0		0		0		19:00				0		0		0	
07:15			0		0		0		19:15				0		1		1	
07:30			0		0		0		19.50				0		1	1	1	1
07.43			0		2		2		20:00				0		0	1	0	
08.00			0		0		0		20.00				0		0		0	
08:30			Ő		õ		Ő		20:30				Ő		õ		Ő	
08:45			Ő		1	3	1	3	20:45				0		Õ		Ő	
09:00			0		0	-	0	-	21:00				0		0		0	
09:15			0		0		0		21:15				0		0		0	
09:30			5		1		6		21:30				0		0		0	
09:45			3	8	0	1	3	9	21:45				0		0		0	
10:00			1		1		2		22:00				0		0		0	
10:15			3		1		4		22:15				0		0		0	
10:30			1		2		3		22:30				0		0		0	
10:45			1	6	0	4	1	10	22:45				0		0		0	
11:00			0		0		0		23:00				0		0		0	
11:15			5		4		9		23:15				0		0		0	
11:30			4	<u> </u>	1	-	5	1.4	23:30				0		0		0	
11:45			0	<u> </u>	0	12	0	14	23:45				0	45	0		0	100
				23		13		30						45		55		100
SPLIT %				63.9%		36.1%		26.5%	SPLIT %					45.0%	)	55.0%		73.5%
	ΠΔΙΙΥ	τοταις			NB		SB		EB		WB						Т	otal
		TOTALS			0_		0		68		68_						1	136

AM Peak Hour			09:30	10:30	11:15	PM Peak Hour			14:45	17:00	13:30
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	0	3	3	4 - 6 Volume	0	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				3	3	4 - 6 Pk Volume			7	14	17
Pk Hr Factor	0.000	0.000	0.000	0.375	0.375	Pk Hr Factor	0.000	0.000	0.438	0.500	0.708

Day: Sunday Date: 1/14/2018

City: Napa
Project #: CA18\_8026\_001

			NB		SB		EB		WB						Т	otal		
	DAILT	UTALS			0		0		69		75						1	44
AM Period	NB	SB	EB		WB		TOT	AL	PM Period	NB		SB	EB		WB		тс	TAL
00:00			0		0		0		12:00				0		1		1	
00:15			0		0		0		12:15				4		0		4	
00:30			0		0		0		12:30				2		2		4	
00:45			0		0		0		12:45				3	9	2	5	5	14
01:00			0		0		0		13:00				3		1		4	
01:15			0		0		0		13:15				3		3		6	
01:30			0		0		0		13:30				6		2		8	
01:45			0		0		0		13:45				2	14	3	9	5	23
02:00			0		0		0		14:00				1		2		3	
02.15			0		0		0		14.15				0		2		2 1	
02:30			0		0		0		14.30				2	4	1	6	2	10
03:00			0		0		0		15:00				2		5	0	7	
03.15			0		0		0		15:15				4		4		8	
03:30			õ		Õ		Ő		15:30				2		5		7	
03:45			Õ		Õ		Õ		15:45				2	10	Ő	14	2	24
04:00			0		0		0		16:00				1		2		3	
04:15			0		0		0		16:15				1		0		1	
04:30			0		0		0		16:30				0		2		2	
04:45			0		0		0		16:45				1	3	2	6	3	9
05:00			0		0		0		17:00				1		0		1	
05:15			0		0		0		17:15				0		2		2	
05:30			0		0		0		17:30				0		2		2	
05:45			0		0		0		17:45				1	2	5	9	6	11
06:00			0		0		0		18:00				0		4		4	
06:15			0		0		0		18:15				0		1		1	
06:30			0		0		0		18:30				0		1		1	
06:45			0		0		0		18:45				1	1	6	12	7	13
07:00			0		0		0		19:00				0		2		2	
07:15			0		0		0		19:15				0		0		0	
07:30			0		0		0		19:30				0		0	2	0	2
07.45			0		0		0		20:00				0		0	2	0	
08.00			0		0		0		20:00				0		0		0	
08.30			0		0		0		20:15				0		0		0	
08:45			õ		Õ		Ő		20:45				Ő		Ő		õ	
09:00			0		0		0		21:00				0		0		0	
09:15			1		2		3		21:15				0		0		0	
09:30			4		2		6		21:30				0		0		0	
09:45			4	9	1 !	5	5	14	21:45				0		0		0	
10:00			1		1		2		22:00				0		0		0	
10:15			1		1		2		22:15				0		0		0	
10:30			1		0		1		22:30				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			4		3		7		23:15				0		0		0	
11:30			3	10	1	_	4	17	23:30				0		0		0	
11:45			4	26	1	5	5	29	23:45				0	10	0	62	0	106
				20	21		-	30						45		50 404		72.00
SPLII %				08.4%	31	1.0%	2	20.4%	SPLII %					40.6%		59.4%		73.6%
	DAILYT	OTALS_		_	NB		SB		EB		WB						Т	otal
					0		•		<u> </u>		75						1	A A

				U	U	05	,,,				7.444
AM Peak Hour			11:00	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			0.750	0.750	0.607	Pk Hr Factor			0.625	0.750	0.781
7 - 9 Volume	0	0	0	0	0	4 - 6 Volume	0	0	5	15	20
7 - 9 Peak Hour						4 - 6 Peak Hour			16:00	17:00	17:00
7 - 9 Pk Volume					0	4 - 6 Pk Volume			3	9	11
Pk Hr Factor	0.000	0.000	0.000	0.000	0.000	Pk Hr Factor	0.000	0.000	0.750	0.450	0.458

Day: Monday Date: 1/15/2018

				NB	SB		EB	1	WB					T	otal
	DAILTIC	JIALS		0	0		23		28						51
AM Period	NB	SB EB		WB	тот	AL	PM Period	NB		SB	EB	WB	3	тс	DTAL
00:00		0		0	0		12:00				0	1		1	
00:15		0		0	0		12:15				1	0		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		0		0	0		13:00				1	1		2	
01:15		0		0	0		13:15				0	0		0	
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		14:00				2	2		4	
02:15		0		0	0		14:15				1	1		2	
02:30		0		0	0		14:30				0	0		0	-
02:45		0		0	0		14:45				0 3	0	3	0	6
03:00		0		0	0		15:00				0	0		0	
03:15		0		0	0		15:15				1	6		/	
03:30		0		0	0		15:30				1	2	0	3	12
03:45		0		0	0		15:45				<u>Z 4</u>	<u> </u>	ð	2	12
04:00		0		0	0		16.00				1	3		5	
04.15		0		0	0		16:30				0	1		1	
04.30		0		0	0		16:45				0 1	0	4	0	5
05:00		0		0	0		17:00				0 1	2	4	2	
05:15		0		0	0		17.00				0	2		2	
05:30		1		Ő	1		17:30				0	0		0	
05:45		0	1	Ő	0	1	17:45				Õ	1	5	1	5
06:00		0		0	0		18:00				0	2		2	-
06:15		0		1	1		18:15				0	0		0	
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		0		0	0		19:15				1	0		1	
07:30		0		0	0		19:30				0	0		0	
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		20:30				0	0		0	
08:45		0		0	0		20:45				0			0	
09:00		0		U	0		21:00				0	U		0	
09:15		0		0	0		21:15				0	0		0	
09:30		0	r			4	21:30				0	0		0	
10:00		3	5	0 1	3	4	21.45				0	0		0	
10.00		0		0	1		22.00				0	0		0	
10.15		1		0	1		22:15				0	0		0	
10:30		0	2	0	0	2	22:45				0	0		0	
11:00		1	-	0	1	-	23:00				0	0		0	
11:15		0		Õ	ō		23:15				0	Ő		Õ	
11:30		1		0	1		23:30				0	Ō		0	
11:45		1	3	0	1	3	23:45				0	0		0	
TOTALS			9	2		11	TOTALS				14	4	26		40
SPLIT %			81.8%	18.2	.%	21.6%	SPLIT %				35.	0%	65.0%		78.4%
	-			NB	SB		FR		WB_					т	otal
	DAILY TO	DTALS													

		-		0	0	23	28				51
AM Peak Hour			09:45	11:45	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			0.417	0.500	0.500	Pk Hr Factor			0.625	0.458	0.536
7 - 9 Volume	0	0	0	0	0	4 - 6 Volume	0	0	1	9	10
7 - 9 Peak Hour						4 - 6 Peak Hour			16:00	16:30	16:00
7 - 9 Pk Volume						4 - 6 Pk Volume			1	5	5
Pk Hr Factor	0.000	0.000	0.000	0.000	0.000	Pk Hr Factor	0.000	0.000	0.250	0.625	0.417

Day: Tuesday Date: 1/16/2018

City: Napa
Project #: CA18\_8026\_001

		TALC	N	В	SB	EB		WB					Тс	otal
	DAILY TO	TALS	(	0	0	31		36					(	57
AM Period	NB S	B EB	W	/В	TOTAL	PM Period	NB		SB E	В	WB		TO	TAL
00:00		0	(	)	0	12:00				L	2		3	
00:15		0	(	)	0	12:15			(	)	1		1	
00:30		0	(	)	0	12:30			:	L	2		3	
00:45		0	(	)	0	12:45				) 2	0	5	0	7
01:00		0	(	)	0	13:00			(	)	0		0	
01:15		0	(	)	0	13:15			(	)	0		0	
01:30		0	(	)	0	13:30				)	0		0	
01:45		0	(	)	0	13:45				)	0		0	
02:00		0	(	)	0	14:00				2	3		5	
02:15		0	(	)	0	14:15				)	1		1	
02:30		0	(	)	0	14:30				, 	1	F	1	0
02:45		0	(	)	0	14.45					0	5	5	0
03.00		0	(	,	0	15.00				1	4		0	
03:30		0		, )	0	15:30				, )	0		0	
03:45		0	(	)	0	15:45				, ) 1	1	5	1	6
04:00		0	(	)	0	16:00				<u>) 1</u>	0		0	
04:15		0 0	(	)	Ő	16:15				Ĺ	Ő		1	
04:30		0	(	)	0	16:30			(	)	Ō		0	
04:45		0	C	)	0	16:45			(	) 1	0		0	1
05:00		0	(	)	0	17:00				)	0		0	
05:15		0	(	)	0	17:15			(	)	2		2	
05:30		0	(	)	0	17:30			(	)	1		1	
05:45		0	(	)	0	17:45				)	0	3	0	3
06:00		0	1		1	18:00			(	)	1		1	
06:15		0	(	)	0	18:15			(	)	0		0	
06:30		0	(	)	0	18:30			(	)	0		0	
06:45		1	1 (	) 1	1 2	18:45				)	0	1	0	1
07:00		0	(	)	0	19:00				)	0		0	
07:15		0	(	)	0	19:15				)	0		0	
07:30		0	1		1	19:30				)	0		0	
07:45		0	(	) 1		19:45				)	0		0	
08:00		0	1	)	0	20:00				)	0		0	
08.13		0	-			20.15				, )	0		0	
08:45		0		, ) 1	0 1	20:30				, )	0		0	
09:00		0	(	)	0	21:00				) )	0		0	
09:15		0	1		1	21:15				)	0		0	
09:30		2	1		3	21:30				)	Ő		Õ	
09:45		7	9 1	3	8 12	21:45				)	Ō		0	
10:00		1	(	)	1	22:00				)	0		0	
10:15		1	(	)	1	22:15			(	)	0		0	
10:30		1	3	3	4	22:30			(	)	0		0	
10:45		2	5 2	2 5	4 10	22:45				)	0		0	
11:00		4	(	)	4	23:00			(	)	0		0	
11:15		1	1	L	2	23:15			(	)	0		0	
11:30		3	3	}	6	23:30			(	)	0		0	
11:45		1	9 2	2 6	3 15	23:45				)	0	10	0	
TOTALS			24	17	41	TOTALS				7		19		26
SPLIT %			58.5%	41.5%	61.2%	SPLIT %				26.	9%	73.1%		38.8%
			N	B	SB	EB	_	WB					Тс	otal
	DAILY IO	TALS		-		21		20						27

				U	U	51	50				07
AM Peak Hour			09:30	11:15	10:45	PM Peak Hour			14:00	14:15	14:00
AM Pk Volume			11	8	16	PM Pk Volume			3	6	8
Pk Hr Factor			0.393	0.667	0.667	Pk Hr Factor			0.375	0.375	0.400
7 - 9 Volume	0	0	0	2	2	4 - 6 Volume	0	0	1	3	4
7 - 9 Peak Hour				07:30	07:30	4 - 6 Peak Hour			16:00	16:45	16:45
7 - 9 Pk Volume				2	2	4 - 6 Pk Volume			1	3	3
Pk Hr Factor	0.000	0.000	0.000	0.500	0.500	Pk Hr Factor	0.000	0.000	0.250	0.375	0.375

**Day:** Wednesday **Date:** 1/17/2018

				NB	SB	EB		WB					Т	otal
	DAILY 10	TALS		0	0	34		38						72
AM Period	NB S	B EB		WB	TOTAL	PM Period	NB		SB	EB	WB		тс	TAL
00:00		0		0	0	12:00				2	0		2	
00:15		0		0	0	12:15				1	1		2	
00:30		0		0	0	12:30				1	0		1	
00:45		0		0	0	12:45				1 5	2	3	3	8
01:00		0		0	0	13:00				0	0		0	
01:15		0		0	0	13:15				0	1		1	
01:30		0		0	0	13:30				0	0		0	
01:45		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				1	1		1	
02:30		0		0	0	14:30				2 1 1	0	٥	0	12
02:45		0		0	0	14.45				<u>54</u> 1	2	9	9	15
03.00		0		0	0	15.00				1	5 1		4	
03.15		0		0	0	15.15				1	2		2	
03:45		0		0	0	15:45				U 3	2	6	0	٩
04:00		0		0	0	16:00				0 3	1	0	1	
04.00		0		0	0	16:15				0	Ō		Ō	
04:30		Ő		0	Ő	16:30				0	Ő		Ő	
04:45		0 0		0	Ő	16:45				1 1 1	2	3	3	4
05:00		0		0	0	17:00				0	1		1	
05:15		0		0	0	17:15				1	3		4	
05:30		0		0	0	17:30				0	1		1	
05:45		0		0	0	17:45				0 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		0		0	0	18:30				0	0		0	
06:45		0	1	0 1	0 2	18:45				0	0	1	0	1
07:00		0		0	0	19:00				0	0		0	
07:15		0		1	1	19:15				0	0		0	
07:30		0		0	0	19:30				0	0		0	
07:45		0		0 1	0 1	19:45				0	0		0	
08:00		0		0	0	20:00				0	0		0	
08:15		0		1	1	20:15				0	0		0	
08:30		1	4	0	1	20:30				0	0		0	
08:45		0	1	0 1	0 2	20:45				0	0		0	
09:00		0		0	0	21:00				0	0		0	
09:15		0		0	2	21.15				0	0		0	
09.30		1	2	1 0 1	2 1	21.30				0	0		0	
10:00		3	3	0 1	3	22:45				0	0		0	
10.00		3		0	3	22:15				0	0		0	
10:10		3		1	4	22:30				0	0		0	
10:45		2	11	1 2	3 13	22:45				0	Ő		Ő	
11:00		0		0	0	23:00				0	0		0	
11:15		0		0	0	23:15				0	Õ		0	
11:30		0		1	1	23:30				0	0		0	
11:45		4	4	2 3	67	23:45				0	0		0	
TOTALS			20	9	29	TOTALS				14	1	29		43
SPLIT %			69.0%	31.0%	40.3%	SPLIT %				32.	6%	67.4%		59.7%
				NB	SB	EB		WB					L	otal
	DAILY TO	TALS	-	0		24		20						70

				0	0	34	38				/2
						-					
AM Peak Hour			09:45	11:30	10:00	PM Peak Hour			14:30	14:45	14:45
AM Pk Volume			11	4	13	PM Pk Volume			6	12	18
Pk Hr Factor			0.917	0.500	0.813	Pk Hr Factor			0.500	0.500	0.500
7 - 9 Volume	0	0	1	2	3	4 - 6 Volume	0	0	2	9	11
7 - 9 Peak Hour			07:45	07:00	07:45	4 - 6 Peak Hour			16:30	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	0.000	0.500	0.583	0.563

Day: Thursday Date: 1/18/2018

			NB		SB		EB		WB						T	otal		
	DAILT	IUTALS			0		0		41		48							89
AM Period	NB	SB	EB		WB		TO	TAL	PM Period	NB		SB	EB		WB		тс	DTAL
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			0		0		0		12:45				1	5	4	8	5	13
01:00			0		0		0		13:00				1		0		1	
01:15			0		0		0		13:15				2		0		2	
01:30			0		0		0		13:30				2	c	1	n	3	0
01:45			0		0		0		13:45				<u> </u>	0	2	2	2	ō
02.00			0		0		0		14.00				0		2		0	
02:15			0		0		0		14.15				0		0		0	
02:45			0		ñ		Ő		14.30				Ő	1	ő	2	0	3
03:00			0		0		0		15:00				1		3	-	4	
03:15			Ő		Ő		0		15:15				Ō		4		4	
03:30			Õ		Õ		Ő		15:30				Ő		3		3	
03:45			Ō		Ō		0		15:45				1	2	1	11	2	13
04:00			0		0		0		16:00				1		0		1	
04:15			0		0		0		16:15				1		1		2	
04:30			0		0		0		16:30				0		1		1	
04:45			0		0		0		16:45				0	2	1	3	1	5
05:00			0		0		0		17:00				0		5		5	
05:15			0		0		0		17:15				0		4		4	
05:30			0		0		0		17:30				0		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			1	1	0	1	1	2	18:45				0	1	0	1	0	2
07:00			0		0		0		19:00				0		0		0	
07:15			0		0		0		19:15				0		0		0	
07:30			0		0		0		19.50				0		0		0	
07.45			0		0		0		20:00				0		0		0	
08.00			0		0		0		20.00				0		0		0	
08:30			1		0		1		20:15				0		0		0	
08:45			Ō	1	3 3	З	2 2	4	20:30				Ő		ő		0	
09:00			0	-	0	5	0	•	21:00				0		0		0	
09:15			0		1		1		21:15				0		0		0	
09:30			2		2		4		21:30				Õ		Ō		0	
09:45			6	8	2	5	8	13	21:45				0		0		0	
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			0	5	0		0	5	22:45				0		0		0	
11:00			4		0		4		23:00				0		0		0	
11:15			2		2		4		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				0		0		0	
TOTALS				24		12		36	TOTALS					17		36		53
SPLIT %				66.7%		33.3%		40.4%	SPLIT %					32.1%		67.9%		59.6%
		τοτλις			NB		SB		EB		WB						T	otal

				0	0	71	-10				05
-											
AM Peak Hour			09:30	08:45	09:30	PM Peak Hour			12:45	15:00	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	0.688	0.650
7 - 9 Volume	0	0	1	3	4	4 - 6 Volume	0	0	2	12	14
7 - 9 Peak Hour			07:45	08:00	08:00	4 - 6 Peak Hour			16:00	16:30	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	0.550	0.550

**Day:** Friday **Date:** 1/19/2018

		TOTALS		_	NB		SB		EB		WB						Т	otal
	DAILT	IUTALS			0		0		47		53						1	.00
AM Period	NB	SB	EB		WB		тот	AL	PM Period	NB		SB	EB		WB		тс	TAL
00:00			0		0		0		12:00				2		1		3	
00:15			0		0		0		12:15				2		1		3	
00:30			0		0		0		12:30				1		1		2	
00:45			0		0		0		12:45				2	7	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			0		0		0		13.30				2	6	2	4	4	10
01.45			0		0		0		13.45				0	0	3	4	2	10
02:15			0		õ		0		14:15				2		1		3	
02:30			Õ		Õ		Ő		14:30				ō		1		1	
02:45			0		0		0		14:45				1	3	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			0		0		0		15:30				0		3		3	
03:45			0		0		0		15:45				0	4	0	8	0	12
04:00			0		0		0		16:00				1		0		1	
04:15			0		0		0		16:15				0		0		0	
04:30			0		0		0		16:30				0	2	2	2	2	-
04:45			0		0		0		16:45				1	2	1	3	2	5
05:00			0		1		0		17:00				1		1		1	
05.15			2		2		2		17:15				0		0		2	
05:45			0	3	0	з	0	6	17:45				0	1	3	5	3	6
06:00			0	5	0	5	0	0	18:00				0	-	3		3	
06:15			õ		õ		0		18:15				õ		2		2	
06:30			0		Ō		0		18:30				Ō		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			0		1	4	1	4	19:45				0		0		0	
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		20:30				0		0		0	
09.45			1		0		1		20.45				0		0		0	
09.15			0		0		Ō		21:15				0		0 0		Ő	
09:30			5		ŏ		5		21:30				õ		Ő		0	
09:45			1	7	Õ		1	7	21:45				Õ		Õ		Õ	
10:00			1	-	0		1		22:00				0		0		0	
10:15			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			2		1		3		23:00				0		0		0	
11:15			2		0		2		23:15				0		0		0	
11:30			2	0	1	_	3	14	23:30				U		0		0	
11:45			3	9	3	5	б	14	23:45				0	<b>7</b> 2	0	27	0	60
				24		10 001		40	CDUTO					23		5/		00
SPLIT %				60.0%		40.0%	4	10.0%	SPLIT %					38.3%		61.7%		60.0%
	DAILY				NB		SB		EB		WB						T	otal
	PAILI	TOTALS			•		•		47								-	00

		-		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	Pk Hr Factor			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	4 - 6 Peak Hour			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

Weekday ·	- Peak Hour of	Generator					
	Day	Date	Peak Hour	Peak Hou	Peak Hour Vol		Peak Hour % of Daily
				In	Out		
	Monday	1/15/2018	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%
Average				5 36%	9 64%	76	18.41%
				5070	0470		

Weekend	- Peak Hour o	f Generator					
	Day	Date	Peak Hour	Peak Hou	Peak Hour Vol		Peak Hour % of Daily
				In	Out		
	Saturday	1/13/2018	1:30-2:30	11	11	136	16.18%
	Sunday	1/14/2018	2:45-3:45	10	15	144	17.36%
Average				11 45.8%	13 54 2%	140	16.77%
				45.670	54.270		

Weekly - P	eak Hour of Ge	enerator					
	Day	Date	Peak Hour	Peak Hou	Peak Hour Vol		Peak Hour % of Daily
				In	Out		
	Saturday	1/13/2018	1:30-2:30	11	11	136	16.18%
	Sunday	1/14/2018	2:45-3:45	10	15	144	17.36%
	Monday	1/15/2018	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%
Average				6	10	94	17.94%
				38%	63%		
				00/0	00/0		

Weekday -	Weekday - PM Peak Hour (4-6 PM)										
	Day	Date	Peak Hour	Peak Ho	Peak Hour Vol		Peak Hour % of Daily				
				In	Out						
	Monday	1/15/2018	4:00-5:00	1	4	51	9.80%				
	Tuesday	1/16/2018	4:45-5:45	0	3	67	4.48%				
	Wednesday	1/17/2018	4:45-5:46	2	7	72	12.50%				
	Thursday	1/18/2018	4:30-5:30	0	11	89	12.36%				
	Friday	1/19/2018	4:30-5:30	2	5	100	7.00%				
Average				1	6	76	9.23%				
				14%	86%						

Weekend -	- Midday Peak	Hour (2-4 PN	1)				
	Day	Date	Peak Hour	Peak Hou	Peak Hour Vol		Peak Hour % of Daily
				In	Out		
	Saturday	1/13/2018	2:00-3:00	10	9	136	13.97%
	Sunday	1/14/2018	2:45-3:45	10	15	144	17.36%
Average				10	12	140	15.67%
				45%	55%		

# 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.

Pro	ject Name: Piazza Del Dotto Winery Projec	t Scenario:	Permitted			
Sec	tion A. Maximum Daily Weekday Traffic (Frie	day, non-harv	est season <u>)</u>			
1. 2. 3. 4. 5.	Total number of FT employees:13x 3.05 onTotal number of PT employees:2x 1.90 onMaximum weekday visitors:50/2.6 visitoGallons of production:48000/1,000 x 0.009 of	e-way trips per el e-way trips per el ors per vehicle x 2 laily truck trips2 >	mployee mployee 2 one-way trips < 2 one-way trips TOTAL	= _ = _ = _ = _	39.7 3.8 38.5 0.9 83	daily trips daily trips daily trips daily trips daily trips daily trips
<u>Sec</u>	tion B. Maximum Daily Weekday Traffic (Friday,	harvest season		_		-
6. 7. 8. 9. 10.	Total number of FT employees:13x 3.05 onTotal number of PT employees:2x 1.90 onMaximum weekday visitors:50/2.6 visitoGallons of production:48000/1,000 x 0.009 ofAvg. annual tons of grape on-haul:320/ 144 true	2-way trips per el e-way trips per el ors per vehicle x 2 laily truck trips2 o ck trips x 2 one-v	mployee mployee 2 one-way trips x 2 one-way trips yay trips	= _ = _ = _ = _	39.7 3.8 38.5 0.9 4.4	daily trips daily trips daily trips daily trips daily trips
11.			TOTAL	=_	87	_daily trips
<u>Sec</u> 12. 13. 14. 15.	Total number of FT Sat. employees:       13       x 3         Total number of PT Sat. employees:       0       x 1         Maximum Saturday visitors:       75       /2.8 visitors	y, non-narvest .05 one-way trips .90 one-way trips ors per vehicle x 2	season) 5 per employee 2 one-way trips TOTAL	= _ = _ = _	39.7 0.0 53.6 93	_daily trips _daily trips _daily trips _daily trips
Sec	tion D. Maximum Daily Weekend Traffic (Saturda	av. harvest seas	ion)	-		_ / !
16. 17. 18. 19. 20. 21.	Total number of FT Sat. employees:13x 3Total number of PT Sat. employees:2x 1Maximum Saturday visitors:75/2.8 visitoGallons of production:48000/1,000 x 0.009 cAvg. annual tons of grape on-haul:320/ 1	.05 one-way trips .90 one-way trips ors per vehicle x 2 laily truck trips x 2 .44 truck trips x 2	s per employee s per employee 2 one-way trips < 2 one-way trips 3 one-way trips TOTAL	= _ = _ = _ = _	39.7 3.8 53.6 0.9 4.4 102	daily trips daily trips daily trips daily trips daily trips daily trips
Soc	tion F. DM Deak Hour Trin Generation (Friday, no	n-harvest seas	an)			
<u></u>	(Sum of daily trips from Sec. A, lines 3 and 4) x 0.38	+ (No. of FTE) + (	(No. of PTE / 2)	=	29	PM peak trips
<u>Sec</u>	tion F. PM Peak Hour Trip Generation (Friday, ha	rvest season)				
	(Sum of daily trips, Sec. B, lines 8, 9, 10) x 0.38 + (N	o. of FTE) + (No. d	of PTE / 2)	=	31	PM peak trips
<u>Sec</u>	tion G. PM Peak Hour Trip Generation (Friday, no	on-harvest seas	<u>on)</u>			
	(Daily trips from Sec. C, line 14) x 0.57 + (No. of FTE	) + (No. of PTE / 2	2)	=	44	PM peak trips
<u>Sec</u>	tion H. PM Peak Hour Trip Generation (Saturday,	harvest seasor	<u>ı)</u>			
	(Sum of daily trips Sec. D, lines 18, 19, 20) x 0.57 +	(No. of FTE) + (Nc	o. of PTE / 2)	=	48	PM peak trips

## **Proposed Project Winery Traffic Information / Trip Generation**

# <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	Total number of ET employees: 17 × 2.05 en	way tring par amplayoa	_	E1 0	daily tring
1. ว	Total number of PT employees: 17 x 3.05 0m	e-way trips per employee		21.9	_ daily trips
2. 2	Maximum wookday vicitors: <u>2</u> X 1.90 0m	e-way trips per employee		06 0	_ daily trips
J.	$\frac{123}{2.0}$	aily truck tring? y 2 one way trips		90.2	_ daily trips
4. r				1.8	
5.		TOTAL	-	154	
<u>Sec</u>	<u>tion J. Maximum Daily Weekday Traffic (Friday, h</u>	arvest season)			
6.	Total number of FT employees: <u>17</u> x 3.05 on	e-way trips per employee	=_	51.9	daily trips
7.	Total number of PT employees: 2 x 1.90 one	e-way trips per employee	=	3.8	daily trips
8.	Maximum weekday visitors: <u>125</u> /2.6 visito	rs per vehicle x 2 one-way trips	=_	96.2	daily trips
9.	Gallons of production: <u>100000</u> /1,000 x 0.009 d	aily truck trips2 x 2 one-way trips	=_	1.8	daily trips
10.	Avg. annual tons of grape on-haul: / 144 tru	ck trips x 2 one-way trips	=_	9.3	daily trips
11.		TOTAL	=_	163	daily trips
Sec	tion K. Maximum Daily Weekend Traffic (Saturda	y, non-harvest season)			
12.	Total number of FT Sat. employees: 13 x 3	05 one-way trips per employee	=	39.7	daily trips
13	Total number of PT Sat employees: 0 x 1	90 one-way trips per employee		0.0	_ daily trips
14	Maximum Saturday visitors: $130/28$ visitor	rs per vehicle x 2 one-way trips		92.9	_ daily trips
15				133	_ daily trips
<u> </u>	tion I. Mariana Daily Markend Traffic (Cotonda		-	155	_ dury trips
<u>sec</u>	tion L. Maximum Dally weekend Traffic (Saturda	y, narvest season)			
16.	Total number of FT Sat. employees: 17 x 3	05 one-way trips per employee	=_	51.9	_daily trips
17.	Total number of PT Sat. employees: 2 x 1	90 one-way trips per employee	=_	3.8	_daily trips
18.	Maximum Saturday visitors: 130 /2.8 visito	ors per vehicle x 2 one-way trips	=_	92.9	_daily trips
19.	Gallons of production: <u>100000</u> /1,000 x 0.009 d	aily truck trips2 x 2 one-way trips	=_	1.8	_daily trips
20.	Avg. annual tons of grape on-haul: <u>667</u> / 1	44 truck trips x 2 one-way trips	=_	9.3	_daily trips
21.		TOTAL	=_	160	daily trips
Sec	tion M. PM Peak Hour Trip Generation (Friday, n	on-harvest season)			
	(Sum of daily trins from Sec. 1 lines 3 and 4) $\times 0.38$	+ (No. of ETE) + (No. of PTE $/ 2$ )	=	55	PM neak trins
			_	55	
Sec	tion N. PM Peak Hour Trip Generation (Friday, ha	rvest season)			
	(Sum of daily tring Sec.   lines 8, 0, 10) x 0, 28 + (No	a = af ETE + (Na = af DTE / 2)	_	EO	DM poak trips
		$(NO,O,PTE) \neq (NO,O,PTE)$	_	29	
Sec	tion O. PM Peak Hour Trip Generation (Friday, no	n-harvest season)			
					<b></b>
	(Daily trips from Sec. K, line 14) x 0.57 + (No. of FTE	) + (NO. OT PIE / 2)	=	66	PIVI peak trips
Sec	tion P. PM Peak Hour Trip Generation (Saturday	harvest season)			
	(Sum of daily trips Sec. L, lines 18, 19, 20) x 0.57 + (	No. ot FTE) + (No. of PTE / 2)	=	77	PM peak trips

# Appendix F

## AutoTURN Exhibits





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September 2018





October 2018





October 2018