

March 1, 2018

Mr. John Caldwell Caldwell Vineyards 169 Kreuzer Lane Napa, CA 94558

Focused Traffic Analysis for the Caldwell Vineyards Project

Dear Mr. Caldwell;

As requested, W-Trans has prepared a traffic analysis relative to an existing winery located at 270 Kreuzer Lane in the County of Napa with a proposed increase in tasting room visitation and agriculture promotional events. The purpose of this letter is to address potential traffic impacts associated with the increase in visitation and events. The traffic analysis was completed in accordance with the criteria established by the County of Napa, and is consistent with standard traffic engineering techniques.

Project Description

The project site currently has a Use Permit to produce 25,000 gallons of wine per year, have up to eight guests per day for appointment-only wine tasting, and hold various promotional events for up to 60 guests. The proposed modification of the Use Permit would allow an increase in production of up to 35,000 gallons of wine annually, including custom crush activity, wine-tasting for up to 60 guests per day, and promotional events for up to 200 guests. The site is located on Kreuzer Lane and may be accessed via Imola Avenue and Fourth Avenue from the west or Coombsville Road and Fourth Avenue from the north.

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 of reported collisions 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 January 1, 2012 through December 31, 2016. It is noted that property-damage collisions are often not reported, so would not show up in either the records reviewed for this analysis or in the average collision rates used for comparative purposes.

The calculated collision rate for the study intersection of Kreuzer Lane/Fourth Avenue was compared to the average collision rate for similar facilities statewide, as indicated in 2012 Collision Data on California State Highways, California Department of Transportation. The study intersection experienced two collisions over the five-year study period, which translates to a rate of 0.55 collisions per million vehicle miles (c/mvm). While this is higher than the statewide average of 0.16 c/mvm for similar facilities, given the very low volume it takes only one collision to exceed the statewide rate, and two incidents in five years would not reasonably represent a safety concern. In fact, given the non-standard controls at this location, the lack of more than two collisions in five years indicates that drivers are able to understand and travel through the intersection without difficulty. It is further noted that the recorded collisions did not result in any injuries; therefore, the above-average collision rate does not translate to a safety concern. The collision rate calculation is enclosed.

Existing Conditions

The study area consists of the project site, Kreuzer Lane from the project driveway to Fourth Avenue, Fourth Avenue north of Kreuzer Lane, and Fourth Avenue west of Kreuzer Lane. The project site is located at the end of a 0.2-mile driveway that extends from the east end of Kreuzer Lane. Kreuzer Lane is not classified in the Napa County Road Classification section of the General Plan, so it would be considered a local road. It generally runs east-west in the study area, has a width of 24 feet, and is generally straight and flat throughout the study segment. There is no posted speed limit on Kreuzer Lane, so a design speed of 25 miles per hour (mph) was assumed because of the width, volume, and use of the road. Fourth Avenue is a rural two-lane undivided road that generally runs north-south with a 12-foot travel lane in each direction. There is a posted speed limit of 40 mph on Fourth Avenue and the roadway is generally straight with rolling terrain. Based on counts collected in February 2018, the average weekday daily traffic (ADT) on Kreuzer 1Lane east of Fourth Avenue is about 400 vehicles per day, the ADT on Fourth Avenue west of Kreuzer Lane is approximately 1,900 vehicles per day, and the ADT on Fourth Avenue north of Kreuzer Lane is about 1,800 daily vehicles. The segment counts are enclosed.

Trip Generation

The Napa County Winery Traffic Information/Trip Generation Form was used to determine the potential trip generation for currently existing 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, average daily visitors, and production. Based on the current Use Permit parameters, the site is permitted for 6 trips during the weekday p.m. peak hour and 8 trips during the weekend midday peak hour. The proposed changes to the Use Permit would be expected to result in a total of 29 trips during the weekday p.m. peak hour and 29 trips during the weekend midday peak hour, or an increase of 23 and 21 trips during the two peaks, respectively, over existing conditions.

The County's form does not include guidance on inbound versus outbound trips or peak hour trips for the weekday a.m. peak, so based on extensive data collected at a tasting facility in Sonoma County, it was assumed that two-thirds of trips at the winery would be outbound during the weekday p.m. peak hour as employees and customers leave at closure of the winery; for the weekend midday peak hour it was assumed that inbound and outbound trips would be evenly split. It was also assumed that 100 percent of the trip ends at the winery would be inbound during the weekday a.m. peak hour and that, of these trips, none would be winery visitors, since the trips would be associated with employees arriving at the winery. The results based on application of these assumptions are shown in Table 1. The Winery Traffic Information/Trip Generation Forms for both permitted and proposed conditions are attached for reference.

| Table 1 – Trip Generat | ion Summary | | | | | | | | | | | |
|------------------------|-------------|-------|--------------|-----|-------|---------------|-----|-------------------------|----|-----|--|--|
| Land Use | Weekday | 1 | ekd 1 Pea | • | ì | ekda 1 Pea | • | Saturday Midday Peak | | | | |
| | Trips | Trips | ln | Out | Trips | ln | Out | Trips | ln | Out | | |
| Permitted | 15 | 6 | 6 | 0 | 6 | 2 | 4 | 8 | 4 | 4 | | |
| Proposed | 76 | 11 | 11 | 0 | 29 | 10 | 19 | 29 | 15 | 14 | | |
| Net New Trips | 61 | 5 | 5 | 0 | 23 | 8 | 15 | 21 | 11 | 10 | | |

Traffic that would occur during a Crush Saturday was also tabulated, as shown in Table 2. The modified Use Permit would be expected to result in an average of 59 additional daily trips during a Crush Saturday including 34 trips during the peak hour; these trips represent the increase in traffic associated with the proposed use permit compared to currently existing conditions.

| Table 2 – Trip Gener | ation Sum | nary – Cru | sh Satur | day |
|----------------------|-----------|------------|----------|---------|
| Condition | Daily | Saturda | ay MD Pe | ak Hour |
| | Trips | Trips | In | Out |
| Existing | 14 | 8 | 4 | 4 |
| Proposed | 73 | 42 | 21 | 21 |
| Net New Trips | 59 | 34 | 17 | 17 |

In addition to typical daily and crush Saturday operations, the anticipated trip generation for the largest proposed agriculture promotional event, one with 200 guests, was also estimated as shown in Table 3. Using the County's Winery Traffic Information/Trip Generation Form, a 200-person marketing event would be expected to generate a total of 159 trips, including 143 trips for guests, 12 trips for employees, and 4 trips for event trucks. For the purpose of estimating the peak hour trip generation it was assumed that all guests would be arriving at the site during the peak hour on either weekdays or weekend days. Event employees would arrive outside of the arrival and departure hours of the guests as they would be expected to be on-site for set-up and clean-up and are therefore not included in the peak hour totals. Similarly, the trucks associated with such events would be expected to arrive at and depart from the site outside hours or even days before and after the event.

| Table 3 – Trip Generation | for 200-P | erson Eve | ents | | | | | |
|---------------------------|-----------|-----------|-------|-------|-----|-------|-------|-----|
| 150-Person Event | Units | Total | PM Pe | ak Ho | our | MD P | eak H | our |
| Trip Generator | | Trips | Trips | ln | Out | Trips | ln | Out |
| Event Employees | 6 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Event Guests | 200 | 143 | 72 | 72 | 0 | 72 | 72 | 0 |
| Event Trucks | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | 159 | 72 | 72 | 0 | 72 | 72 | 0 |

Existing Volumes

Existing volumes are from counts taken on Kreuzer Lane between Fourth Avenue and the Project driveway, on Fourth Avenue west of Kreuzer Lane, and on Fourth Avenue north of Kreuzer Lane on February 15, 2018. All project-generated trips were assumed to arrive via the segment of Fourth Avenue west of Kreuzer Lane, which experiences the highest existing volumes, to arrive at the most conservative results. These volumes are summarized in Table 4.

| Table 4 – Existing and Existing plus | Project Se | gment Volun | 165 | | | | | | | | | | |
|--|---|--------------------|--------------------|-------|--------------------|--------------------|--|--|--|--|--|--|--|
| Study Segment | tudy Segment Existing Volumes Existing plus Project | | | | | | | | | | | | |
| | Daily | Weekday AM Peak | Weekday PM Peak | Daily | Weekday AM Peak | Weekday PM Peak | | | | | | | |
| Kreuzer Lane | 405 | 36 | 51 | 466 | 41 | 74 | | | | | | | |
| 4 th Avenue north of Kreuzer Lane | 1775 | 197 | 185 | 1775 | 197 | 185 | | | | | | | |
| 4th Avenue west of Kreuzer Lane | 1872 | 198 | 195 | 1933 | 203 | 218 | | | | | | | |

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 6th Edition is the basis of the roadway 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. Fourth Avenue is considered a Class II highway.

Napa County Traffic Operation Standards

The County of Napa's adopted LOS Standard is contained in *Napa County General Plan Update 2008*. Policy CIR-16 states that the County shall seek to maintain an arterial Level of Service D or better on all county roadways.

Existing plus Project Conditions

The Existing plus Project condition during a typical weekday a.m. and p.m. peak period were analyzed. All project-generated trips were assigned to the segment experiencing the highest existing volumes, which is Fourth Avenue west of Kreuzer Lane, to arrive at "worst-case" results. Under existing volumes without project-generated traffic, the study roadways operate acceptably at LOS C or better in all directions. Upon the addition of project-generated traffic, the study roadways would be expected to continue operating at acceptable LOS C or better. These results for Existing and Existing plus Project scenarios are summarized in Table 5.

| Table 5 – Existing and Existing plus Project Peak Hour Roadway Segment Levels of Service | | | | | | | | |
|--|------|----------|--------------|-----|------|----------|--------------------|-----|
| Study Segment | Ex | isting C | onditio | 15 | Ex | isting p | lus Proje | ect |
| Direction | Weel | • | Weel PM F | • | Weel | • | Weekday PM Peak | |
| | PTSF | LOS | PTSF | LOS | PTSF | LOS | PTSF | LOS |
| Fourth Avenue west of Kreuzer Lane | | | | | | | | |
| EB – Penny Ln to Kreuzer Ln | 39.9 | Α | 38.5 | Α | 42.3 | В | 39.7 | A |
| WB – Kreuzer Ln to Penny Ln | 57.3 | C | 50.8 | В | 57.2 | C | 53.1 | В |
| Fourth Avenue north of Kreuzer Ln | | | | | | | | |
| NB – Kreuzer Ln to Coombsville Rd | 43.6 | В | 38.6 | Α | 43.6 | В | 38.6 | Α |
| SB – Coombsville Rd to Kreuzer Ln | 54.2 | В | 50.5 | В | 54.2 | В | 50.5 | В |

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

It is noted that there are no standard methodologies for evaluating low-speed two-lane roadways such as Kreuzer Lane east of Fourth Avenue, so the two-lane highway methodology was applied and it was found that the segment operates at LOS A under existing conditions; therefore, it is expected to continue operating acceptably with project-generated traffic.

All-Way Stop Control Warrants

An All-Way Stop Control (AWSC) warrant analysis was completed for the intersection of Kreuzer Lane/Fourth Avenue under Existing conditions based on the *California Manual of Uniform Traffic Control Devices* (CA-MUTCD) to determine if AWSC are already warranted or project-related traffic would trigger the need for added controls. The CA-MUTCD identifies five categories of criteria for determining if an intersection should be considered a candidate for AWSC, including the necessity for traffic signal controls, various traffic volume levels on approaching streets, intersection collision records, a combination of these warrants, and several optional warrants.

The four optional criteria for AWSC warrants listed in the CA-MUTCD include: (A) the potential for left turn conflicts; (B) the potential for vehicle/pedestrian conflicts where there is a high volume of pedestrian activity; (C) restricted sight distance to the extent that turns at the intersection are difficult to complete; and (D) at the intersection of two residential neighborhood collector streets where AWSC would improve the overall operational characteristics of the intersection.

Traffic Volumes

AWSC are often used at the intersection of two roadways that exhibit approximately equal traffic volumes. In order to meet the volume warrant, the number of vehicles entering the intersection from the major street must exceed 300 vehicles for each of eight separate hours plus the volume on the minor street must exceed 200 vehicles per hour for the same eight hours.

This warrant criteria is not met based on the counts collected for existing conditions. For the purposes of adding project traffic to existing volumes, it was conservatively assumed that the 23 peak hour trips would be added to each of the eight highest hours. Upon adding project-related traffic to Existing volumes, neither approach on Fourth Avenue would meet the condition of having at least 300 vehicles enter the intersection for each of eight separate hours to qualify as the major street, nor does Kreuzer Lane or either approach of Fourth Avenue have at least 200 vehicles during those same eight hours to qualify as the minor street. Based on the existing volumes as well as those with project traffic added, AWSC are not warranted.

Collision Records

In order for AWSC to be warranted due to collisions, there would have to be five collisions reported during a period of 12 months that could be prevented by AWSC. At the intersection there was one collision reported for the most recent five-year period; therefore, the collision history does not trigger the need for all-way stop controls.

Optional Criteria

Optional criteria (A) was considered in evaluating the need for all-way stop control. Left-turning vehicles from the southbound Fourth Avenue approach can conflict with vehicles approaching from eastbound Fourth Avenue; however, based on the five-year collision history at the intersection, there have not been any collisions in the last five years of a type that are caused by this left-turn conflict.

Consideration was also given to optional criteria (C), which warrants all-way stop control at *locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop.* At the study intersection, the westbound Kreuzer Lane approach is stop-controlled. Based on aerial photography from Google Earth, sight distance at the intersection was evaluated. The applicable criterion for a public intersection as published by Caltrans in the *Highway Design Manual* is corner sight distance, and while a lower advisory speed is posted for the corner, a 25-mph design speed was assumed. For this approach speed, sight lines of 275 feet are needed. From Kreuzer Lane along eastbound Fourth Avenue oncoming vehicles can be seen from well in excess of this distance. Similarly, drivers have an unobstructed view

of vehicles approaching on southbound Fourth Avenue when they are more than 275 feet away. Sight distances at the intersection are therefore adequate, indicating that all-way stop controls are not warranted.

Conclusions and Recommendations

- The winery is expected to generate an average of 61 additional daily trips, including 5 new a.m. peak hour trip, 23 p.m. peak hour trips, and 21 Saturday midday peak hour trips.
- Under Existing plus Project conditions, the study segments of Fourth Avenue and Kreuzer Lane are expected to operate acceptably at LOS C or better.
- All-way stop controls are not warranted at the study intersection of Kreuzer Lane/Fourth Avenue.

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

TR001552

Sincerely,

Kevin Rangel, EIT Assistant Engineer

Dalene J. Whitlock, PE, PTOE Principal

DJW/kr/NAX083,L1

Enclosures: Collision Rate Calculation

Segment Volumes Trip Generation

Segment Level of Service Analyses

Intersection Collision Rate Calculations

Caldwell Vineyards

Intersection # 1: Kreuzer Lane & Fourth Avenue

Date of Count: Thursday, February 15, 2018

Number of Collisions: 2 Number of Injuries: 0 Number of Fatalities: 0

ADT: 2000

Start Date: January 1, 2012 End Date: December 31, 2016

Number of Years: 5

Intersection Type: Tee

Control Type: Stop & Yield Controls

Area: Rural

collision rate = Number of Collisions x 1 Million
ADT x 365 Days per Year x Number of Years

 Study Intersection Statewide Average*
 Collision Rate | Fatality Rate | Injury Rate | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0

ADT = average daily total vehicles entering intersection c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Prepared by NDS/ATD

VOLUME

Fourth Ave N/O Kreuzer Ln

Day: Thursday Date: 2/15/2018 City: Napa Project #: CA18_8062_001

| - | D/ | ILY T | OTA | S | NB | SB | | EB | | WB | | | | The second second | tal |
|-----------|----|-------|-----|-------|-----|-----|-------|-----------|----|--------|----|----------|----|-------------------|------|
| | - | 1500 | | | 928 | 847 | 1 | 0 | | 0 | | | | 1, | 775 |
| AM Period | NB | | SB | EB | WB | TOT | TAL | PM Period | NB | | SB | EB | WB | | TAL |
| 00:00 | 0 | | 0 | | | 0 | | 12:00 | 22 | | 12 | | | 34 | |
| 00:15 | 2 | | 0 | | | 2 | | 12:15 | 22 | | 9 | | | 31 | |
| 00:30 | 0 | | 0 | | | 0 | | 12:30 | 17 | | 8 | | | 25 | |
| 00:45 | 0 | 2 | 0 | | | 0 | 2 | 12:45 | 19 | 80 | 13 | 42 | | 32 | 122 |
| 01:00 | 0 | | 0 | | | 0 | | 13:00 | 12 | | 16 | | | 28 | |
| 01:15 | 0 | | 0 | | | 0 | - 1 | 13:15 | 14 | | 16 | | | 30 | |
| 01:30 | 0 | | 0 | | | 0 | - 1 | 13:30 | 11 | | 9 | 122 | | 20 | |
| 01:45 | 0 | | 0 | | | 0 | | 13:45 | 15 | 52 | 9 | 50 | | 24 | 102 |
| 02:00 | 1 | | 2 | | | 3 | | 14:00 | 24 | | 16 | | | 40 | |
| 02:15 | 0 | | 0 | | | 0 | | 14:15 | 18 | | 11 | | | 29 | |
| 02:30 | 1 | | 1 | | | 2 | | 14:30 | 18 | 1.00 | 10 | 124 | | 28 | |
| 02:45 | 0 | 2 | 0 | 3 | | 0 | - 5 | 14:45 | 20 | 80 | 30 | 67 | | 50 | 147 |
| 03:00 | 0 | | 1 | | | 1 | | 15:00 | 17 | | 35 | | | 52 | |
| 03:15 | 0 | | 0 | | | 0 | - 1 | 15:15 | 25 | | 18 | | | 43 | |
| 03:30 | 0 | | 1 | | | 1 | - 2 | 15:30 | 17 | 3.0 | 23 | 1.2 | | 40 | |
| 03:45 | 0 | | _1 | 3 | | 1 | 3 | 15:45 | 13 | 72 | 16 | 92 | | 29 | 164 |
| 04:00 | 1 | | 1 | | | 2 | | 16:00 | 23 | | 8 | | | 31 | |
| 04:15 | 0 | | 2 | | | 2 | | 16:15 | 17 | | 21 | | | 38 | |
| 04:30 | 1 | | 2 | | | 3 | 0.4 | 16:30 | 23 | 40 | 18 | 55 | | 41 | |
| 04:45 | 0 | 2 | 5 | 10 | | 5 | 12 | 16:45 | 17 | 80 | 13 | 60 | | 30 | 140 |
| 05:00 | 1 | | 1 | | | 2 | | 17:00 | 21 | | 20 | | | 41 | |
| 05:15 | 2 | | 5 | | | 7 | - 1 | 17:15 | 16 | | 17 | | | 33 | |
| 05:30 | 5 | | 5 | | | 10 | 160 | 17:30 | 23 | Tuber. | 14 | - 63 | | 37 | |
| 05:45 | 4 | 12 | 8 | 19 | | 12 | 31 | 17:45 | 17 | 77 | 11 | 62 | | 28 | 139 |
| 06:00 | 8 | | 7 | | | 15 | | 18:00 | 19 | | 14 | | | 33 | |
| 06:15 | 7 | | 7 | | | 14 | - 1 | 18:15 | 20 | | 5 | | | 25 | |
| 06:30 | 22 | | 9 | | | 31 | 100 | 18:30 | 12 | 0.0 | 8 | 22 | | 20 | |
| 06:45 | 9 | 46 | 8 | 31 | | 17 | 77 | 18:45 | 13 | 64 | 8 | 35 | | 21 | 99 |
| 07:00 | 4 | | 13 | | | 17 | | 19:00 | 5 | | 5 | | | 10 | |
| 07:15 | 18 | | 13 | | | 31 | | 19:15 | 3 | | 3 | | | 6 | |
| 07:30 | 11 | | 22 | | | 33 | 0.004 | 19:30 | 6 | - | 3 | 44 | | 9 | 24 |
| 07:45 | 22 | 55 | 26 | 74 | | 48 | 129 | 19:45 | 8 | 22 | 1 | 12 | | 9 | 34 |
| 08:00 | 32 | | 33 | | | 65 | | 20:00 | 2 | | 6 | | | 8 | |
| 08:15 | 21 | | 30 | | | 51 | | 20:15 | 8 | | 3 | | | 11 | |
| 08:30 | 9 | | 22 | | | 31 | 1.40 | 20:30 | 5 | 120 | 2 | 1.2 | | 7 7 | |
| 08:45 | 12 | 74 | 13 | 98 | | 25 | 172 | 20:45 | 6 | 21 | 1 | 12 | | | 33 |
| 09:00 | 14 | | 15 | | | 29 | | 21:00 | 10 | | 1 | | | 11 | |
| 09:15 | 10 | | 9 | | | 19 | | 21:15 | 2 | | 1 | | | 3 | |
| 09:30 | 8 | 7.7 | 18 | 4.0 | | 26 | 44 | 21:30 | 4 | | 3 | <u> </u> | | 7 | 20 |
| 09:45 | 11 | 43 | 8 | 50 | | 19 | 93 | 21:45 | 5 | 21 | 4 | 9 | | 9 | 30 |
| 10:00 | 10 | | 12 | | | 22 | | 22:00 | 3 | | 1 | | | 4 | |
| 10:15 | 10 | | 14 | | | 24 | | 22:15 | 3 | | 1 | | | 4 | |
| 10:30 | 13 | | 19 | le fo | | 32 | 0.23 | 22:30 | 0 | | 0 | 4 | | 0 | |
| 10:45 | 16 | 49 | 14 | 59 | | 30 | 108 | 22:45 | 2 | 8 | 2 | 4 | | 4 | 12 |
| 11:00 | 9 | | 14 | | | 23 | | 23:00 | 1 | | 0 | | | 1 | |
| 11:15 | 15 | | 13 | | | 28 | | 23:15 | 4 | | 0 | | | 4 | |
| 11:30 | 11 | | 13 | J. St | | 24 | 100 | 23:30 | 4 | 2.2 | 0 | | | 4 | 4.6 |
| 11:45 | 20 | 55 | 14 | 54 | | 34 | 109 | 23:45 | 2 | 11 | 11 | 1 | | 3 | 12 |
| TOTALS | | 340 | | 401 | | | 741 | TOTALS | | 588 | | 446 | | | 1034 |
| SPLIT % | | 45.99 | 6 | 54.1% | | | 41.7% | SPLIT % | | 56.9% | 6 | 43.1% | | | 58.3 |

| | DAHATO | TALC | NB | SB | EB | WB | | Total |
|-----------------|----------|-------|-----|-------|-----------------|-------|-------|-------|
| 1 88 | DAILY TO | IALS | 928 | 847 | 0 | 0 | | 1,775 |
| AM Peak Hour | 07:30 | 07:30 | | 07:30 | PM Peak Hour | 12:00 | 14:45 | 14:45 |
| AM Pk Volume | 86 | 111 | | 197 | PM Pk Volume | 80 | 106 | 185 |
| Pk Hr Factor | 0.672 | 0.841 | | 0.758 | Pk Hr Factor | 0.909 | 0.757 | 0.889 |
| 7 - 9 Volume | 129 | 172 | | 301 | 4 - 6 Volume | 157 | 122 | 279 |
| 7 - 9 Peak Hour | 07:30 | 07:30 | | 07:30 | 4 - 6 Peak Hour | 16:00 | 16:15 | 16:15 |
| 7 - 9 Pk Volume | 86 | 111 | | 197 | 4 - 6 Pk Volume | 80 | 72 | 150 |
| Pk Hr Factor | 0.672 | 0.841 | | 0.758 | Pk Hr Factor | 0.870 | 0.857 | 0.915 |

Prepared by NDS/ATD

VOLUME

Kreuzer Ln E/O Fourth Ave

Day: Thursday Date: 2/15/2018 City: Napa Project #: CA18_8062_002

| | DAHATOTALS | | - | NB | | SB | 20.0 | EB | 0.00 | WB | - | 7 | 77 | -4- | | To | otal |
|-----------|--------------|------|-------|----|---------|----|-------|-----------|------|-----|----|----|-------|-----|--------|----|-------|
| de esta | DAILY TOTALS | 41- | | 0 | | 0 | 900 | 206 | 100 | 199 | | | 100 | | | 4 | 105 |
| AM Period | NB SB | EB | | WB | | TO | OTAL | PM Period | NB | | SB | EB | | WB | | TO | OTAL |
| 00:00 | | 0 | | 0 | | 0 | | 12:00 | | | | 5 | | 2 | - | 7 | |
| 00:15 | | 0 | | 0 | | 0 | | 12:15 | | | | 2 | | 5 | | 7 | |
| 00:30 | | 0 | | 0 | | 0 | | 12:30 | l | | | 4 | | 3 | 100 | 7 | |
| 00:45 | | 0 | | 0 | | 0 | | 12:45 | | | | 4 | 15 | 4 | 14 | 8 | 29 |
| 01:00 | | 0 | | 0 | | 0 | | 13:00 | | | | 2 | | 4 | | 6 | |
| 01:15 | | 0 | | 0 | | 0 | | 13:15 | l | | | 1 | | 2 | | 3 | |
| 01:30 | | 0 | | 0 | | 0 | | 13:30 | | | | 2 | | 4 | 1/2 | 6 | |
| 01:45 | | 0 | | 0 | | 0 | | 13:45 | | | | 2 | 7 | 5 | 15 | 7 | 22 |
| 02:00 | | 0 | | 0 | | 0 | | 14:00 | | | | 1 | | 3 | | 4 | |
| 02:15 | | 0 | | 0 | | 0 | | 14:15 | | | | 2 | | 2 | | 4 | |
| 02:30 | | 1 | | 1 | | 2 | | 14:30 | 1 | | | 1 | | 4 | 14.1 | 5 | |
| 02:45 | | 0 | 1 | 1 | 2 | 1 | 3 | 14:45 | | | | 5 | 9 | 2 | 11 | 7 | 20 |
| 03:00 | | 1 | | 0 | | 1 | | 15:00 | | | | 6 | | 6 | | 12 | |
| 03:15 | | 0 | | 0 | | 0 | | 15:15 | | | | 5 | | 3 | | 8 | |
| 03:30 | | 0 | | 0 | | 0 | | 15:30 | | | | 4 | | 9 | - 7, 1 | 13 | |
| 03:45 | | 0 | 1 | 0 | | 0 | 1 | 15:45 | | | | 5 | 20 | 2 | 20 | 7 | 40 |
| 04:00 | | 0 | | 0 | | 0 | | 16:00 | | | | 6 | | 5 | | 11 | |
| 04:15 | | O | | o | | 0 | | 16:15 | | | | 3 | | 11 | | 14 | |
| 04:30 | | 0 | | 0 | | 0 | | 16:30 | | | | 1 | | 15 | | 16 | |
| 04:45 | | Ö | | Ö | | o | | 16:45 | | | | 5 | 15 | 5 | 36 | 10 | 51 |
| 05:00 | | 0 | | 0 | | 0 | | 17:00 | | | | 3 | 1.0 | 1 | - 50 | 4 | |
| 05:15 | | O | | o | | o | | 17:15 | | | | 2 | | 3 | | 5 | |
| 05:30 | | o | | o | | 0 | | 17:30 | | | | 8 | | 3 | | 11 | |
| 05:45 | | 2 | 2 | o | | 2 | 2 | 17:45 | | | | 3 | 16 | 4 | 11 | 7 | 27 |
| 06:00 | | 3 | - | 3 | - | 6 | - 4 | 18:00 | _ | | | 4 | 10 | 1 | - 11 | 5 | - 21 |
| 06:15 | | 3 | | 0 | | 3 | | 18:15 | | | | 2 | | 5 | | 7 | |
| 06:30 | | 12 | | 1 | | 13 | | 18:30 | | | | 3 | | 2 | | 5 | |
| 06:45 | | 11 | 29 | 2 | 6 | 13 | 35 | 18:45 | | | | 0 | 9 | 3 | 11 | 3 | 20 |
| | | 2 | 29 | 1 | - 0 | 3 | 33 | 19:00 | _ | _ | | 1 | 9 | 0 | 11 | 1 | 20 |
| 07:00 | | | | | | | | 19:15 | | | | | | 1.0 | | 3 | |
| 07:15 | | 3 | | 1 | | 4 | | 19:30 | | | | 2 | | 1 | | | |
| 07:30 | | 3 | 40 | 2 | | 5 | 24 | 110 10 1 | | | | 0 | | 1 | 2 | 3 | - |
| 07:45 | | 2 | 10 | 7 | 11 | 9 | 21 | 19:45 | | | | | 5 | 0 | 2 | | 7 |
| 08:00 | | 2 | | 7 | | 9 | | 20:00 | | | | 2 | | 1 | | 3 | |
| 08:15 | | 6 | | 2 | | 8 | | 20:15 | | | | 1 | | 1 | | 2 | |
| 08:30 | | 2 | 2.2 | 6 | | 8 | | 20:30 | | | | 1 | | 0 | | 1 | |
| 08:45 | | 4 | 14 | 7 | 22 | 11 | 36 | 20:45 | | | | 5 | 9 | 2 | 4 | 7 | 13 |
| 09:00 | | 3 | | 3 | | 6 | | 21:00 | | | | 1 | | 1 | | 2 | |
| 09:15 | | 2 | | 2 | | 4 | | 21:15 | | | | 1 | | 1 | 0 | 2 | |
| 09:30 | | 1 | - 12 | 1 | - 22.71 | 2 | 34 | 21:30 | | | | 2 | | 0 | | 2 | 2 |
| 09:45 | | 2 | 8 | 1 | 7 | 3 | 15 | 21:45 | | | | 0 | 4 | 1 | 3 | 1 | 7 |
| 10:00 | | 3 | | 2 | | 5 | | 22:00 | | | | 0 | | 0 | | 0 | |
| 10:15 | | 5 | | 2 | | 7 | | 22:15 | | | | 1 | | 0 | | 1 | |
| 10:30 | | 2 | | 4 | 50A | 6 | - 6 | 22:30 | | | | 0 | | 0 | | 0 | |
| 10:45 | | 3 | 13 | 5 | 13 | 8 | 26 | 22:45 | | | | 0 | 1 | 0 | | 0 | 1 |
| 11:00 | | 9 | | 3 | | 12 | | 23:00 | | | | 0 | | 0 | | 0 | |
| 11:15 | | 1 | | 3 | | 4 | | 23:15 | | | | 0 | | 0 | | 0 | |
| 11:30 | | 1 | | 1 | | 2 | 100 | 23:30 | | | | 0 | | 0 | | 0 | |
| 11:45 | | 7 | 18 | 4 | 11 | 11 | 29 | 23:45 | | | | 0 | | 0 | | 0 | |
| TOTALS | | | 96 | | 72 | | 168 | TOTALS | | | | | 110 | | 127 | | 237 |
| SPLIT % | | - 65 | 57.1% | | 42.9% | | 41.5% | SPLIT % | | | | | 46.4% | | 53.6% | | 58.5% |

| | DAILY TOTALS | | NB | SB | EB | WB | 77 77 77 77 | | Total |
|-----------------|--------------|-------|-------|-------|-----------------|-----|-------------|-------|-------|
| التحضانا | | | 0 | 0 | 206 | 199 | | | 405 |
| AM Peak Hour | | 06:00 | 07:45 | 08:00 | PM Peak Hour | - | 14:45 | 16:00 | 16:00 |
| AM Pk Volume | | 29 | 22 | 36 | PM Pk Volume | | 20 | 36 | 51 |
| Pk Hr Factor | | 0.604 | 0.786 | 0.818 | Pk Hr Factor | | 0.833 | 0.600 | 0.797 |
| 7 - 9 Volume | | 24 | 33 | 57 | 4 - 6 Volume | | 31 | 47 | 78 |
| 7 - 9 Peak Hour | | 08:00 | 07:45 | 08:00 | 4 - 6 Peak Hour | | 16:45 | 16:00 | 16:00 |
| 7 - 9 Pk Volume | | 14 | 22 | 36 | 4 - 6 Pk Volume | | 18 | 36 | 51 |
| Pk Hr Factor | | 0.583 | 0.786 | 0.818 | Pk Hr Factor | | 0.563 | 0.600 | 0.797 |

Prepared by NDS/ATD

VOLUME

Kreuzer Ln W/O Fourth Ave

EB

WB

5B

NB

0.917

124

07:45

77 0.664

0.738

182

07:45

121

0.738

0.707

306

07:45

198

0.707

Pk Hr Factor

4 - 6 Volume

4 - 6 Peak Hour

4 - 6 Pk Volume Pk Hr Factor

Day: Thursday Date: 2/15/2018

Pk Hr Factor

7 - 9 Volume

7 - 9 Peak Hour

7 - 9 Pk Volume

Pk Hr Factor

City: Napa Project #: CA18_8062_003

0.786

165

16:45

85

0.759

0.785

147

16:15

88

0.759

0.920

312

16:15

170

0.850

Total

| | DAILY TOTALS | | - | 0 | | 0 | | 971 | | 901 | | C. | | i i | 1,8 | 872 |
|--------------|--------------|-----|-------|----|-------|----|--------|----------------|-----|-----|----|--------------|----|--------|-----|-------------|
| M Period | NB SB | EB | - | WB | | TO | TAL | PM Period | NB | SB | EB | | WB | | то | TAL |
| 00:00 | ND 30 | 0 | | 1 | | 1 | | 12:00 | 110 | | 23 | _ | 9 | | 32 | |
| 00:15 | 1 | 2 | | ō | | 2 | | 12:15 | | | 20 | | 10 | | 30 | |
| 00:30 | | ō | | o | | ō | | 12:30 | | | 21 | | 11 | | 32 | |
| 00:35 | | 1 | 3 | o | 1 | 1 | 4 | 12:45 | | | 19 | 83 | 12 | 42 | 31 | 125 |
| | | | - 3 | 0 | 1 | 1 | -4 | 13:00 | | | 12 | 03 | 19 | 42 | 31 | 123 |
| 01:00 | | 1 | | | | | | | | | | | | | 26 | |
| 01:15 | | 0 | | 0 | | 0 | | 13:15 | | | 11 | | 15 | | | |
| 01:30 | | 0 | 1.3 | 0 | | 0 | 1.1 | 13:30 | | | 11 | | 12 | | 23 | 400 |
| 01:45 | | 0 | 1 | 0 | | 0 | 1 | 13:45 | | | 12 | 46 | 11 | 57 | 23 | 103 |
| 02:00 | | 1 | | 2 | | 3 | | 14:00 | | | 22 | | 16 | | 38 | |
| 02:15 | | 0 | | 0 | | 0 | - 1 | 14:15 | | | 18 | | 11 | | 29 | |
| 02:30 | | 1 | | 1 | 5.1 | 2 | - 311 | 14:30 | | | 15 | | 10 | 1.0 | 25 | |
| 02:45 | | 0 | 2 | 1 | 4 | 1 | 6 | 14:45 | | | 22 | 77 | 28 | 65 | 50 | 142 |
| 03:00 | | 1 | | 1 | | 2 | | 15:00 | | | 17 | | 36 | | 53 | |
| 03:15 | | 0 | | 0 | | 0 | | 15:15 | | | 26 | | 22 | | 48 | |
| 03:30 | | o | | 1 | | 1 | | 15:30 | | | 17 | | 27 | | 44 | |
| 03:45 | | o | 1 | î | 3 | 1 | 4 | 15:45 | | | 14 | 74 | 14 | 99 | 28 | 173 |
| | | | | | 3 | | 4 | 16:00 | _ | | 24 | 74 | 11 | 33 | 35 | 1/3 |
| 04:00 | | 1 | | 1 | | 2 | | | | | | | | | | |
| 04:15 | | 0 | | 2 | | 2 | | 16:15 | | | 18 | | 29 | | 47 | |
| 04:30 | | 1 | | 2 | 3.5 | 3 | 66 | 16:30 | | | 22 | | 28 | | 50 | |
| 04:45 | | 0 | 2 | 5 | 10 | 5 | 12 | 16:45 | | | 16 | 80 | 14 | 82 | 30 | 162 |
| 05:00 | | 0 | | 2 | 4 | 2 | | 17:00 | | | 26 | | 17 | | 43 | |
| 05:15 | | 2 | | 5 | | 7 | | 17:15 | | | 15 | | 21 | - 1 | 36 | |
| 05:30 | | 5 | | 5 | | 10 | | 17:30 | | | 28 | | 14 | | 42 | |
| 05:45 | | 5 | 12 | 7 | 19 | 12 | 31 | 17:45 | | | 16 | 85 | 13 | 65 | 29 | 150 |
| 06:00 | | 10 | | 9 | | 19 | | 18:00 | | | 25 | | 14 | | 39 | _ |
| 06:15 | | 12 | | 6 | - | 18 | | 18:15 | | | 19 | | 8 | | 27 | |
| 06:30 | | 24 | | 7 | | 31 | | 18:30 | | | 13 | | 7 | | 20 | |
| | | 17 | 62 | | 20 | 25 | 93 | 18:45 | | | 12 | 69 | 11 | 40 | 23 | 109 |
| 06:45 | | | 63 | 8 | 30 | | 93 | | | | 6 | 09 | 4 | 40 | 10 | 103 |
| 07:00 | | 11 | | 13 | | 24 | | 19:00 | | | - | | | | | |
| 07:15 | | 18 | | 15 | | 33 | | 19:15 | l | | 5 | | 4 | | 9 | |
| 07:30 | | 7 | | 18 | 4.7 | 25 | VALUE. | 19:30 | | | 7 | | 2 | 404 | 9 | 2.3 |
| 07:45 | | 16 | 52 | 28 | 74 | 44 | 126 | 19:45 | | | 8 | 26 | 2 | 12 | 10 | 38 |
| 08:00 | | 29 | | 41 | | 70 | | 20:00 | | | 4 | | 7 | | 11 | |
| 08:15 | | 22 | | 28 | | 50 | | 20:15 | | | 8 | | 3 | | 11 | |
| 08:30 | | 10 | | 24 | 18.2 | 34 | | 20:30 | | | 5 | | 1 | | 6 | |
| 08:45 | | 11 | 72 | 15 | 108 | 26 | 180 | 20:45 | | | 11 | 28 | 2 | 13 | 13 | 41 |
| 09:00 | | 14 | | 14 | | 28 | 200 | 21:00 | | | 9 | | 1 | | 10 | |
| 09:15 | | 8 | | 10 | | 18 | | 21:15 | | | 4 | | 2 | | 6 | |
| 09:15 | | 8 | | | | 26 | | 21:30 | 1 | | 4 | | 2 | - 1 | 6 | |
| | | | 42 | 18 | 63 | | 04 | 21:45 | | | | 23 | 5 | 10 | 11 | 33 |
| 09:45 | | 12 | 42 | 10 | 52 | 22 | 94 | | - | | 6 | 23 | | 10 | | 33 |
| 10:00 | | 10 | | 11 | | 21 | | 22:00 | | | 3 | | 1 | | 4 | |
| 10:15 | | 12 | | 12 | | 24 | | 22:15 | - 8 | | 4 | | 0 | | 4 | |
| 10:30 | | 11 | | 19 | | 30 | 2500 | 22:30 | | | 0 | 0.5 | 0 | | 0 | 0.5 |
| 10:45 | 101 | 16 | 49 | 17 | 59 | 33 | 108 | 22:45 | | | 3 | 10 | 2 | 3 | 5 | 13 |
| 11:00 | 1 | 12 | | 11 | | 23 | | 23:00 | | | 1 | | 0 | | 1 | |
| 11:15 | l . | 15 | | 15 | | 30 | | 23:15 | | | 4 | | 0 | | 4 | |
| 11:30 | | 9 | | 11 | | 20 | | 23:30 | 1 | | 4 | | 0 | | 4 | |
| 11:45 | | 24 | 60 | 15 | 52 | 39 | 112 | 23:45 | | | 2 | 11 | 1 | 1 | 3 | 12 |
| | | 2-4 | | 10 | | 33 | | | | | - | | | | | |
| TOTALS | | _ | 359 | _ | 412 | - | 771 | TOTALS SPLIT % | | | | 612 55.6% | | 489 | | 110 58.8 |
| SPLIT % | | | 46.6% | | 53.4% | 1 | 41.2% | SPLIT 70 | | | | 33.076 | | 44.470 | | |
| | DAILY TOTALS | | | NB | | SB | 100 | EB | | WB | | | | | _ | otal |
| | | | | 0 | | 0 | 202 | 971 | | 901 | | | | | 1, | ,872 |
| AM Peak Hour | | | 11:45 | | 07:45 | | 07:45 | PM Peak Hour | | | | 17:30 | | 14:45 | | 14:4 |
| AM Pk Volume | e | | 88 | | 121 | | 198 | PM Pk Volume | | | | 88 | | 113 | | 199 |
| DI. H. C. | | | 0.017 | | 0.720 | | 0.707 | Di Ur Factor | | | | 0.796 | | 0.705 | | 0.02 |

| Winer | y Traffic Information / Trip Genera | ition | Sheet | |
|--|---|----------|-----------|--|
| Project Name: Caldwell Viney | ard Project Scenario: | | Permitted | asi-upanan mangasan perimpakkan kelandakan kelanda kelanda kelanda kelanda kelanda kelanda kelanda kelanda kel |
| Traffic during a Typical Week | day | | | |
| Number of FT employees: 2 | x 3.05 one-way trips per employee | = | 6 | daily trips |
| Number of PT employees: 1 | x 1.90 one-way trips per employee | = | 2 | daily trips |
| Average number of weekday visitors: 8 | / 2.6 visitors per vehicle x 2 one-way trips | 2 | 6 | daily trips |
| Gallons of production: 25000 | $/$ 1,000 \times .009 truck trips daily 3 \times 2 one-way trips | = | 0 | daily trips. |
| | Total | = | 15 | daily trips. |
| | Number of total weekday trips x .38 | æ | | PM peak trips. |
| Traffic during a Typical Satur | day | | | |
| Number of FT employees (on Saturdays): | 2 x 3.05 one-way trips per employee | = | 6 | daily trips. |
| Number of PT employees (on Saturdays): | 1 × 1.90 one-way trips per employee | ** | 2 | daily trips |
| Average number of weekend visitors: | 8 / 2.8 visitors per vehicle x 2 one-way trips | # | 6 | daily trips. |
| | Total | 2 | 14 | daily trips. |
| | Number of total Saturday trips x .57 | * # | 8 | PM peak trips. |
| Traffic during a Crush Saturd | ay | | | |
| Number of FT employees (during crush): | 2 x 3.05 one-way trips per employee | 2 | 6 | daily trips |
| Number of PT employees (during crush): | 1 x 1.90 one-way trips per employee | = | 2 | daily trips |
| Average number of weekend visitors: | 8 / 2.8 visitors per vehicle x 2 one-way trips | R | 6 | daily trips |
| Gallions of production: 25000 | / 1,000 × .009 truck trips daily × 2 one-way trips | 2 | 0 | daily trips |
| Avg. annual tons of grape on-haul: 0 | x .11 truck trips daily ⁴ x 2 one-way trips | æ | | daily trips |
| | Total | = | 14 | daily trips. |
| | Number of total Saturday trips x .57 | | 8 | PM peak trips. |
| Largest Marketing Event- Add | litional Traffic | | | |
| Number of event staff (largest event): | 0 x 2 one-way trips per staff person | 9 | 0 | trips. |
| Number of visitors (largest event): 60 | / 2.8 visitors per vehicle x 2 one-way trips | ₩. | 43 | trips. |
| Number of special event truck trips (largest eve | nt): 0 x 2 one-way trips | 2 | 0 | trips. |

³ Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Troffic Information* Shape Addisonal for reference)

Sheet Addendum for reference).

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

Winery Traffic Information / Trip Generation Sheet Project Scenario: Existing Project Name: Caldwell Vineyard Traffic during a Typical Weekday 2 x 3.05 one-way trips per employee Number of FT employees:_____ daily trips. 1 × 1.90 one-way trips per employee daily trips. Number of PT employees: Average number of weekday visitors: 8 / 2.6 visitors per vehicle x 2 one-way trips = daily trips. Gallons of production: 24191 / 1,000 x .009 truck trips daily x 2 one-way trips _daily trips. daily trips. 6 Number of total weekday trips x .38 = PM peak trips. Traffic during a Typical Saturday _daily trips. Number of FT employees (on Saturdays):_____ x 3.05 one-way trips per employee = Number of PT employees (on Saturdays): ____ x 1.90 one-way trips per employee = _daily trips. Average number of weekend visitors: / 2.8 visitors per vehicle x 2 one-way trips = daily trips. 14 _daily trips. Total 8 PM peak trips. Number of total Saturday trips x .57 = Traffic during a Crush Saturday Number of FT employees (during crush): 2 x 3.05 one-way trips per employee = daily trips. Number of PT employees (during crush): _______1 x 1.90 one-way trips per employee = 2 daily trips. Average number of weekend visitors: 8 / 2.8 visitors per vehicle x 2 one-way trips = _daily trips. Gallons of production: 24191 / 1,000 x .009 truck trips daily x 2 one-way trips daily trips. Avg. annual tons of grape on-haul: 0 x .11 truck trips daily 4x 2 one-way trips __daily trips. 14 __daily trips. Total PM peak trips. Number of total Saturday trips x .57 = Largest Marketing Event- Additional Traffic 8 4 x 2 one-way trips per staff person Number of event staff (largest event): ____ 43 Number of visitors (largest event): 60 / 2.8 visitors per vehicle x 2 one-way trips _trips. Number of special event truck trips (largest event): 2 x 2 one-way trips

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

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

| Winery Traffic Information / Trip Gene | ration | Sheet | |
|--|-------------|----------|---|
| Project Name: Caldwell Vineyard Project Scenari | o: | Proposed | ngaraninggapanun ngarani da silak kilokonda maj uningsi kalamin kilokonda silakanin |
| Traffic during a Typical Weekday | | | |
| Number of FT employees: 6 x 3.05 one-way trips per employee | 2 | 18 | daily trips |
| Number of PT employees: 6 x 1.90 one-way trips per employee | = | 11 | daily trips |
| Average number of weekday visitors: 60 / 2.6 visitors per vehicle x 2 one-way trip | 4 = | 46 | daily trips |
| Gailons of production: 35000 / 1,000 x .009 truck trips daily ³ x 2 one-way trips | = | 1 | daily trips |
| Total | • | 76 | dally trips |
| Number of total weekday trips x | .38 = | 29 | PM peak trips |
| Traffic during a Typical Saturday | | | |
| Number of FT employees (on Saturdays): 2 x 3.05 one-way trips per employ | ee = | 6 | daily trips |
| Number of PT employees (on Saturdays): 1 × 1.90 one-way trips per employ | '66 = | 2 | daily trips |
| Average number of weekend visitors: 60 / 2.8 visitors per vehicle x 2 one-way trip: | ; = | 43 | daily trips |
| Total | 塩 | 51 | dally trips |
| Number of total Saturday trips x . | .57 æ | 29 | PM peak trips |
| Traffic during a Crush Saturday | | | |
| Number of FT employees (during crush): 6 × 3.05 one-way trips per employe | 10 = | 18 | daily trips |
| Number of PT employees (during crush): 6 × 1.90 one-way trips per employ | 66 z | 11 | daily trips |
| Average number of weekend visitors: 60 / 2.8 visitors per vehicle x 2 one-way trip: | ; 2 | 43 | daily trips |
| Gallons of production: 35000 / 1,000 x .009 truck trips daily x 2 one-way trips | 쁔 | 1 | daily trips |
| Avg. annual tons of grape on-haul: 0 x .11 truck trips daily ⁴ x 2 one-way trips | | 0 | daily trips |
| Total | 湿 | 73 | dally trips |
| Number of total Saturday trips x . | 57 ≖ | 42 | PM peak trips |
| Largest Marketing Event- Additional Traffic | | | |
| Number of event staff (largest event): 6 x 2 one-way trips per staff person | = | 12 | trips |
| Number of visitors (largest event): 200 / 2.8 visitors per vehicle x 2 one-way trips | 8 | 143 | trips |
| Number of special event truck trips (largest event): 2 x 2 one-way trips | : = | 4 | trips |

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

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

EB AM Existing

HCS7: Two-Lane Highways Release 7.3

Fax:

Phone: E-Mail:

| | Direction | al Two-La | Directional Two-Lane Highway Segment Analysis | 75 £5 | |
|--|--|--|--|-------|-------|
| Analyst Kavin Rang Agencyl Hydrogod Dare Performed Anterior Rang Analysis Time Period Performed | Ke 10d AM 10d AM Pe Pe 11 Viney | W-Trans 2/16/2018 2/16/2018 AM Existing Fourth Avenu Penny Lane t Napa County 2018 | kevin Rangel (Kevin Rangel Alfabasa Alf | | |
| | | | Input Data | | |
| Highway class Class 2 | ass 2 | | Peak hour factor, PHF | 6.71 | , |
| Shoulder width | 0.0 | ť | X Trucks and buses | ۵ | e |
| Lane width | 12.0 | | % Trucks crawling | 0.0 | × |
| Segment length | 1.2 | T | Truck crawl speed | 9.0 | m1/hr |
| | | | W Documentions webicles A | 4 | , |

| choulden width | 2 2 | ŧ | Peak hour factor, PHF X Irucks and buses | | 6.71 8.41 |
|---|---------|-----------------|--|------|--------------|
| and width | 12.0 | : # | % Trucks crawling | 6 | |
| Sermont length | 1.7 | Ŧ | Truck crawl speed | Ó | 0.0 m1/hr |
| Torrain type | Rolling | | X Recreational vehicles | | |
| Grade: Lenoth | , | ï | % No-passing zones | • | 199 X |
| UMO / dOM | | 74 | Access point density | ., | |
| Analysis direction volume, Vd 77 Opposing direction volume, Vo 121 | volume, | Vd 77 Vo 121 | veh/h veh/h | | |
| | | Averag | Average Travel Speed | | |
| Direction | | | Analysis(d) | oddo | Opposing (o) |
| PCE for trucks, ET | | | 2.7 | | 2.4 |
| PCF for RVS ER | | | 1.1 | _ | 1.1 |
| Heavy-vehicle adj. factor, (note-5) fHV | factor, | note-5) | _ | | 0.919 |
| Grade adj. factor, (note-1) fg | note-1) | fg Fg | 99.6 | | 6.73 |

| | , | ŧ |
|---|-------------------------------------|-----------------------------------|
| Free-Flow Speed from Field Measurement: | Field measured speed, (note-3) S FM | Observed total demand, (note-3) V |

Page 1

mi/h veh/h

EB AM Existing

| Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS | 45.0 | #/fm | |
|--|------|-------|--|
| Adj. for lane and shoulder width, (note-3) fl.S 4.2 | 4.7 | £ ; | |
| Auj. דסר פרנפט point using typication | ; | | |
| Free-flow speed, FFSd | 20.3 | 11/11 | |
| Adjustment for no-passing zones, fnp | 2.7 | a1/h | |
| Average travel speed, ATSd | 30.3 | m1/h | |
| Percent Free Flow Speed, PFFS | 83.4 | × | |

| | Opposing (o) 1.8 1.0 0.954 0.78 229 Pc/h |
|------------------------------|---|
| Percent Time-Spent-Following | Analysis (4) 1.8 1.0 1.0 1.0 1.0 0.76 |
| Perc | Direction Analysis(d) FOE for Fucks, ET FOE FOR FUNCES, ET FOE FOR FUNCES, ET FOE |

| asures | veh-mi veh-mi veh/h veh/h veh/h | |
|--|---|-----------------------|
| -formance Me | A 6.06 33 92 11.1 1166 1700 | lvsis |
| Level of Service and Other Performance Measures_ | Level of service. USS where to capacity ratio, V/c pask 15-min which-miles of travel, WHIS pask 15-min which-miles of travel, WHO pask 15-min total travel time, TIIS capacity from ATS, CdATS Capacity from PTS, CdATS Directional Capacity | Passing Lane Analysis |

| 1.2 mi mi 39.3 mi/h A A | |
|--|--|
| Total length of analysis segment, it is ength of two-lane highway uppricemen of the passing lane, lu length of passing lane Including tapers, the Average travel speed, ATSd (from above) percent tipes-spent-following, PTSd (from above) is each of service, LOSd (from above) | |

Average Travel Speed with Passing Lane

Page 2

| 겉걸 | × | ig ig | ¥ |
|---|---|--|---|
| EB AM Existing Downstream length of two-lane highmay widthn effective length of passing lane for average travel, speed, ide Length of two-lane highmay downstream of effective langth of the passing lane for average travel speed, id mil Adj, factor for the effect of passing lane | ding passing lane, ATSpl | | illowing - X |
| Downstream length of length of passing length of two-lame ha length of the pass Adj. factor for the | on average speed, fpl Average travel speed inclu Percent free flow speed in | Downstream length of of passing lane Length of two-lane his the passing lane Adj. factor for the | Percent time-spent-following including passing lane, PTSFpl |

| with Passing Lane | veh-h | | 22 | Ф | | 198.5 |
|---|---|--------------------------|------------------------|---|--------------------|--------------------------------|
| Level of Service and Other Performance Measures with Passing Lane | Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 | Bicycle Level of Service | Posted speed limit. Sp | Dercent of segment with occupied on-highway parking | Davisment rating D | Flow rate in outside lane. VOL |

| 25 0 3 108.5 19.38 2.61 0.42 | |
|---|--|
| Possed speed limit, 5p porcupied on-highway parking percent rating, p awent rating, p Paweent rating, p Flow rest in outside also wo. Effective width of outside lane, we Effective width of outside lane, we Effective speed factor, St Eleycle LOS Score, BLOS BLOYCLE US | |

4. If yi (wo ove o) 2, 1, 2/00 BOTh, termants analysis-tre LOS is F.,

1. For the analysis direction only and for vo200 verh/h.

4. For the analysis direction only.

5. Use alternative schibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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

EB PM Existing

HCS7: Two-Lane Highways Release 7.3

| Dùr | ections | J THOP LE | Directional Two-Lane Highway Segment Analysis | 2 |
|-------------------------------|---------|-----------------------|---|-----------|
| Analyst | Ř | Kevin Rangel | 7 | |
| Agency/Co. | 7 | ¥-Trans | | |
| Date Performed | 5 | 2/16/2018 | | |
| Analysis Time Period | | PM Existing | | |
| Higheay | ũ | urth Avei | Fourth Avenue Eastbound | |
| From/To | Per | ane fure | Penny tane to Kreuzer Lane | |
| Jurisdiction | Mag | Mapa County | | |
| Analysis Year | 2018 | 18 | | |
| Description Cadwell | Viney | Cadwell Vineyards TIS | S Innut Data | |
| Highway class Class 2 | 2 | | actor, PHF | 0.92 |
| | 9.9 | £ | % Trucks and buses | ** |
| Lane width | 12.0 | ŧ | | 9.0 × |
| Segment length | 1.2 | | | 0.0 mi/hr |
| Terrain type | Rolling | 26 | % Recreational vehicles | × |
| Grade: Length | , | ī | | 100 % |
| | | ж | Access point density | 18 /mi |
| Analysis direction volume, Vd | olume, | Vd 82 | veh/h | |
| Opposing direction volume, | olume, | Vo 113 | veh/h | |
| | | | | |

| Highway class Class 2 | 2 2 | | Peak hour factor, PHF | 0.92 | |
|---|-----------|---------|-------------------------|---|-------|
| Shoulder width | 9.9 | £ | % Trucks and buses | 9 | ×t |
| Lane width | 12.0 | ŧ | % Trucks crawling | | × |
| Segment length | 1.2 | ni i | Truck crawl speed | 0.0 | mi/hr |
| Terrain type | Rolling | 14 | % Recreational vehicles | 4 | × |
| Grade: Length | , | Ę | % No-passing zones | 100 | × |
| Up/do⊮n | | × | Access point density | 18 | /mi |
| Analysis direction volume, Vd 82 | volume, | Vd 82 | veh/h | | |
| Opposing direction volume, Vo | volume, | Vo 113 | veh/h | | |
| | | Average | Average Travel Speed | *************************************** | |
| Direction | | | Analysis(d) | Opposing (o) | (0) |
| PCE for trucks, ET | | | 2.7 | 5.6 | |
| PCE for RVs, ER | | | 1.1 | 1.1 | |
| Heavy-vehicle adj. factor, (note-5) fHV | factor, (| note-5) | fHV 0.984 | 60.500 | _ |
| Grade adi. factor.(note-1) fe | note-1) | - Le | 9.67 | 69.6 | |

| Direction | Analysis(d) | | Opposing (o) | _ |
|---|-------------|------|--------------|------|
| PCE for trucks, ET | 2.7 | | 5.6 | |
| PCE for RVs, ER | 1:1 | | 1,1 | |
| Heavy-vehicle adj. factor, (note-5) fHV | 0.964 | | 60.60 | |
| Grade adj. factor, (note-1) fg | 6.67 | | 69.6 | |
| Directional flow rate, (note-2) vi | 147 | pc/h | 196 | pc/h |
| Free-Flaw Speed from Field Neasurement: | ï | | | |
| Field measured speed, (note-3) S FM | • | E | m1/h | |
| Observed total demand (note-3) V | • | > | veh/h | |

Page 1

ë × Downstream langth of tuc-lane highway within effecting tender of sasted lane for overgree travel speed, ide tength of the harsing lane for average travel speed, ide additionable of the parsing lane for average travel speed, id and section for the contract of the contract land including passing lane. Average speed, founding passing lane, Affpl. Percent Time-Spent-Following with Passing Lane_

Estimated Free-Flow Speed:
Base free-flow speed(note-1) BFFS
Adf. for Inne and shoulder width,(note-2) FA 4.2
Adf. for access point density,(note-3) FA 4.5

EB PM Existing

36.3 2.7* 38.9 85.2

Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS

Free-flow speed, FFSd

겉같 Downstream length of two-lane highway within effective lungth of passing lane for percent itse-spent-obloading, Lefferth of two-lane highway downstream of effective longth of the passing lane for percent time-spent-following, Ld Adj. factor for the effect of passing lane on a percent time-spent-following, fpl on spectret time-spent-following, fpl

Level of Service and Other Performance Measures with Passing Lane veh-h Level of service including passing lane, LOSpl A Peak 15-min total travel time, TTIS

pc/h

Opposing (o)
1.8
1.0
0.954
0.72
pc/

_Percent Time-Spent-Following

Level of Service and Other Performance Measures

A 6.05 27 29 98 1563 1760 1760

level of service, 105
Volume to capacity ratio, V/c
Peak IS-min whiche-miles of travel, WHIS
Peak-Hour whiche-miles of travel, WHG0
Peak IS-min total travel time, TIIS
Capacity from MIS, CdMIS
Capacity from MIS, CdMIS
Capacity from MIS, CdMIS
Capacity from MIS, CdMIS
Chrectional Capacity

Bicycle Level of Service

| 25 | 6 0 7 | 89.1 | 19.68 | 2,61 | 3,38 | U |
|------------------------|---|---------------------------------|-------------------------------------|----------------------------|-------------------------|-------------|
| Posted speed limit, Sp | Percent of segment with occupied on-highway parking | Flow rate in outside lane, vol. | Effective width of outside lane, We | Effective speed factor, St | Bicycle LOS Score, BLOS | Bicycle LOS |

wheres:

1. Nowe that the adjustment factor for lavel terrain is 1.00, as lavel terrain
1. Nowe that the adjustment factor for lavel terrain
1. Nowe the base conditions. For the purpose of grade adjustment, specific
2. If we (wo wo) > 1.40 pp.Ch, termints analysis-the loS is F.
2. If we (wo run) > 1.40 pp.Ch, termints analysis-the loS is F.
4. For the analysis direction only and for voled welvh.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a perific domigrate.

를 를 를 끌 기 나

1.2 tength of broklame highway upstream of the passing lane, lu tength of brealame highway upstream of the passing lane, lu tength of passing lane including tapers, tpl Average travel speed, ATSG (from above)

Percent time-spent-following, PTSG (from above)

A stevel of service, LGGG (from above)

A

Passing Lane Analysis.

Average Travel Speed with Passing Lane

Page 2

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

EB AM Existing + Project

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Fax:

Phone: E-Mail:

| Dire | ctional Two- | Directional Two-Lane Highway Segment Analysis | Analysis | | |
|--|---|--|----------|-----------|---|
| Analyst kevin kang Date(x)(co. H-Trans Date(x)(co. H-Trans Date(x)(co. H-Trans Analysis Time Period Analysis Highway Peniod Pourth Aven Peniod Trans Date(x)(co. H-Trans)(co. H-Trans) Analysis Year Description Cadwell Vinyards TIS | Kevin Rangel W-Trans 2/16/2918 AM Existing Fourth Avenu Penny Lane t Napa County 2018 | Kevin Rangel 4-Trans 7/16/2018 7/16/ | | | |
| | | Tubut Data | | | |
| Highway class Class 2 | ~ | Peak hour factor, PHF | | 0.71 | |
| Shoulder width | 0.0 ft | X Trucks and buses | 9 | × | |
| lane width | 12.0 ft | % Trucks crawling | | 6.0 * | |
| Coment length | Ī | Truck crawl speed | | 0.9 mi/hr | ř |
| Terrain tone | 365 | % Recreational vehicles | hicles 4 | × | |
| | | V No. species tone | | 100 | |

| ж и д ж и / rt/ tr ig | | (o) - pc/h |
|---|---|--|
| 6.71 6.0 6.0 6.0 5.4 196 18 | | Opposing (o) 2.4 1.1 9.919 9.73 |
| Peak hour factor, PHF Frucks and buses X Trucks crawiling Truck crawil speed Truck crawil speed Truck Secreticional vehicles X No-passing Zones Access point density | /h Speed | Analysis(d) 2.6 1.1 6.909 0.68 187 pc/h |
| X Truck Truck X No-p | rd 82 veh/h ro 121 veh/h Average Travel Speed_ | Anal fHV |
| s First Firr | Vd 82 Vo 121 Averagi | (note-5) fg e-2) vi |
| 55 2 0.0 12.0 11.2 Rolling | volume, volume, | factor, (note-1) ate,(not |
| Highway class Class 2 Shoulder width 0.1 Lane width 1.1 Segment length 1.1 Ternain type RR Grade: Length 1.1 | Analysis direction volume, Vd 82 Opposing direction volume, Vo 121 Averag | Direction For for trucks, ET PCE for FWS, ER Heavy-wehicle add, factor (note-5) fMV Grade add, factor (note-1) fE Directional flow rate (note-5) vi |

ms/h veh/h pc/h 187 Free-Flow Speed from Field Heasurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V Directional flow rate, (note-2) vi

Page 1

Level of Service and Other Performance Measures 36.3 2.7* 30.2 83.1 Percent Time-Spent-Following Etilanted Free-Flow Speed:

Base free-flow Speed (order 3) BFS
Adj. for lame and shoulder width, (note-3) ffS 4.2
Adj. for access point density, (note-3) fA 4.5 Adjustment for no-passing zones, fnp Average travel speed, AT5d Percent Free Flow Speed, PFFS Free-flow speed, FFSd Level of service, LOS

| Volume to capacity ratio, v/c | 35 | in the | |
|---|-------|---|------|
| Peak 15-min venicle-miles of travel, volts | ç | 111111111111111111111111111111111111111 | |
| Peak-hour vehicle-miles of travel, VMT60 | 8 | veh-m1 | |
| Peak 15-min total travel time, TT15 | 1.2 | veh-h | |
| Capacity from ATS, CdATS | 1663 | veh/h | |
| Capacity from PTSF, CdPTSF | 1790 | veh/h | |
| Directional Capacity | 1700 | veh/h | |
| Passing Lane Analysis_ | | | |
| Total length of analysis segment, Lt | | 1.2 | Ä |
| Length of two-lane highway upstream of the passing lane, Lu | lane, | , | Ä |
| Length of passing lane including tapers, Lpl | | , | 겉 |
| Average travel speed, ATSd (from above) | | 30.2 | mi/h |
| Percent time-spent-following, PTSFd (from above) | | 42.3 | |
| Level of service, LOSd (from above) | | 60 | |
| | | | |

겉 ï **Z** Z ER AN EXISTIC + Project
Domistress length of two-lane highway within effective
Length of passing land for average reves pres, lee
Length of two-lane highway contrared or effective the passing lane for average trans as peed, led
Add; sector for high effect of passing lane and average speed, folding passing lane on average speed, folding passing lane, MYSPI

Average speed including passing lane, MYSPI

On average speed including passing lane, PYFSPI

On average speed including passing lane, MYSPI

On average speed including passing passing lane, MYSPI

On average speed passing passing passing passing Downstream length of two-lame highway within effective length of passing law for percent time-point-folloding, Ldeflength of two-lame highway domestream of effective length of the passing lame for percent time-spent-following, Ldefletor for the effect of passing lame on percent time-spent-following, fpl on specent time-spent-following, fpl percent time-spent-following passing lame, PTSFpl -Percent Time-Spent-Following with Passing Lane_

EB AM Existing + Project

Level of Service and Other Performance Measures with Passing Lane veh-h Level of service including passing lame, LOSpl A Peak 15-min total travel time, TT15 Bicycle Level of Service

pc/h

Opposing (o)
1.8
1.0
0.954
0.78
229
pc/

25 9 3 115.5 19.68 2.61 3.51 0 Posted speed limit, 5p
Percent or segment with occupied on-highway parking
Pavement rating, P
Pavement rating, P
Pavement rating, P
Percent or to routised lane, vol.
Effective width of outside lane, We
Effective width of outside lane, We
Effective width of outside lane, We
Bigycle Los Score, 8LOS
Bigycle Los Score, 8LOS

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is not of the base conditions. For the purpose of grade adjustment, specific dengrade segments are treated as level terrain.

1. For iven analysis distriction only and for vy200 veh/h.

1. For the analysis direction only and for vy200 veh/h.

5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

These items have been entered or adited to override calculated value

Average Travel Speed with Passing Lane

EB PM Existing + Project

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| | Analysis | |
|-------------------|---|--|
| Fax: | Highway Segment | Project Eastbound Kreuzer Lane |
| | Directional Two-Lane Highway Segment Analysis | Hevin Rangel HTons 2/16/2018 PM Existing + Project Fourth Avenue Eastbound Pemy Lane To Kreuzer Lane Napa County Valva T15 |
| Phone: E-Maíl: | Dire | Analyst kevis Rang Agnowy/Co. H-Trans Date Performed 2/16/2018 Analysis Time Period PM Existin Highway Period Period Period Franch Period Period Juney Lane Analysis Year 2018 |
| | | |

| Highway class Class | lass 2 | | Peak hour factor, PHF | 0.92 | |
|---------------------|---------|---|-------------------------|------|------|
| Shoulder width | | ¥ | % Trucks and buses | 9 | × |
| Lane width | 12.0 | ¥ | % Trucks crawling | 9.9 | ×ŧ |
| Segment length | 1.2 | | Truck crawl speed | | mi/h |
| Terrain type | Rolling | | % Recreational vehicles | | × |
| Grade: Length | ı | ī | % No-passing zones | | × |
| UP/down | • | × | Access point density | 18 | /m, |

veh/h veh/h Analysis direction volume, Vd 99 Opposing direction volume, Vo 128

| irection | Analysis(d) | _ | Opposing (o) |
|---|-------------|-----|--------------|
| CE for trucks, ET | 2.7 | | 2.5 |
| ICE for RVs, ER | 1.1 | | 1.1 |
| Heavy-vehicle adj. factor, (note-5) fHV | FHV 0.904 | | 0.914 |
| irade adj. factor, (note-1) fg | 0.67 | | 9.79 |
| Wirectional flow rate, (note-2) vi | 162 | h/h | 217 pc/h |

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V

mi/h veh/h

Average Travel Speed with Passing Lane

Total length of analysis segment, it therefor the Coulann Algorius upstream of the passing lane, lu length of passing lane including tapers, Lpl Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) 19.7
Percent tabe-spent-following, PTSd (from above) 19.7
Level of service, LoSd (from above) A

Passing tane Analysis

| _ | de . | 'd, Ld ' | • | ٠ | 0.0 | ene Lana |
|---|---|---|-----------------------|--|--|--|
| EB PM Existing + Project Downstream length of two-lane highway within effective | length of passing lane for average travel speed, Lde | length of the passing lame for average travel speed, Ld | | , ATSpl | Percent free flow speed including passing lane, PFFSpl | Dercent Time-Spent-Following with Dassing Lane |
| PM Existing | length of passing lane for average travel speed pareth of the lane highway democrass of affective | Length of the passing lane for average | allet Sure | Average travel speed including passing lane, ATSpl | g passing l | nt-Followin |
| EB ro-lane his | lane for av | ing lane fo | [p] | cluding pa | including | TimesSner |
| ngth of th | passing : | the pass | on average speed, fpl | 1 speed in | flow speed | Dercen |
| stream le | length of | length of | on averag | age trave | ent free | |
| Down | - | 1 | į | Aver | Perc | |

Estimated Free-Flow Speed:

Base free-flow speed (nee-3) BFFS

Mady. for lane and shoulder width (note-3) fls 4.2 mid.

Add. for ancess paint density, (note-3) fls 4.2 mid.

Free-flow speed, FFSd

Adjustment for no-passing zones, fnp

E E

T T Downstream length of two-lane highway within effective langth of passing land from percent itser-spent-olationing, lie fleight of two-lane highway downstream of effective length of the passing land for percent time-spent-

Opposing (a)
1.8
1.0
0.954
0.76
192 pc/

Percent Time-Spent-Following

Level of Service and Other Performance Measures

A 6.06 22 108 9.9 11700 1700

Level of service, LOS
Volume to capacity ratio, v/c
Volume to capacity ratio, v/c
Peak Li-min vehicle-miles of travel, WHIS
Peak Chonou vehicle-miles of travel, WHG0
Peak Li-min total travel time, TIIS
Capacity from NIS, CAMIS
Capacity from PIS, CAMIS

Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-win total travel time, TT15

| *************************************** | 25 9 3 97.8 18.60 2.61 3.52 |
|---|--|
| Bicycle Level of Service | Posted speed limit, 5p Percent of Segment with occupied on-highway parking Pavement rating. Plow rate in outside lane, vol. Effective width of outside lane, We Effective speed factor, 5t Bicycle toS score, BLOS Bicycle toS |

Motes:

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

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

Note of the base conditions. For the purpose of grade adjustment, specific

One demograde segments are treated as level permains of grade adjustment, specific and to the form of the analysis of the form of the permains for vision veryly.

So the adjust adjustment of the form of the form

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

WB AM Existing

HCS7: Two-Lane Highways Release 7.3

Fax:

Phone: E-Mail:

| Die Performed 2/15/2018 Die Performed AM Existin Highway Frondrich Marker Las Frondrich Marker Las Frondrich Marker Las Frondrich Marker Country Analysis Year's Country Description Cadwall Vineyards TIS Highway Class Class 2 Shoulder Addth G.0 ft Segment Length 1.2 mil |
|---|
|---|

| , PHF 8.71 | es 6 | 0.0 | | icles 4 | 196 | | | | Opposing (o) | 2.7 | 1.1 | 6.964 | 97 0 |
|-----------------------|--------------------|-------------------|-------------------|-------------------------|--------------------|----------------------|--|----------------------|--------------|--------------------|-----------------|--|-------------------------------|
| Peak hour factor, PHF | X Trucks and buses | % Trucks crawling | Truck crawl speed | % Recreational vehicles | X No-passing zones | Access point density | veh/h veh/h | Average Travel Speed | Analysis(d) | 2.4 | 1.1 | fHV 0.919 | 67.0 |
| 18 2 | 9.9 ft | 12.0 ft | 1.2 mi | Rolling | 뒽 | > t | volume, Vd 121 volume, Vo 77 | Average | | | | factor, (note-5) | |
| Highway class Class 2 | Shoulder width | Lane width | Segment length | Terrain type | Grade: Length | Up/down | Analysis direction volume, Vd Opposing direction volume, Vo | | Direction | PCE for trucks, ET | PCE for RVs, ER | Heave-vehicle adi. factor (note-S) fHV | the state of the state of the |

| Direction | AUSTYSIA) | | Sirecordo | 2 |
|---|-----------|------|-----------|---|
| ucks, ET | 4.4 | | 2.7 | |
| PCE for RVs. ER | 1.1 | | 1.1 | |
| Heavy-vehicle adj, factor, (note-5) fHV | 0.919 | | 6.964 | 4 |
| Grade adf. factor, (note-1) fg | 0.73 | | 99.6 | _ |
| Directional flow rate, (note-2) vi | 254 | pc/h | 176 | |
| | | | | |
| Free-Flow Speed from Field Measurement: | | | | |
| Field measured speed, (note-3) S FM | , | | η/\m | |
| Observed total demand, (note-3) V | • | | veh/h | |
| | | | | |

WB AM Existing

| Estimated Free-Flow Speed: | | | |
|--|------|------|--|
| Base free-flow speed, (note-3) BFFS | 45.0 | mi/h | |
| Adi. for lane and shoulder width, (note-3) fLS | 4.2 | mi/h | |
| Adj. for access point density, (note-3) fA 4.5 | 4.5 | mi/h | |
| Free-flow speed, FFSd | 36,3 | m1/h | |
| Addustment for no naceing some for | 2.7 | d/h | |
| Average travel speed, ATSd | 38.3 | Mi/h | |
| Descript Free Flow Speed, PERS | 83.4 | × | |

| <u>_</u> |
|----------|
| 듏 |
| 뎚 |
| ent |
| ŝ |
| Ē |
| ercent |
| • |

| Olrection Analysis(d) 1.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | Analysis (d) 1.8 1.0 0.954 0.78 2.29 pc/h | Opposing (o) 1.8 1.0 6.954 8.74 154 pc/h | |
|---|---|--|--|
| Adjustment for no-passing zones, fnp Percent time-spent-following, PT5Fd | 55.3 | : >4 | |

__Level of Service and Other Performance Measures_

Passing Lane Analysis

| 1.2 mi | - mi | - E | 30.3 mi/h | 57.3 | U |
|--------------------------------------|---|--|---|--|-------------------------------------|
| Total length of analysis segment, Lt | Length of two-lane highway upstream of the passing lane, Lu | teneth of massing lane including tapers, Lpl | Average travel speed, ATSd (from above) | Percent time-spent-following, PTSFd (from above) | level of service. LOSA (from above) |

Average Travel Speed with Passing Lane_

i i Downstream length of two-lane highway within effective langth of passing lane for average travel speed, ide length of two-lane highway denominated ide in Ength of two-lane highway denominated fefective in Ength of the passing lane for average travel speed, id - m average preped, pl. Average travel speed, including passing lane, ATSpl Percent free flow speed including passing lane, PFFSpl 0.9 X

Percent Time-Spent-Following with Passing Lane___

Z Z Downstream length of two-lane highway within effective length of passing last for percent item-spen-clouding, Ld of the passing land for percent time-spen-following, Ld of the passing land for percent time-spent-following, Ld of Add, factor for the effect of passing lane on a percent time-spent-following, fpl on percent time-spent-following, fpl

Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, lOSpl A Peak 15-min total travel time, TT1S

Bicycle Level of Service

| . e 25 | 179.4 16.74 2.61 4.12 D |
|---|--|
| ed on-highway parking | |
| Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating. | Flow rate in outside lane, vol. Ffective width of outside lane, Effective speed factor, St Bisycle LOS Score, BLOS Bisycle LOS |

Notes:

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

1. Note that the adjustment factor for the purpose of grade adjustment, specific dengrades esgends are tratest as level terrain.

1. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.

1. For the analysis direction only, and for v.200 veh/h.

5. For the analysis direction only.

5. Use alternative Entibit 15-14 if some trucks operate at creal speeds on a specific doungrade.

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

WB PM Existing

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Fax:

Phone: E-Nail:

Percent Time-Spent-Following

Estimated Free-Tow Speed:

Base free-Tow speed, (note-) Bifs

Adj. for lame and shoulder width (note-) fis 4.2 mi/
Adj. for access paint density, (note-) fit 4.2 mi/
Free-Tow speed, fisd

Adjustment for no-passing lames, fip

| | | и м <u>е</u> и м и г |
|---|--|--|
| is | | 6.92 6.00 6.0 6.0 14 18 |
| Directional Two-Lane Highway Segment Analysis | Heavin anngel 1/16/2018 Putton Westbound Futting Heaving Heaving Lane Frequent Avenue Westbound Frequent Avenue Westbound Frequent Anna Penny Lane 7894 7894 7894 7894 7894 7894 7894 7894 | peak hour factor, PHF X Trucks and Duses X Trucks crawing Truck crawing seed X Recreational vehicles A No-passing Zones Access point density veh/h |
| onal Two-tar | Kevin Rangel W-Trans 2/16/2018 Pe Existing Fourth Avenu Kreuzer Lane Knpa County 2018 eyards TIS | 2 0.0 ft 11.0 ft 11.2 ml 11.2 ml 11.1 ml |
| irectíc | be 11 Vina of the control of the con | 55 2 0.0 12.0 1.2 Rolli - volume, |
| G | Analyst Revis Rang Agrovyco. H.Tranna Date Derformed 2/45/2018 Date Derformed Presistin Habysis Time Period Fourth Habysis Time Period Fourth Habysis Vest Range Comit Analysis Vest Cadeall Vineyand 713 | Highway class 2 the Standard width 0.6 ft Standard width 0.6 ft Standard width 12.0 ft Standard width 12 miles and Standard width 12 miles with the Standard width 12 miles with the Standard width 12 miles with the Standard width 12 miles with 12 miles wi |

| 1.9 | |
|---|-------------------------|
| 1.0 | |
| 6.949 | |
| 6.73 | |
| 129 | pc/h |
| × | |
| | |
| at | |
| Level of Service and Other Performance Measures | |
| | |
| 0.07 | |
| ven-mi | |
| veh-mi | |
| veh-h | |
| veh/h | |
| veh/h | |
| veh/h | |
| | |
| 1.2 | ă, |
| | 'n. |
| ı | mi |
| 30.9 | #t/h |
| 50.8 | |
| n | |
| Directional Capacity Passing Lane Analysis Total length of analysis segment, of the passing lane, Lu - tength of two-lane highway upstream of the passing lane, Lu - tength of passing hane ficulading tapers, Lpl - Percent Liter-spent-following, prised (from above) 5 Specent Liter-spent-following, prised (from above) 5 Sevent of service, loga (from above) 8 | /h 5.2 9.9 9.8 |

Level of Service and Other Performance Measures with Passing Lane ĸ 핕 34 **=** = . . 0 veh-h Denotream length of tuc-lane highway within effecting that of partial lane for the lane highway within effective country of tuc-lane highway ountream of effective let all of the partial lane for average travel speed, id all of factor for the partial lane for average travel speed, id a factor for the partial lane for average travel speed following passing lane. Argal partial speed including passing lane, MTSpl. Percent Time-Spent-Following with Passing Lane_ Downstream length of two-lane highmay within effective langth of passing lane for percent likes-point-ollouing, Ldefight of two-lane highmay downstream of effective length of the passing lane for percent likes-pent-following, Ld Add, factor for the effect of passing lane on percent this-spent-following, pp. on percent this-spent-following, pp. Percent the-spent-following, pp. percent the-spent-following, pp. percent the-spent-following, pp. percent the-spent-following passing lane, PRSP1 Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 Bicycle Level of Service

| 25 6 3 122.8 17.22 2.61 3.88 |
|--|
| parking |
| on-highway We |
| Ported speed limit, Sp Percent of segment with occupied on-highway parking Parvenent rating, P Flow rate in Outside lane, Vol. Effective width of outside lane, We Effective speed factor, St Bicycle 105 Score, BLOS Bicycle 105 |

Mores:

Where that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific is one of the base conditions. For the purpose of grade adjustment, specific 2. If will down to 1.3. 1.700 pc/h, terraintse analysis-the LOS is F. For the analysis direction only, and for 0.200 web/h.

S. Der the analysis direction only and for 0.200 web/h.
S. Use alternitive Exhibit is-la if some trucks operate at creal speeds on a specific downgrate.

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

Average Travel Speed with Possing Lane

pc/h

pc/h

mi/h veh/h

Free-flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V

Page 1

Opposing (o) 2.7 2.7 1.1 0.994 0.67 147 pc.

Olrection Analysis (4)
PGE for trucks, ET 2.6
PGE for RNs, ER 1.1
Pksay-worklice add, factor, (note-5) fftV 0,999
Grade add, factor, (note-1) vi 196
Olrectional flow rate, (note-2) vi 196

Average Travel Speed

Page 2

WB AM Existing + Project

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Fax:

Phone: E-Mail:

| | Directio | -dwl Teno | Directional Two-Lane Highway Segment Analysis_ | Siz. | |
|-----------------------------------|-----------|--------------|--|------|-------|
| Analyst | _ | Kevin Rangel | gel | | |
| Agency/Co. | • | W-Trans | | | |
| Date Performed | " | 2/16/2018 | | | |
| Analysis Time Period | | M Exist | AM Existing + Project | | |
| Highway | | ourth Av | Fourth Avenue Westbound | | |
| From/To | ~ | (reuzer L | Kreuzer Lane to Penny Lane | | |
| Jurisdiction | • | Napa County | ty. | | |
| Analysis Year | ., | 2018 | | | |
| Description Cadwell Vineyards TIS | Mell Vine | eyards TI | v | | |
| | | | Input Data | | |
| Highway class Class 2 | lass 2 | | Peak hour factor, PHF | 17.0 | |
| Shoulder width | 9.9 | ¥ | % Trucks and buses | • | × |
| tane width | 12.0 | 3 ft | X Trucks crawling | 6.6 | at. |
| | | 7 | Tarrett Course, Special | 9 | mi/hr |

| Highway class Class 2 | lass Cla | 55 2 | | Peak hour factor, PHF | 6.71 | |
|---------------------------------|----------------------|---------|-----------------|-------------------------|------|------|
| Shoulder | ddth | 9.9 | ¥ | % Trucks and buses | 9 | M |
| Lane width | ٠. | 12.8 | ¥ | X Trucks crawling | 9.9 | æŧ |
| Serment le | neth | 1.2 | 핕 | Truck crawl speed | 9.9 | mi/h |
| Terrain to | 90 | Rolling | | % Recreational vehicles | 4 | ¥ |
| Grade: Le | angth | , | 뒽 | % No-passing zones | 199 | ×ŧ |
| UMOD/dO | /down | , | × | Access point density | 18 | ĮĮ. |
| Analysis direction volume, Vd . | irection irection | volume, | Vd 121 Vo 82 | veh/h veh/h | | |

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V

Page 1

mi/h veh/h

Average Travel Speed with Passing Lane Page 2

| Marca Marc | WB AM Existing + Project | Project | | WB AM Existing + Project |
|--|--|--------------------|----------------------|--|
| 36.3 mi/h 10g zones, fnp 2.7 mi/h 1754 183.1 X 19975 193.1 X 19975 1998.1 X 1998.2 X 19 | Estimated Free-flow Speed: Sase free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) fLS Adj. for access point density,(note-3) fA | 45.0 4.2 4.5 | mi/h mi/h mi/h | Commission acqueron of the control of the length of passing land for average travel speed, Ide length of two-lane highway downstream of effective length of two-lane highway downstream of effective length of the passing lane for average travel speed, Id Add. Actor for the effect of passing lane |
| 2.7' al/h 30.2 al/h 80.1 X Downstrean leng of passing chassing chassin | Free-flow speed, FFSd | 36.3 | m1/h | on average speed, fpl Average travel speed including passing lane, ATSpl |
| Downstream length of passing | Adjustment for no-passing zones, fnp Average travel speed, ATSd | 38.2 | 4/17 1/18 1/17 | percent free flow speed including passing lane, PFFSpl 0.0 Percent Time-Spent-Following with Passing Lane. |
| Percent Time-Spant-Following | | | | Downstream length of two-lane highway within effective length of passing lane for percent them-spent-following, Lde Length of two-lane highway downstream of effective length of two-lane highway downstream of the land of the land of the land of two-lane highway downstream of the land of two-lane highway downstream of the land of two-lane highway downstream of two-lan |
| Analysis(d) Opposing (o) 1.8 | Percent Time-Spent-Foi | llowing. | | the passing lane for percent time-spent outcoming, to |
| | Direction Analysis(| 9 | Opposing (o) | on percent time-spent-following, fpl Percent time-spent-following Percent procedure pr |

겉 겉

| | pc/h | | mai mai mai/h |
|------------------------------|--|--|--|
| | ê , | | 五五五五 |
| | Opposing (o) 1.8 1.0 0.954 8.74 X | veh-mi veh-mi veh-h veh/h veh/h | 1.2 Lu ' 38.2 57.2 |
| 24 | /h 24.2 56.6 57.2 | nce Me C 6,18 51 145 11.7 1663 1788 | lane, |
| t-Followir | Analysis(d) 1.8 1.0 0.954 0.78 229 pc/h e-4) BPTSFG 24, | Performan | Passing Lane Analysis gment, Lt the passing lupstream of the passing lupstream of the passing liftom above) g, PTSFd (from above) m above) |
| e-Sper | Ana) | Other VMT13 | Lane of the ers, l ve) (from |
| Percent Time-Spent-Following | Direction Analysis(d) Ce for rucks, ET 1.8 1.8 1.8 1.9 1.9 1.9 1.9 1.9 | Level of service and Other Performance Ressures. Level of service, 105 Volume to capacity ratio, V/C Bask Somin which-miles of travel, WHIS Bask Somin which-miles of travel, WHIS Bask Sis-min valuation for travel, WHIS Bask Sis-min total travel time, TIIS Bask Sis-min total travel time, TIIS Capacity from ATS, CAMTS Capacity from ATS, CAMTS Directional Capacity Type well, MIS Type well, MIS Type WHIM Type Capacity From ATS, CAMTS Typ | Passing Lane Analysis segment, Lit companies to the passing lane, Lu tength of the Lunah highway spirstean of the passing lane, Lu tength of passing lane including tapers, Lpl (from above) Percent tide-pont-following, PISed (from above) Level of service, LOSG (from above) |

| | , | |
|--|---------------------|----|
| Posted speed limit, Sp | 52 | |
| Percent of segment with occupied on-highway parking | 0 | |
| Pavement rating P | m | |
| Flow rate in outside lane, vol. | 178.4 | |
| Effective width of outside lane, We | 16.74 | |
| Effective speed factor, St | 2.61 | |
| Bicycle LOS Score, BLOS | 4.12 | |
| Bicycle LOS | Q | |
| Notes: | | |
| Note that the adjustment factor for level terrain is 1.00, as level terra: | 1.00, as level terr | Ē. |

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl A Peak 15-min total travel time, 1715

Bicycle Level of Service

veh-h

ai ai

a. mote char the adjustment factor for level terrain is 1.80, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific demograde segments are treated as level terrain.

If vi (vi ov to) > 1,50 pc/h, terrainse analyste the 105 is F.

3. For the malysist direction only and for v2380 wh/h.

4. For the malysist direction only.

5. Les alternative Enhibit 15-14 if some trucks operate at crawl speeds on a specific doungrade.

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

WB PM Existing + Project

WB PM Existing + Project

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|-------------------|---|---|---|--|
| | | | | (0) (0) E E E E E E E E E E E E E E E E E E E |
| | sis | | - | 0.92 % % 6 6 6 8 8 4 6 % % % 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 |
| Fax: | Directional Two-Lane Highway Segment Analysis | vevin Rangel Compared to the | Input Data | ik hour factor, PHF Trucks and buses Trucks creating Certain apen Gereational vehicla Gereational vehicla Gereational vehicla Gereational vehicla Veh/h Veh/ |
| | onal Two-L | Kevin Rangel M-Trans 2/16/2018 PH Existing Fourth Avenu Kreuzer Lane Napa County 2018 | *************************************** | 2 |
| Phone: E-Mail: | Directi | Analyst Kovin Rang Berryloca Krans An Perpended 2,1620s Man Period Period Period Frank Frank Analysis Year 1938 Description Cadwell Vineyards 115 | | Highmay class class 2 Rioulder width 6.0 ft X 1 Lan width 12.0 ft X 1 Fersain type Rolling X 5 Grade: Length Acc Grade: Length Acc Analysis direction volume, vo 90 Opposing direction volume, vo 90 Fet for NV. K 6 Fet for trucks, ff 7 Average Tr Av |

pc/h 로 말 말 말 다. 라 / 나 Opposing (o)
1.9
1.0
0.949
0.73
141
pc/ veh-mi veh-h veh/h veh/h 1.2 . 30.7 53.1 _Level of Service and Other Performance Measures Direction

Direction Total length of analysis segment, Lt
ength of analysis segment, Lt
tength of two-lankinghowy percean of the passing lane, Lu
tength of passing lane including tapers, Lpl
tength of passing lane including tapers, Lpl
Percent time-spent-following, PSEG (from above)
tevel of service, LOSG (from above) Average Travel Speed with Passing Lane 8 9.08 42 154 11.4 1700 1700 Percent Time-Spent-Following Etimated Free-Flow Speed:

Base free-flow speed, (note 1) BFS

Adj. for lane and shoulder width,(note-1) ft. 4.2

Adj. for access point density,(note-1) ft. 4.2 36.3 2.7* 36.7 84.5 __Passing Lane Analysis level of service, 103
Volume to capacity ratio, V/c
Peak LS-min vehicle-miles of travel, WHIS
Peak-hour vehicle-miles of travel, WHG0
Peak LS-min total travel time, TH15
Capacity from ATS, CAMTS
Capacity from PATS, CAMTS
Capacity from PATS
Capacity from PATS
Capacity Capacity
Capacity Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFF5 Free-flow speed, FFSd

Z 겉걸 Level of Service and Other Performance Measures with Passing Lane veh-h Percent Time-Spent-Following with Passing Lane Downstream length of two-lane highway within effective langth of passing lane for percent likes-spont-oblasing, lud for two-lane highway domnstream of effective length of the passing lane for percent time-spent-following, lud Add; stator for the effect of passing lane on percent time-spent-following, fpl on percent time-spent-following, fpl percent time-spent-following, fpl including passing lane, PISFpl Donutives length of two-laws one Estatic Project Donutives I length of passing lane for average travel speed, ide length of two-laws highway donutrees nor offective length of the passing lane for average travel speed, ide and sering the effect of passing lane way get travel speed, ide on average proof, for including passing lane, ATSpl Average travel speed including passing lane, ATSpl Level of service including passing lane, Lospl A Peak 15-min total travel time, TT15

Posted speed limit, 5p Posted Secret of Segment with occupied on-highway parking Pavement reting, Pare rete in outside lane, vol. Effective width of outside lane, we show a land outside lane, we be a land outside lane, we be a land outside lane, we land outside lane, we land outside lan Bicycle tevel of Service

Notes:

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

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

1. One of the base conditions. For the purpose of grade adjustment, specific degreds segments or treated as level remains of grade adjustment, services analysis that the name of the services of the services of the form the analysis direction only.

5. Der the analysis direction only.

5. Des attentive bothist is-14 if some trucks operate at crewl speeds on a specific demograde.

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

Page 3

Page 2

mi/h veh/h

Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM Observed total demand, (note-3) V

Page 1

NB AM Existing

NB AM Existing

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Downstream length of two-lane highway within effective langth of passing lane for everage victon effective tength of two-lane highway downstreamy effective. Length of the passing lane for everage effective langth of the passing lane for or everage langth and everage from the fact of passing lane on everage land including passing lane, and seed including passing lane, PFFSpl 0.0

×

__Percent Time-Spent-Following with Passing Lane__

| Analyst | Kevir | Kevin Rangel | 7. | | |
|-----------------------------------|----------|--------------|------------------------------|------|-------|
| Agency/Co. | W-Trans | 5 | | | |
| Date Performed | 1/27/ | 2/22/2018 | | | |
| Analysis Time Period | | AM Existing | he | | |
| Highway | | th Ave | Fourth Avenue Northbound | | |
| From/To | Kreuz | er Ln | Kreuzer in to Coombsville Rd | | |
| Jurisdiction | Napa | Napa County | | | |
| Analysis Year | 2018 | | | | |
| Description Cadwell Vineyards TIS | Vineyard | S TIS | | | |
| | | | Input Data | | |
| Highway class Class 2 | 2 | | Peak hour factor, PHF | 9.76 | |
| Shoulder width | 9.9 | ¥ | % Trucks and buses | 9 | × |
| ane width | 12.0 | ¥ | X Trucks crawling | 9.9 | × |
| Segment length | 8.8 | Ħ | Truck crawl speed | 9.9 | md/hr |
| Terrain type | Rolling | | % Recreational vehicles | 4 | × |
| Grade: Length | , | Ŧ | X No-passing zones | 109 | × |
| umop) all | , | 24 | Access point density | 49 | /m/ |

| Highway class Class 2 | 55.2 | | | Peak hour | Peak hour factor, PHF | 9.76 | |
|--|------------|------|------|----------------------|-------------------------|--------------|-------|
| Shoulder width | 9.9 | ¥ | | % Trucks and buses | ind buses | 9 | ĸ |
| ans sidth | 12.0 | ¥ | | % Trucks crawling | :rawling | 9.9 | × |
| Cashent length | 8.8 | E | | Truck crawl speed | 1 speed | 9.0 | m1/hr |
| Terrain type | Rolling | 7 | | % Recreati | % Recreational vehicles | 4 | × |
| Grade: Length | ı | | | X No-passing zones | anoz Ju | 109 | × |
| nwop/dn | , | × | | Access pol | Access point density | 49 | /mt |
| Analysis direction volume, Vd 86 | volume, | 2 | 98 | veh/h | | | |
| Opposing direction volume, Vo 111 | volume, | 8 | Ξ | veh/h | | | |
| | | Ā | rage | Average Travel Speed | pa | | |
| Direction | | | | Analysis(d) | | Opposing (a) | (0) |
| PCF for trucks. ET | | | | 2.6 | | 2.5 | |
| PCE for RVs. ER | | | | 1.1 | | 1.1 | |
| Heavy-vehicle adi, factor (note-5) fMV | factor. | note | 5 | FHV 0.989 | æ | 6.914 | |
| Grade add. factor.(note-1) fg | (note-1) | ŧ. | | 0.6B | _ | 17.0 | |
| Directional flow rate (note-2) vi | ate. (note | 2 | 7 | 183 | pc/h | 225 | pc/h |

pc/h Opposing (o)
1.8
1.0
0.954
9.76
201
pc/ Opposition comparison of the c ___Level of Service and Other Performance Meesures_ ai/h ai/h ai/h B 6.67 30.8 ___Percent Time-Spent-Following 2.7* 24.9 Estimated Free-Flow Speed:
Base Free-Flow Speed (note-3) BFFS 45.0
Add; for lane and shoulder width, (note-3) FLS 4.2
Add; for access point density, (note-3) FA 10.0 Level of service, 105
Volume to capacity ratio, v/c
Peak IS-min whiche-miles of travel, WHISS
Peak-hour whiche-miles of travel, WHIGG
Peak IS-min total travel time, THIS
Capacity from MTS, CAMTS
Capacity from PTS, CAMTS
Directional Capacity Total length of analysis segment, it tength of two lasts highway upstream of the p tength of passing lane highway togetes, tell tength of passing lane highway of (from above) percent time-spont-following, PFSIG (from above) tevel of service, LOSG (from above) Passing Lane Ar Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS Free-flow speed, FFSd

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl A Peak 15-min total travel time, TTIS

Bicycle Level of Service

Downstream length of two-lane highway within effective length of passing law for percent likes-spin-foldoxing. Lide fength of two-lane highway downstream of effective length of the passing lane for percent tites-spent-following, Ld Add, factor for the effect of passing lane percent time-spent-following, fpl on percent time-spent-following, fpl including passing lane, PTSFpl -

veh-h

| evel of Service and Other Pertormance measures | e measure | | | Dosted speed limit. So | 25 |
|--|------------|--------|---|---|-------------------------|
| | | | | percent of segment with occupied on-highway parking | 0 |
| 105 | | | | | • |
| verto. v/c | 67 | | | Pavement rating, P | • |
| to miles of travel VMT15 14 | veh | veh-mi | | Flow rate in outside lane, vol. | 113.2 |
| 77.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1. | 4 | in her | | Effective width of outside lane. We | 18.84 |
| miles of travel, value | | 1 | | 40 10 10 10 10 10 10 10 10 10 10 10 10 10 | 2.61 |
| travel time. TT15 8. | e veh | 4-F9 | | Effective speed factor, 3t | |
| | 1663 veh/h | = | | Bicycle tOS Score, BLOS | 3.54 |
| 11 | | ŧ | | Bicycle 105 | ٥ |
| | | 5 | | | |
| | | | | Notes: | |
| Dassing tana Analysis | | | | Note that the adjustment factor for level terrain is 1.60, as level terrain | 1.60, as level terrain |
| 9,17,18 | | | | is one of the base conditions. For the purpose of grade adjustment, specific | de adjustment, specific |
| alvele comment it | • | 0.5 mi | | dewngrade segments are treated as level terrain. | |
| highling methods of the percing lane in | 1 1 1 | E | | If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F. | ne LOS is F. |
| TANGEN OF STREET OF STREET OF STREET | • | ī | | 3. For the analysis direction only and for voled veh/h. | |
| Talle TileTentille cabels, chr | , | | | A for the analysis direction only. | |
| sed, ATSG (trom above) | 7 | | = | | the special country of |
| t-following, PTSFd (from above) | 4 | 43.6 | | 5. Use alternative Exhibit 15-14 if some trucks operate at crawi speeds on a | a ilo spaads TMP.ID TE |
| I OSd (from above) | • | | | specific downgrade. | |
| (2.22 = 2.1) | • | | | | |
| Average Travel Speed with Passing Lane | e la ne | | | . These items have been entered or edited to override calculated value | lculated value |
| | | | | | |
| | | | | | |

Page 3

Page 2

mi/h veh/h

Free-Flow Speed from Field Messurement: Field measured speed,(note-3) 5 FM Observed total demand,(note-3) V

Page 1

NB PM Existing

NB PM Existing

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|---|--|--|
| is | | 6.89 6.0 6.0 4.0 4.0 4.0 |
| Directional Two-Lane Highway Segment Analysis | And angel 1/22/2018 PM Editoria PM Editoria Freeze In to Combs.ville Rd PS 2018 Solution Trans. Input Data | Peak hour factor, PHF X Trucks and buses X Trucks crawiling Truck crawiling X Recreational vehicles A No-passing zones Access point density weh/h |
| 1 TWO-La | Kevin Rangel W-Trans 2/22/2048 PEXSTING FOURTH AVENUM KREUZER LN th Napa County 2018 eyards TIS | ft ft mi mi mi x Vd 79 Vo 106 |
| rection | vžn | s 2 0.0 0.5 0.5 Rolling |
| D1 | Analyst Kvis Range Agency Co. H. Thous Date Performed 2/22/2018 Analysis Time Period Performed P | Highway class Class 2 Class 40 Lan width 12-8 ft Lan width 12-8 ft Terrain 10-5 mi Terrain 10-6 mi Grade: Length 7 Analysis direction volume; Vd 79 Opposing direction volume; Vd 79 Opposing direction volume; Vd 79 |

| | | Opposing (o) | 2.6 | 1,1 | 9,909 | 69.69 | pc/h 190 pc/h | m1/h |
|-----------------------------------|----------------------|--------------|--------------------|-----------------|---|--------------------------------|------------------------------------|--|
| veh/h | Average Travel Speed | Analysis(d) | 2.7 | 1:1 | 4V 0.964 | 0.67 | 147 | , <u>;</u> |
| Opposing direction volume, vo 186 | Average | Direction | PCE for trucks, ET | PCE for RVs, ER | Heavy-vehicle adj. factor, (note-5) fHV | Grade adj. factor, (note-1) fg | Directional flow rate, (note-2) vi | Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM |

Percent Time-Spent-Following Estimated Free-Flow Speed:

Blase free-Flow Speed (net-3) BFS

Adj, for lane and shoulder width, note-3) f15

Adj for access point density, (note-3) f8

10.0 30.8 2.7* 25.5 82.7 Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS Free-flow speed, FFSd

| Direction PCE for trucks, ET | Analysis(d) | | Opposing (o) | <u>©</u> | |
|--|-----------------------|--------|--------------|----------|--|
| PCE for RVS, ER Heavy-vohicle adjustment factor, fMV | 0.949 | | 0.954 | | |
| Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi | 0.73 128 pc | pc/h | 9.74 | h/20 | |
| Base percent time-spent-following, (note-4) BPTSFd 14.5 | te-4) BPTSFd | 14.5 | at. | | |
| Adjustment for no-passing zones, fnp | | 86.0 | | | |
| Percent time-spent-following, PTSFd | | 38.6 | × | | |
| Level of Service and Other Performance Measures_ | Other Performa | nce Ne | asures | | |
| Lavel of service, LOS | | 4 | | | |
| Volume to capacity ratio, v/c | | 9.02 | | | |
| Peak 15-min vehicle-miles of travel, VMTIS | VMT15 | === | veh-mi | | |
| Peak-hour vehicle-miles of travel, VMT60 | T69 | 49 | veh-mi | | |
| Peak 15-min total travel time, TT15 | | 6.4 | veh-h | | |
| Capacity from ATS, CdATS | | 1663 | veh/h | | |
| Capacity from PTSF, CdPTSF | | 1766 | veh/h | | |
| Directional Capacity | | 1769 | veh/h | | |
| Bużsszu | Passing Lane Analysis | | | | |
| Total length of analysis segment, Lt | | | 9.5 | ni | |
| Length of two-lane highway upstream of the passing lane, Lu | f the passing | lane, | Lu . | пi | |
| Length of passing lane including tapers, tpl | rs, Lpl | | ı | 'n | |
| Average travel speed, ATSd (from above) | ÷ | | 25.5 | mi/h | |
| Percent time-spent-following, PTSFd (from above) | from above) | | 38.6 | | |
| Level of service, LOSd (from above) | | | 4 | | |
| | | | | | |

ŭ Donnstrasa langth of two-lane highway within effecting the of passing lane for werage traval speed, ide clerify of two-lane highway ownstream is speed, ide tenth of the passing lane for werage traval speed, id days facet for the passing lane was weaps speed for ownstrain lane was speed. For the passing lane was weaps speed for directing passing lane, NYSpl. Percent Time-Spent-Following with Passing Lane

걸걸 Level of Service and Other Performance Measures with Passing Lane Downstream length of two-lame highmay within effective length of passing lame for percent iteas-point-following, ldefugh of two-lame highmay downstream of effective length of the passing lame for percent itea-spent-following, ld 4dd; factor for the effect of passing lame on percent these-spent-following, fpl percent time-spent-following, fpl including passing lame, PSSFpl ievel of service including passing lane, LOSpi A Peak 15-min total travel time, TT15

25 8 88.8 19.26 2.61 3.34 Posted speed limit, 5p
Posted speed limit, 5p
Powerent resting, P
Powerent resting, P
Powerent resting, P
Figh rest in outside lame, vol.
Effective width of outside lame, We
Effective width of outside lame, We
Effective width of outside lame, We
Bicycle LOS Score, 8LOS
Bicycle LOS Score, 8LOS Bicycle Level of Service

veh-h

Notes:

Note that the adjustment factor for level terrain is 1.00, as level terrain is not of the base conditions. For the purpose of grade adjustment, specific debugaced segments are treated as level terrains.

If VI (vd or vo) >= 1,700 pc/h, terminate analysis: eithe LOS is F.

For the analysis direction only and for vy200 veh/h.

For the analysis direction only and for vy200 veh/h.

S. 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

Average Travel Speed with Passing Lane

Page 1

SB AM Existing

HCS7: Two-tane Highways Release 7.3

| Analyst | Kev | Kevin Rangel | 7 | | |
|-----------------------------------|----------|--------------|------------------------------|--------|-------|
| Agency/Co. | <u>+</u> | #-Trans | | | |
| Date Performed | 2/2 | 2/22/2018 | | | |
| Analysis Time Period | 4 | AM Existing | | | |
| Нідімау | Four | th Ave | Fourth Avenue Southbound | | |
| Fron/To | Cool | absville | Coombsville Rd to Kreuzer Ln | | |
| Jurisdiction | Napa | Napa County | | | |
| Analysis Year | 2018 | _ | | | |
| Description Cadwell Vineyards TIS | Vineyar | ds TIS | | | |
| | | | Input Data | | |
| Highway class Class 2 | 2 | | Peak hour factor, PHF | 9.76 | |
| Shoulder width | 0.0 | # | X Trucks and buses | 9 | × |
| lane width | 12.0 | # | % Trucks crawling | 9.6 | × |
| Segment leneth | 9.5 | Ē | Truck crawl speed | 0.0 | mi/hr |
| Terrain type | Rolling | | % Recreational vehicles | s 4 | × |
| Grade: Length | | ī | % No-passing zones | 100 | ¥ŧ |
| lin/down | | 2 1 | Access point density | 46 | /mi |

pc/h

Opper for trucks, ET 1.8 1.8 1.9 Opp Prof. for trucks, ET 1.8 1.9 Opp Prof. for Ny. Mil. 1.9 1.9 Opp Prof. for Ny. Mil. 1.9 Opp P

Level of Service and Other Performance Measures

Opposing (o)
1.8
1.0
0.954
0.74
160
pc/

Percent Time-Spent-Following

| 9.76 | * | 8.0 | 0.0 mi/hr | * | 100 % | | | | Opposing (a) | 5.6 | 1.1 | 6.969 | 9.68 | 183 pc/h |
|-----------------------|--------------------|------------|-------------------|-------------------------|--------------------|----------------------|---|----------------------|--------------|--------------------|-----------------|--|-------------------------------|------------------------------------|
| Peak hour factor, PHF | X Trucks and buses | | Truck crawl speed | % Recreational vehicles | % No-passing zones | Access point density | veh/h veh/h | Average Travel Speed | (p) | 2.5 | 1:1 | HV 8.914 | | 225 pc/h |
| 1855 2 | 9.9 ft | 12.9 ft | | Rolling | - mi | ж , | Analysis direction volume, Vd 111 Opposing direction volume, Vo 86 | Average | | E | | Heave-vehicle add. factor.(note-5) fHV | r.(note-1) fg | Directional flow rate, (note-2) vi |
| Highway class Class 2 | Shoulder width | Lane width | Septent leneth | Terrain type | Grade: Length | пмор/dn | Analysis direction volume, Vd Opposing direction volume, Vo | | Direction | PCE for trucks, ET | PCF for RVs, ER | Heavy-vehicle ad | Grade add. factor.(note-1) fg | Directional flow |

rd/h veh/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) fls 4.2

Adj. for access point density,(note-3) fA

10.0

SB AM Existing

30.8 2.7* 24.9 81.0

Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS

Fax:

Phone: E-Mail:

Free-flow speed, FFSd

58 AM Existing

| veh-h | | 25 0 3 146.1 17.34 2.61 3.94 |
|---|--------------------------|--|
| level of service including passing lane, LOSpl A Peak 15-min total travel time, TTLS | Bicycle Level of Service | Posted speed lisht, Sp percent of segment with occupied on-highway parking Payment rating, Po Flow rate in outside lane, Wo! Effective width of outside lane, We Effective speed factor, St Bicycle 105 Score, BLOS Bicycle 105 |

Notes:

Note that the adjustment factor for lavel terrain is 1.00, as lavel terrain is not of the base conditions. For the purpose of grade adjustment, specific denignate segments are traceted as lavel terrain.

If yell (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.

For the malysis direction only, and for v.200 vah/h.

S. the the nalysis direction only.

S. Use alternative Enibit is-14 if some trucks operate at charl speeds on a specific downgrade.

달달달

veh-mi veh-di veh/h veh/h veh/h

8 9.89 18 56 8.7 1663 1700

Level of service, LOS
Volume to capacity ratio, v/c
Volume to capacity ratio, v/c
Peak is-ain vahicle-miles of travel, WHT60
Peak bow vahicle-miles of travel, WHT60
Capacity from ATS, CAMTS
Capacity from PTS, CAMTS
Classicy from PTS, CAMTS
C

Total length of analysis segment, Lt
tength of Novlane highway upstream of the passing lane, Lu .
tength of passing lane including tapers, Lpl .
.
Adverge truets preed, Add (from above)
Percent times spect-following, Prised (from above)
14.9
teve of service, LOSG (from above)

94.2

Passing Lane Analysis___

Average Travel Speed with Passing Lane

Page 2

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

SB PM Existing

SB PM Existing

HCS7: Two-Lane Highways Release 7.3

Fax:

Phone: E-Mail:

| Analyst | Kevin Rangel | ngel | | | |
|-----------------------------------|--------------|------|------------------------------|------|-------|
| Agency/Co. | #-Trans | | | | |
| Date Performed | 2/22/2018 | 2 | | | |
| Analysis Time Period | | ting | | | |
| Highway | Fourth 4 | venu | Fourth Avenue Southbound | | |
| From/To | Coombsv | 1116 | Coombsville Rd to Kreuzer Ln | | |
| Jurisdiction | Napa County | 'n | | | |
| Analysis Year | 2018 | | | | |
| Description Cadwell Vineyards TIS | Vineyards 1 | ZI. | | | |
| | | ٦ | Input Data | | - |
| Highway class Class 2 | 7 | | Peak hour factor, PMF | 68.0 | |
| Shoulder width | 0,0 | | % Trucks and buses | 9 | žť |
| Lane width | 12.0 ft | | X Trucks crawling | 9.9 | × |
| Segment length | 0.5 m. | | Truck crawl speed | 0.0 | mi/hr |
| Terrain type | Rolling | | % Recreational vehicles | 4 | × |
| Grade: Length | | | X No-passing zones | 189 | × |
| nwop/dn | ; | | Access point density | 40 | /mj |
| Analysis direction volume, Vd | olume, Vd 1 | 106 | veh/h | | |
| Opposing direction valume, Vo | | 79 | veh/h | | |
| | 2000 | 900 | Average Travel Creek | | |

| à¢. | æ | mi/hr | × | 24 | /mj | | | (0) | | | | | bc/h | |
|--------------------|-------------------|-------------------|-------------------------|--------------------|----------------------|---|----------------------|--------------|--------------------|-----------------|---|--------------------------------|------------------------------------|---|
| 9 | 9.9 | 0.0 | 4 | 160 | 40 | | | Opposing (o) | 2.7 | 1.1 | 904 | 6.67 | 147 | |
| uses | ing | eed | vehicles | ones | ensity | | | 8 | | | | | pc/h | mi/h veh/h |
| % Trucks and buses | % Trucks crawling | Truck crawl speed | % Recreational vehicles | A No-passing zones | Access point density | veh/h veh/h | Average Travel Speed | Analysis(d) | 5.6 | 1.1 | PHV 0.989 | 69.0 | 190 | ont: |
| ¥ | ‡ | Ę | | ī | × | d 186 | Average | | | | ote-5) 1 | | 2) vi | easurese () S FN 3) V |
| 0.0 | 12.0 | 9.5 | Rolling | , | , | volume, v | | | | | factor, (n | note-1) f | te, (note- | m Field M d,(note-3 nd,(note- |
| width | £ | ength | ype | ength | nwop/d∩ | Analysis direction volume, Vd 186 Opposing direction volume, Vo 79 | | _ | PCE for trucks, ET | IVS, ER | Heavy-vehicle adj. factor, (note-5) fHV | Grade adj. factor, (note-1) fg | Directional flow rate, (note-2) vi | Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V |
| Shoulder width | Lane width | Segment length | Terrain type | Grade: Length | _ | Analysis Opposing | | Direction | PCE for 1 | PCE for RVs, ER | Heavy-veh | Grade ad | Direction | Free-Flor Field mea |
| | | | | | | | | | | | | | | |

| | _ | | G mi/h | 8 mai/h | * m1/h | | |
|----------------------------|---------------------|---------------------|--|-----------------------|--------------------------------------|---------------------|-------------------------------|
| SB PM Existing Speed: | | £15 | Adj. for access point density,(note-3) fA 10.0 | 36.8 | bassing zones, fnp 2.7* | speed, ATSd 25.5 | |
| Estimated Free-Flow Speed: | Base free-flow spee | Adj. for lane and s | Adj. for access poi | Free-flow speed, FF5d | Adjustment for no-passing zones, fnp | Average travel spee | Percent Free Flow Speed, PFFS |

Level of Service and Other Performance Measures with Passing Lane

level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15

veh-h

i i

Downstream length of two-lane highway within effective length of passing lane for percent time-port-cibioding, Ld elungth of two-lane highway domnstream of effective length of the passing lane for percent time-spent-following, Ld add; stator for the effect of passing lane, on secrent time-spent-following, fpl on the-percent lane-spent-following, fpl including passing lane, pissel.

Percent Time-Spent-Following with Passing Lane...

Ë

Downstream length of two-lane highway within effective langth of two-lane highway within effective langth of two-lane highway within egget traval speed, ide langth of two-lane highway downstream of effective langth of the passing lane for waring seed, fall of langth lane on average seed, fall of well and werege traval, speed including passing lane. Percent free flow speed including passing lane, PFFSpl.

| *************************************** | 25 9 3 119.1 17.64 2.61 3.79 |
|---|--|
| Bicycle Level of Service | Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating, De lane, Vol. Filor rate in outside lane, Vol. Effective width of outside lane, Ne Effective speed factor, St Bicycle 105 Score, B105 Bicycle 105 |

| | terrain | specific | |
|--------|--|--|--|
| | 1. Note that the adjustment factor for level terrain is 1.00, as level terrain | is one of the base conditions. For the purpose of grade adjustment, specific | |
| | is 1. | grade | |
| | terrain | pose of | |
| | r level | the pur | |
| | tor fo | is. For | |
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| Notes: | Note | 1s o | |
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| | | | |

designed segments are treated as leval ternain.

2. If vi (vol ov to). a. 1.700 pc/h, terminate analysis-the LOS is F.

4. For the analysis direction only and for vol00 weh/h.

5. Use alternative schildt is-14 if some trucks operate at crawl speeds on a specific downgrade.

Average Travel Speed with Passing Lane

Page 1

Page 2

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

From: David Rude

To: Balcher, Wyntress

Cc: Roberta Rude

Subject: Caldwell Winery Expansion; Kreuzer Lane Widening

Date: Monday, February 26, 2018 5:01:50 PM
Attachments: Caldwell Winery Expansion Kreuzer Lane.pdf

Hello

We own the home (and vineyard) at 245 Kreuzer Lane. As we understand the Caldwell Winery expansion details, the road leading (a few hundred feet anyway) to our house is to be widened. If this were to occur, our 21 Heritage Olive trees, planted before the winery was created, will be killed. They are centered approximately three/four feet from the edge of Kreuzer Lane. The road is for ingress/egress to our house on Kreuzer Lane, as well as to access the Caldwell Winery. The road is on an easement (not county property) which predates our purchase of our home in 2010. If the issue is the access of emergency vehicles to our house, and or to the Caldwell Winery past our house, we were at our house during the fires last October. I watched as numerous very large fire trucks (from multiple jurisdictions outside of Napa County) drove up and down our street along our property line (Kreuzer Lane) with ease.

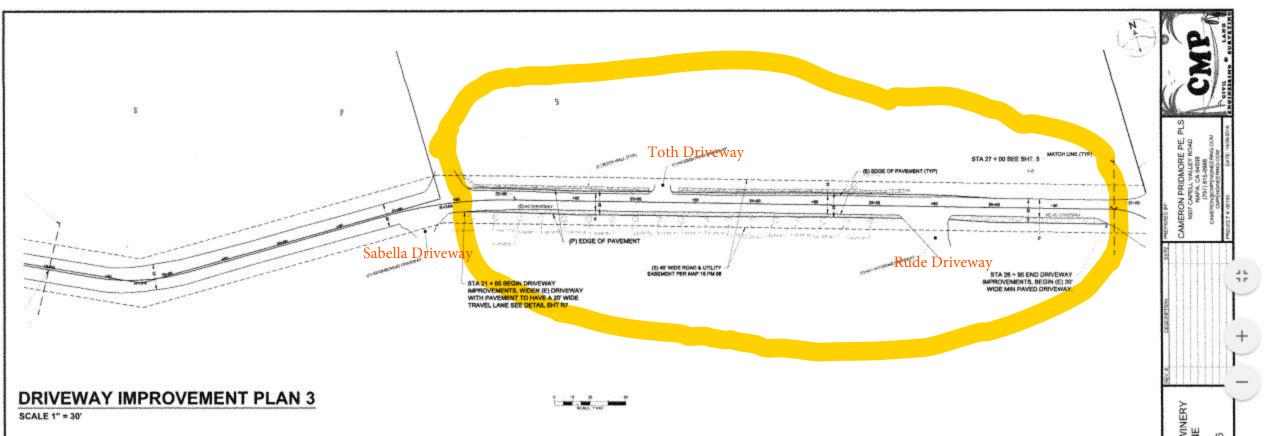
Please contact me if you would consider a visit to our house or if you require additional information. We plan to attend the March 7 meeting.

Also, we are the neighbor located closest to the Caldwell Winery.

Please reply with an email confirmation receipt.

Thank you

David H. Rude, Jr. United Salt Corp. AQUASALT, LLC 4800 San Felipe Houston, TX 77056 713 877-2616



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НО СНІ МІЛН СІТУ



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ALLIANCE WITH
MIRANDA & ESTAVILLO
SRI LANKA
ALLIANCE WITH
GOWERS INTERNATIONAL

February 22, 2018

VIA E-MAIL & OVERNIGHT MAIL

Joelle Gallagher, Commissioner
Michael Bayayne, Commissioner
Anne Cottrell, Commissioner
Terry Scott, Commissioner
Jeri Gill, Commissioner
c/o David Morrison, Director
COUNTY OF NAPA PLANNING COMMISSION
1195 Third Street, Suite 210
Napa, CA 94559

Re: 270 Kreuzer Lane – Napa, California

Caldwell Vineyards Use Permit No. P17-00074-MOD

APN Nos.: 045-310-056 and 045-310-055

Dear Commissioners:

This firm represents the Kreuzer Lane Protection Committee (the "KLPC"), a group of concerned property owners on Kreuzer Lane and in the surrounding neighborhood, in connection with the pending Use Permit Major Modification application (the "Project") for Caldwell Vineyards, the hearing on which is currently scheduled for March 7 at 1:00 p.m. The purpose of this letter is to request a short continuance of the hearing in order to allow for the necessary and appropriate time to review the additional traffic study that has been promised by the Sponsor, although not yet received.

As you are aware, a number of issues have been raised in connection with the Project, both with the Project Sponsor Caldwell Vineyards, and at a prior hearing before this Commission. Some of those issues were discussed by members of the KLPC with the Project Sponsor at a meeting on February 6, 2018.

DUANE MORRIS LLP



In a letter to members of the KLPC on February 16, 2018, the Project Sponsor wrote in pertinent part as follows:

Caldwell Vineyard, in consultation with the County, has agreed to prepare an additional Traffic Study for the Caldwell Vineyard project. The Traffic Study will include: project traffic generation; traffic counts for Fourth Street and Kreuzer Lane; existing conditions on both roadways; collision records; existing plus project conditions on both roadways; evaluation of stop sign warrant at intersection of Fourth Street and Kreuzer Lane; and recommended to address any significant impacts identified.

It is respectfully submitted that an "additional" traffic study is necessary and appropriate at this time, particularly given the concerns of the KLPC that the Planning Department and Initial Study has not properly analyzed the traffic impacts of the Project.

In short summary, the Initial Study curiously relies on a simplistic two-page calculation of traffic flow from a civil engineering firm, and not a traffic consultant. The calculation does not appear to properly calculate the traffic impacts of a 773% increase in total wine tasting visitors per year, a 225% increase in special event guests, and an unlimited increase in Custom Crush Producers. Even the PM Peak trip calculation submitted by the Sponsor shows a 5-fold increase in traffic on a one-lane narrow road.

More importantly, the Initial Study improperly attempts to incorporate and rely on an August 24, 2017 traffic study by W-Trans for the Paul Hobbs-Nathan Coombs Winery Project at 2184 Imola Avenue. That traffic study analyzes a project some half-mile and three intersections to the Southwest, for which there is effectively no projected increase in traffic near Kreuzer Lane, and so it never properly considers the impact of levels of service at Fourth Avenue and Kreuzer Lane.

Moreover, the Paul Hobbs entrance is directly off Fourth Avenue, into a vineyard and then to the winery. To access the Caldwell Winery location, a visitor must pass by more than 10 residences on a dead end lane, through a narrow private road section, and then descending down a steep narrow cliff-face road to a winery in a wildfire prone area

Please be advised that the KLPC intends to hire a traffic consultant to analyze the traffic impacts of the Project, either independently or through a peer review of the promised "additional" traffic study, or both.

Duane Morris

Joelle Gallagher, Commissioner Michael Bayayne, Commissioner Anne Cottrell, Commissioner Terry Scott, Commissioner Jeri Gill, Commissioner February 22, 2018 Page 3

But under any circumstances, given that the additional traffic study has not been received to date, it is not practical or feasible to conduct a meaningful review in advance of the scheduled March 7 hearing.

For these reasons, we would respectfully request that the hearing on the above-referenced application be continued to a date next on the Commission calendar which is at least 30 days after receipt of the additional traffic study from the Project Sponsor.

Please do not hesitate to call me if you have any questions or concerns. Thank you for your consideration in this regard.

Denis F. Shanagher

DFS

cc: Wyntress Balcher Tom Adams, Esq. Clients NEW YORK
LONDON
SINGAPORE
PHILADELPHIA
CHICAGO
WASHINGTON, DC
SAN FRANCISCO
SILICON VALLEY
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SHANGHAI
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ALLIANCE WITH
MIRANDA & ESTAVILLO
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February 28, 2018

VIA E-MAIL & OVERNIGHT MAIL

Joelle Gallagher, Commissioner
Michael Bayayne, Commissioner
Anne Cottrell, Commissioner
Terry Scott, Commissioner
Jeri Gill, Commissioner
c/o David Morrison, Director
COUNTY OF NAPA PLANNING COMMISSION
1195 Third Street, Suite 210
Napa, CA 94559

Re: 270 Kreuzer Lane - Napa, California

Caldwell Vineyard Use Permit No. P17-00074-MOD

APN Nos.: 045-310-056 and 045-310-055

Dear Commissioners:

This firm represents the Kreuzer Lane Protection Committee (the "KLPC"), a group of concerned property owners on Kreuzer Lane and in the surrounding neighborhood, in connection with the pending Use Permit Major Modification application (the "Project") for Caldwell Vineyards. The KLPC respectfully opposes the Project for the reasons stated herein. Notably, the Project is inconsistent with the Napa County policies regarding incidental uses in an Agricultural Zoning District, and if approved, will mark a major departure from prior County Policy in this regard. Also notably, the significant increases in use associated with the Project have not been adequately studied, particularly in connection with traffic and water impacts. The proposed Negative Declaration is not supported by the facts or law. These issues are discussed in further detail below.



The Project Is Inconsistent with the Napa General Plan

The Caldwell Vineyard Winery is situated on two parcels at the very end of Kreuzer Lane, which is at that point is a private road. The Property is located in an Agricultural Watershed zone, which allows wineries and accessory uses subject to use permit control. To that end, the County has adopted the Winery Definition Ordinance to protect agriculture and open space and to regulate winery development and expansion so as to avoid potential negative environmental effects.

Agricultural Preservation and Land Use Policy AG/LU 1 of the 2008 General Plan states "agriculture and related activities are the *primary* land uses in Napa County" and Land Use Policy AG-LU-2 states that: ""agriculture" is defined as the raising of crops, trees, and livestock; the production and processing of agricultural products; and the related marketing, sales, and other *accessory* uses ... " The property's General Plan land use designation is AWOS (Agriculture, Watershed and Open Space), which allows "agriculture, processing of agricultural products, and single-family dwellings."

As noted above, the Caldwell Vineyard Winery is in an Agricultural Watershed zoning district. While wineries are allowed as conditional uses in such a district, marketing activities and other accessory uses are to remain *incidental* to the main use. As currently proposed, the expansion of winery operations will be such that the marketing and retail component will begin to dwarf the actual production/farming component. Stated another way, if this Project is approved as proposed, the marketing/visitation aspect of the Winery will no longer function as an ancillary component, incidental and clearly subordinate to the main use. Instead, the marketing and retail aspect of the Winery will become equal to or more dominant than its production component. Is that consistent with the 50th anniversary of the Napa County Agricultural Preserve?

No better evidence in that regard is the Winery Comparison Analysis attached to the Planning Department's original submission to the Commission. The so-called "By Appointment Wineries" in Napa County are those to which marketing and retail uses are to be incidental to agricultural use. There are twenty-two (22) such wineries in the 30,000 - 35,000 gallon production category. The average for approved daily/weekly visitors is 18/103. The average for annual approved visitors is 5386, and for marketing visitors is 270. The average number of approved total annual visitors is 5904.



A review of the Caldwell Vineyard application reveals dramatic increases in all categories relative to the average for similar size "by appointment" wineries. The Project application for 60 daily visitors will be 330% over the average for comparable wineries, 400% higher for weekly visitors, and will be nearly *four times* the annual average for annual visitors. It will be *three times* higher than the average for approved marketing visitors, and at the requested 22,800, will be nearly *four times* (3.87) the average, and over *four times* (4.23) the median.

These numbers, as well as the fact that the Sponsor is requesting a 773% increase in annual visitors against a 40% increase is wine production, demonstrate an intent on the part of the Project Sponsor to make the marketing/visitation aspect of the Caldwell Vineyard Winery no longer function an ancillary component, incidental and clearly subordinate to the main use, but instead an equal or primary use. This is clearly inconsistent with Napa's Agricultural Preservation and Land Use Policy. If the Project is approved at the current numbers, it will send a message throughout Napa County that the Planning Commission has a new approach and position with regard to Napa's Agricultural Preservation and Land Use Policy, and its General Plan.

Stated another way, approval of this application in its current form is in violation of the General Plan and will not properly balance the rights of the individual winery owner with that of the community (i.e the immediate neighbors). The proposed substantial increase in intensity will generate a level of noise, traffic, and activity in what is otherwise a quiet, rural agricultural area that will diminish the quality of life for nearby residents and increase the presence of components that will not enhance the rural residential character but instead will detract from it. To ensure a more balanced approach, following a proper environmental analysis, there needs to be substantial new Conditions of Approval imposed on the Project, including but not limited to demonstrated compliance with the original Conditions of Approval and a sharp reduction in the number of approved visitors to be consistent with Napa's Agricultural Preservation and Land Use Policy and the General Plan.

The Project Requires Environmental Review

The recommendation of the Planning Department is a Negative Declaration with respect to a potential environmental impact. To the contrary, even a cursory or summary review of the Project demonstrates that in several important areas, proper environmental review is required.

By itself, a review of comparison winery approvals discussed above suggests that this Project is a dramatic deviation from prior land use applications in this County, worthy of further study. And a simple calculation of the proposed increases to the prior approval of this Project compels the same conclusion.



| Approvals | Current Permit | Proposed Permit | Proposed Increase |
|---|----------------|------------------------|--------------------------|
| Tasting/Touring Visitors (Daily/weekly) | 8/40 | 60/420 | 750%/1050% Increase |
| Tasting/Touring Visitors (Yearly) | 2,496 | 21,780 | 773% Increase |
| Event Visitors (Yearly) | 320 | 1,040 | 225% Increase |
| Annual Events | 14 | 19 (larger) | 35% increase (min) |
| Wine Production | 25,000 gallons | 35,000 gallons | 40% increase |
| Cave Size | 16,970 sq.ft. | 21,865 sq.ft. | 28.8% increase |

Traffic

The Initial Study prepared by the Planning Department curiously relies on a simplistic two-page calculation of traffic flow from a civil engineering firm, and not a traffic consultant. And that calculation does not rely on an actual traffic count. Moreover, the calculation does not appear to properly calculate the traffic impacts of a 773% increase in total wine tasting visitors per year, a 225% increase in special event guests, and an unlimited increase in Custom Crush Producers. Even the PM Peak trip calculation submitted by the Sponsor shows a 5-fold increase in traffic on a one-lane narrow road.

More curiously, the Initial Study improperly attempts to incorporate and rely on an August 24, 2017 traffic study by W-Trans for the Paul Hobbs-Nathan Coombs Winery Project at 2184 Imola Avenue. That traffic study analyzes a project some half-mile and three intersections to the Southwest, for which there is effectively no projected increase in traffic near Kreuzer Lane, and so it never properly considers the impact of levels of service at Fourth Avenue and Kreuzer Lane.

In addition, the Paul Hobbs-Nathan Coombs Winery Project discussed in the W-Trans report is for a winery that will have an average of 15 visitors a weekday and 30 per weekend day, 34 daily trips during the weekdays and 43 new trips on Saturday. By contrast, this Project will generate more than *twice* the traffic to be generated by the Paul Hobbs-Nathan Coombs Winery Project, with *five times* more daily visitors. The Initial Study does not look at the cumulative impact of the two projects. And if that analysis was performed, the Level of Service calculations would be dramatically different. The Initial Study makes no acknowledgement in that regard.



In addition, the Initial Study incorrectly concludes that there will not be any left turn movements from a public road, and that a left turn lane will not be necessary, also apparently relying on a sight line analysis from the W-Trans Report. But the sight line analysis from that report did not look at where Fourth Avenue meets Kreuzer lane, and the blind ninety-degree turn of Fourth Avenue at that location. In fact, any new visitors to the Winery from the North and East on Fourth Avenue will need to make a blind left turn. An analysis of the possible need for a left turn lane at that location is essential.

Thus, a proper traffic study should be prepared, with an existing traffic count at the blind curve intersection of Fourth Avenue and Kreuzer Lane which is more than a half mile past the Imola/Fourth Ave. intersection. A sight line analysis and consideration of the need for a left-turn lane should be included in the study, as well as analysis of the intersections of Fourth Avenue and Coombsville Road, and Silverado and Coombsville to the North. The cumulative impacts of the Paul Hobbs-Nathan Coombs Winery Project and this Project need to be considered.

In that regard, and in apparent acknowledgement of the defects and deficiencies in the existing traffic analysis, the KLPC was advised on February 16, 2018, that Caldwell Vineyard, in consultation with the Planning Department, has agreed to prepare an additional Traffic Study for the Project. This was the subject of our letter to the Commission in February 22, 2018, requesting a continuance of the hearing pending receipt of that study. To date, we have not seen the new traffic study, or had a chance to review its contents, and will not have the time to do so before the scheduled hearing. Please be advised that the KLPC intends to hire a traffic consultant to analyze the traffic impacts of the Project, either independently or through a peer review of the promised "additional" traffic study, or both, but for the moment must presume that neither the traffic study or continuance is forthcoming.

There are only 38 existing parking spaces. It is highly unlikely that the 38 existing parking spaces will be sufficient for the nine large events of more than 68 guests (four of which will have more than 100 guests). There is no explanation of how the vaguely-described valet parking solution will address some special event concerns. At a minimum, there needs to be proper description of the large event operations.

Water

The Caldwell Vineyard consists of two separate parcels - a winery parcel and a vineyard parcel. The winery parcel is located in a MST deficient groundwater basin. It is unclear how and in what manner the vineyard parcel will be used for the winery and/or to ensure that the well in the MST ground deficient parcel will not be used beyond its current level, particularly since the water depth of the wells in the MST area is increasing.



Moreover, as the caves exist on both parcels, should the entire winery be considered part of the MST deficient groundwater basin? Is a lot line adjustment necessary to obtain a proper analysis here?

The current water analysis does not study the ability to serve the one annual 200-person special event.

There is no detail provided with regard to the water system in use at the site. For example, what is the age of the system? Is there water service to the sub-buildings?

The Water Availability Analysis reports minimal increases in water use. Further peer review will be necessary with respect to the assumptions and calculations.

Fire

It is not clear how the Fire Department could have approved the Project given that there is no method for a turnaround near the wine caves. The road is simply not wide enough to accommodate a fire-fighting effort in that area.

The Atlas Wildfire of 2017 was a wake-up call for many residents of Napa County, and especially those on rural wildland property such as the area where Caldwell Vineyard Winery and several adjacent residential properties are situated. The Napa County fire marshal's office gave its approval for the major modification before the October, 2017 wildfires. It is suggested that the fire marshal to re-inspect the winery and surrounding location post-fire, before any Project modification is approved.

Note that the neighboring parcel owners at 199 Kreuzer Lane have worked for decades to harden its fire defenses, including a circular driveway that doubles as a firebreak, around the structures within it. Cal Fire came in several times to advise parcel owners on best practices. The preventative measures worked well, assisted by U.S. Forest Service, and Cal Fire. There is still a danger, however: the highly flammable steep canyon separating the 199 Kreuzer Lane property from the Caldwell Vineyard Winery Cave complex. This is the most vulnerable border, and the threat extends to those properties west of the winery.

Wildfire danger caused by and at the Caldwell Vineyard was less of a concern when the Use Permit stipulated that all visitation activities occur within the winery cave, but residents have far greater concern now that an outside picnic area has been requested. A single careless act by any one of the new, potential thousands of tasting and event guests who might be permitted to eat and drink outside the cave area, could spark a wildfire.



Additionally, parking and driving on unpaved areas - a potential fire hazard in fire season - is possible and dangerous because thoroughfares and parking areas below the cave portals are not fenced.

Conditions of Approval

The proposed Conditions of Approval are not stringent enough, given the Project Sponsor's demonstrated inability to abide by the original Conditions of Approval.

Outdoor Activity

According to the current use permit, "no tasks" are authorized outside the caves. The project proposes an outside picnic area. There is a concern in this regard given the border of a high wildfire danger area, is within line of sight and sound of adjacent residences, and would be in operation seven days a week, from 10 am to 6 pm.

Also concerning is unsupervised alcohol consumption implicit in this picnic plan, which would increase the danger of driving up and down the steep cliff-side narrow driveway and past 25 residences, and beyond. There need to be specific monitoring provisions in this regard, including sound-proofing and screened and screening of the picnic area, clearly delineated with an area size included in the use permit, built on a fireproof surface, with an emergency water system, and no outside fires allowed.

The long-roadside screening called for in the original use permit should be installed, rather than the few sparsely-planted trees that are there now.

The loud outdoor pumps and fans that operate 24-hours-a-day, 7 days a week, should be sound-proofed and screened, as called for in the original use permit but never accomplished.

Residences, both facing the Caldwell Vineyard and along Kreuzer Lane, are impacted by outside event noise. There should be no outdoor amplified music or sound, even for temporary events. In connection with the original application, the neighbors were guaranteed by the owner of Caldwell Vineyard that there would be no outside music, but this turned out to be untrue for some events and activities.



Parking

The original use permit specified: "In no case shall parking impede emergency vehicle access on public roads. If any event is held, which will exceed available onsite parking, the Caldwell Vineyard Winery shall arrange for off-site parking and [provide] shuttle service to the winery." That has not occurred. Specific plans for shuttle parking need to be provided to the County and the neighbors.

Summary

The current Project Application is in violation of the General Plan and inconsistent with Napa's Land Use Policy, and must be significantly modified for that reason. It is also respectfully submitted that regardless of the size of the Project, a proper environmental review needs to be conducted in connection with the current Project application, particularly with respect to traffic and water impacts. And if a reduced Project is approved, significant additional Conditions of Approval will be necessary.

Please do not hesitate to call me if you have any questions or concerns. Thank you for your consideration in this regard.

Benis F. Shanagher

truly yours

DFS

cc: Wyntress Balcher Tom Adams, Esq. Clients