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Traffic Study

TRAFFIC IMPACT REPORT

**PROPOSED BEAUTIFUL DAY WINERY
ALONG STATE ROUTE 29-128 HIGHWAY
IN THE NAPA VALLEY**

September 29, 2015

Prepared for: Beautiful Day Winery

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I. INTRODUCTION

This traffic report has been prepared at the request of the Napa County Public Works and Planning, Building and Environmental Sciences Departments as authorized by the Beautiful Day Winery applicant. It has determined if traffic from the proposed Beautiful Day Winery will result in any significant impacts to the local circulation system and the need for any mitigation measures.

II. SCOPE OF SERVICES

The scope of service for this traffic study was approved by the Napa County Public Works and the Planning, Building and Environmental Sciences departments. Evaluation was conducted for both harvest and summer (non-harvest) traffic periods for Friday AM and PM commute and Saturday afternoon peak traffic conditions. Existing, year 2020 and year 2030 (Cumulative – General Plan Buildout) horizons were evaluated both with and without project traffic. Operating conditions along State Route 29-128 (SR 29) as well as at the SR 29/Diamond Mountain Road intersection were evaluated for all analysis scenarios based upon significance criteria contained in the General Plan and/or utilized in all recent County traffic studies. In addition, sight line adequacy was evaluated at the project driveway intersection with SR 29. Finally, the need for a left turn lane on SR 29 at the proposed project driveway was evaluated based upon Caltrans warrant criteria. Significant impacts, if any, were identified and measures listed, if needed, to mitigate all impacts to a less than significant level.

III. SUMMARY OF FINDINGS

A. “WITHOUT PROJECT” OPERATING CONDITIONS

1. Existing Volumes – Harvest 2014

SR 29 adjacent to the proposed project site now has higher September harvest two-way traffic volumes during the Friday PM peak traffic hour compared to either the Friday AM or Saturday PM peak traffic hours (about 1,200 two-way peak hour vehicles from 4:15 to 5:15 PM on Friday versus 1,005 two-way peak hour vehicles from 7:30 to 8:30 AM on Friday or 1,065 two-way peak hour vehicles from 3:00 to 4:00 PM on Saturday). The driveway serving the project site had a total of 1 vehicle during the Friday AM peak hour, 3 vehicles during the Friday PM peak hour and 0 vehicles during the Saturday PM peak hour. Annual average daily two-way volumes along SR 29 adjacent to the project site are now 12,500 vehicles based upon Caltrans 2013 traffic counts,¹ although the average weekday daily traffic from four survey days in March 2015 near the project entrance was 13,090 vehicles.

¹ Caltrans 2013 Traffic Volumes book.

2. Year 2014 Harvest or Summer – Circulation System Operation

- **SR 29/Diamond Mountain Road** intersection – acceptable level of service during all time periods and volumes do not meet peak hour signal warrant criteria levels.
- **SR 29** roadway segments – acceptable level of service during all time periods.

3. Year 2020 Harvest or Summer – Circulation System Operation

- **SR 29/Diamond Mountain Road** intersection – acceptable level of service during all time periods and volumes do not meet peak hour signal warrant criteria levels.
- **SR 29** roadway segments – acceptable level of service during all time periods.

4. Year 2030 Harvest or Summer – Circulation System Operation

- **SR 29/Diamond Mountain Road** intersection – acceptable level of service during all time periods and volumes do not meet peak hour signal warrant criteria levels.
- **SR 29** roadway segments – acceptable level of service during all time periods except Friday PM peak hour – northbound (north and south of Diamond Mountain Road).

B. PROJECT IMPACTS

1. Project Trip Generation

The proposed project will result in the following trip generation during the Friday and Saturday peak traffic hours.

PROJECT TRIP GENERATION

HARVEST

FRIDAY AM PEAK HOUR* (7:30-8:30)		FRIDAY PM PEAK HOUR* (4:15-5:15)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
2	0	0	6	5	6

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR* (7:30-8:30)		FRIDAY PM PEAK HOUR* (4:15-5:15)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
2	0	0	6	5	6

* Peak hour at the SR 29/Diamond Mountain Road intersection.

Source: *Beautiful Day Winery*; compiled by Crane Transportation Group

Trips during the Friday and Saturday PM peak hours will be visitors by appointment, while trips during the Friday AM peak hour will be employees and, during harvest, possibly a grape delivery truck.

2. Project Site Access to SR 29

The project will access SR 29 at an existing (gated) driveway) connecting to the state highway about 500 feet north of the Diamond Mountain Road intersection.

3. Year 2014 Existing + Project Off-Cite Circulation Impacts – Harvest or Summer

The proposed project would not result in any significant off-site circulation impacts to SR 29 or to the SR 29/Diamond Mountain Road intersection. The project would not degrade operation from acceptable to unacceptable at any analyzed location.

4. Year 2020 Existing + Project Off-Site Circulation Impacts – Harvest or Summer

The proposed project would not result in any significant off-site circulation impacts to SR 29 or to the SR 29/Diamond Mountain Road intersection. The project would not degrade operation from acceptable to unacceptable at any analyzed location.

5. Year 2030 Existing + Project Off-Site Circulation Impacts – Harvest or Summer

The proposed project would not result in any significant off-site circulation impacts to SR 29 or to the SR 29/Diamond Mountain Road intersection. The project would not degrade operation from acceptable to unacceptable at any analyzed location and/or increase peak hour volumes by 1 percent or greater at any location already experiencing unacceptable “Without Project” operation.

6. Sight Lines at Project Driveway

Sight lines at the proposed project’s driveway connection to SR 29 will meet minimum stopping sight distance criteria based upon the Caltrans March 2014 *Highway Design Manual*.

7. Marketing Events

Marketing events may be held at times that will increase volumes along SR 29 during times of peak traffic activity on weekday and weekend afternoons.

8. Mitigations

- Schedule marketing events to eliminate guest and hired event staff traffic from the local circulation system between 3:00 and 6:00 PM on all days.

C. CONCLUSIONS & RECOMMENDATIONS

The project would result in no significant off-site circulation system operational impacts to SR 29 or to the SR 29/Diamond Mountain Road intersection. A left turn lane will be provided on the southbound SR 29 approach to the project driveway. In addition, sight lines to the north and south along SR 29 from the project driveway will meet Caltrans *Highway Design Manual*

stopping sight distance criteria after realignment of the fence to the south of the project entrance 9 feet to the east. Fence realignment and clearing all brush and trees between the fence and the edge of the state highway are part of the proposed project. Finally, marketing events should be scheduled to eliminate guest and event staff traffic from the local circulation system between 3:00 and 6:00 PM during any day of the week.

IV. PROJECT LOCATION & DESCRIPTION

The Beautiful Day Winery will be located on the east side of SR 29 just north of the SR 29/Diamond Mountain Road intersection (see **Figure 1**). There is currently a gated driveway along SR 29 serving an existing residence and vineyards that will be used by winery traffic. Trucks outhauling grapes from the on-site vineyards to SR 29 now use this driveways.

The proposed Beautiful Day Winery will have the following yearly production and visitor/special event levels.

- 30,000 gallons per year production.
- Bottling on-site.
- 6 full-time employees and 4 part-time employees during harvest.
- 40 percent of the grapes will be transported to site (with about 80 percent of these grapes being transported to the winery from the south on Silverado Trail).
- Tours and tasting will be by appointment only – 7 days per week from 10:00 AM to 4:00 PM, maximum 75 visitors per day (resulting in 27 to 29 vehicles).
- Marketing events – 50 per year: maximum 40 visitors each (15-16 vehicles) between 10:00 AM and 10:00 PM.
- Wine release – 2 per year, maximum 100 visitors (36 vehicles) per event on weekends between 10:00 AM and 10:00 PM.
- Wine auction – 1 per year, maximum 100 visitors (36 vehicles) on a weekend day between 10:00 AM and 10:00 PM.
- A left turn lane will be constructed on the southbound SR 29 approach to the project driveway.
- The fence along the project frontage south of the project entrance will be realigned 9 feet to the east in order to provide acceptable sight lines for drivers turning from the project site. In conjunction with fence realignment, all brush and trees between the fence line and the edge of the state highway will be cleared.

V. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

At County direction, the following locations have been evaluated.

- 1. SR 29/Diamond Mountain Road intersection (The Diamond Mountain Road approach is stop sign controlled).**
- 2. SR 29/Project Driveway intersection.**
- 3. The SR 29 two-lane highway segments just north and south of Diamond Mountain Road.**

Figure 2 presents a schematic of approach geometrics and control at each analysis intersection.

B. VOLUMES

1. ANALYSIS SEASONS AND DAYS OF THE WEEK

At County request project traffic impacts have been evaluated during both harvest and peak summer (non-harvest) conditions. Based upon more than four years of historical information from Caltrans PeMS (Performance Measurement System) count surveys along SR 29 in the Napa Valley, September has the highest daily volumes of the year (during harvest), with August having the highest summer non-harvest daily volumes of the year. August counts were almost as high as September counts. Therefore, conditions during these two months were selected for evaluation.

In regards to the peak traffic days of the week, the recently released Napa County Travel Behavioral Study² shows that the highest weekday volumes in Napa Valley occur on a Friday, with the highest weekend volumes occurring on a Saturday. In addition, historical count data from the City of Napa show that Friday has the highest volumes of any weekday, while Caltrans historical counts for SR 29 between St. Helena and Napa also show that weekday AM and PM peak hour volumes are higher on a Friday than on either a Wednesday or Thursday. Therefore, Friday and Saturday peak traffic conditions were evaluated in this study.

2. COUNT RESULTS

Friday 7:00 to 9:00 AM and 3:00 to 6:00 PM as well as Saturday 1:00 to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) in March 2015 at the SR 29/Diamond Mountain Road and SR 29/project access driveway intersections. The peak

² Fehr & Peers, December 8, 2014.

traffic hours were determined to be 7:30-8:30 AM and 4:15-5:15 PM on Friday and 3:00-4:00 PM on Saturday. Resultant March 2015 peak hour counts are presented in **Appendix Figures 1, 2 and 3**. Overall, two-way volumes along SR 29 at the project entrance were highest during the May Friday PM peak traffic hour (1,100 vehicles on Friday versus 922 vehicles during the Friday AM peak hour and 951 vehicles during the Saturday PM peak hour).

Daily two-way counts were also conducted along SR 29 adjacent to the project site on Tuesday, Wednesday, Thursday and Friday, March 17-20, 2015. Daily two-way volumes were 12,799, 12,870, 13,003 and 13,685 vehicles, respectively, with a four-day daily two-way average of 13,090 vehicles. In contrast, Caltrans's most recent annual average daily traffic volume (from 2013) for SR 29 adjacent to the project site is 12,500 vehicles. In addition, daily two-way counts were also conducted on the project access driveway during the same four March days. Totals ranged from 7 to 14 daily trips, with a four-day average just above 10 two-way trips.

3. SEASONAL ADJUSTMENTS

March 2015 peak hour traffic counts were seasonally adjusted to reflect September harvest conditions based upon the Caltrans PeMS historical counts for SR 29 as well as monthly and day of week adjustment factors utilized in other Napa Valley jurisdictions. Overall, March weekday counts would be expected to increase by about 9 percent to reflect fall harvest conditions, while March Saturday counts would be expected to increase by about 12 percent. Historical traffic count data from Caltrans as well as past studies, extending back to the Wine Train EIR in 1992, were then utilized to determine the seasonal difference in August versus September weekday and weekend peak hour volumes. While some sources showed August volumes at a few locations in the Napa Valley being the same or a little higher than those in September, overall it was determined that September volumes at the vast majority of locations were slightly higher than August volumes by the following factors.

	September Compared to August Peak Hour Volumes
Weekday	+ 1%
Saturday	+ 2%

Resultant 2014 Friday AM and PM and Saturday PM peak hour harvest volumes are presented in **Figure 3** while summer volumes are presented in **Figure 4**.

C. ROADWAYS

Roadway descriptions are based upon the designation that SR 29 runs in a general north-south direction through the project area and Diamond Mountain Road runs in an east-west direction. The project site is along the east side of the state highway.

State Route 29-128 (SR 29) will provide the only visitor and employee access to the winery. Adjacent to the project site it has two well-paved 12-foot travel lanes and eight-foot-wide paved shoulders. The posted speed limit is 55 miles per hour and the roadway is level. The highway

traverses a horizontal curve adjacent to the project site with the driveway connection on the inside of the curve. SR 29 is not controlled on its approaches to the Diamond Mountain Road tee intersection about 500 feet south of the proposed project driveway. However, a left turn lane has been provided on the northbound approach to the Diamond Mountain Road intersection.

Diamond Mountain Road is a two-lane rural collector County road extending westerly from its tee intersection with SR 29. It is stop sign controlled on its approach to the state highway.

D. INTERSECTION LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

Transportation engineers and planners commonly use a grading system called level of service (LOS) to measure and describe the operational status of the local roadway network. LOS is a description of the quality of a roadway facility's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). Intersections, rather than roadway segments between intersections, are almost always the capacity controlling locations for any circulation system.

Signalized Intersections. For signalized intersections, the 2010 *Highway Capacity Manual* (Transportation Research Board, National Research Council) methodology was utilized. With this methodology, operations are defined by the level of service and average control delay per vehicle (measured in seconds) for the entire intersection. For a signalized intersection, control delay is the portion of the total delay attributed to traffic signal operation. This includes delay associated with deceleration, acceleration, stopping, and moving up in the queue. **Table 1** summarizes the relationship between delay and LOS for signalized intersections.

Unsignalized Intersections. For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2010 *Highway Capacity Manual* (Transportation Research Board, National Research Council) methodology for unsignalized intersections was utilized. For side-street stop-controlled intersections, operations are defined by the level of service and average control delay per vehicle (measured in seconds), with delay reported for the stop sign controlled approaches or turn movements, although overall delay is also typically reported for intersections along state highways. For all-way stop-controlled intersections, operations are defined by the average control delay for the entire intersection (measured in seconds per vehicle). The delay at an unsignalized intersection incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. It should be noted that the 2010 analysis software for unsignalized intersections does not report overall intersection delay. However, the year 2000 software does report overall delay and was utilized to report overall intersection operation. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections.

2. MINIMUM ACCEPTABLE OPERATION

Napa County has no published minimum level of service standards for unsignalized public road or private driveway intersections. The County General Plan (Policy CIR-16) states that the County shall seek to maintain an arterial Level of Service D or better on all County roadways except where maintaining this desired level of service would require installation of more travel lanes than shown on the Circulation Map. For this study, LOS D has been used for unsignalized intersections as the poorest acceptable operation for the entire intersection, with LOS E as the poorest acceptable operation for a side street stop sign controlled intersection approach. The reason for use of LOS E as the criteria for individual movements and LOS D as the criteria for the overall intersection is that the poorest operation at an unsignalized intersection is typically a specific stop sign controlled movement, unless side street volumes are high, in which case both the overall intersection and stop sign controlled movement are LOS F. Stop sign controlled intersections along Silverado Trail with low volumes of side street traffic tend to have poor stop sign controlled levels of service, but good to acceptable overall operation. As side street volumes increase, overall intersection operation also tends to degrade, but will usually remain one or more levels of service better than the stop sign controlled movement. When overall operation also degrades to LOS E or F operation, it is an indication of large volumes on the stop sign controlled approach, and the potential need for intersection signalization. The combined use of both criteria allows the County to identify those stop sign controlled intersections that have unacceptable delay for side street traffic as well as a sufficient amount of side street traffic that may meet signal warrant criteria levels.

E. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION

1. ANALYSIS METHODOLOGY

Traffic signals are used to provide an orderly flow of traffic through an intersection. Many times they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds block crossing or turn movements. They do not, however, increase the capacity of an intersection (i.e., increase the overall intersection's ability to accommodate additional vehicles) and, in fact, often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at inappropriate locations.

There are 9 possible tests for determining whether a traffic signal should be considered for installation. These tests, called "warrants", consider criteria such as actual traffic volume, pedestrian volume, presence of school children, and accident history. The intersection volume data together with the available collision histories were compared to warrants contained in the *Manual on Uniform Traffic Control Devices* (MUTCD), Federal Highway Administration, 2012, California Supplement, which has been adopted by the State of California as a replacement for *Caltrans Traffic Manual*. Section 4C of the MUTCD provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the MUTCD, satisfaction of one or more warrants does not necessarily require immediate

installation of a traffic signal. It is merely an indication that the local jurisdiction should begin monitoring conditions at that location and that a signal may ultimately be required.

Warrant 3, the peak hour volume warrant, is often used as an initial check of signalization needs since peak hour volume data is typically available and this warrant is usually the first one to be met. Warrant 3 is based on a logarithmic curve and takes only the hour with the highest volume of the day into account.

In areas where there are less than 10,000 people in the immediate vicinity of an intersection or where the travel speeds on the uncontrolled intersection approaches are greater than 40 miles per hour, “rural” warrant criteria apply. They require only 70 percent of the volume levels of “urban” warrant criteria. The SR 29/Diamond Mountain Road intersection is in such a location.

Please see the **Appendix** for the rural warrant chart.

F. ROADWAY SEGMENT LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

Roadway segment operation for SR 29 has been evaluated based upon criteria developed for Napa County roadways as part of the County General Plan Update in 2007: Napa County General Plan Update EIR – Technical Memorandum for Traffic and Circulation Supporting the Findings and Recommendations by Dowling Associates, February 2007. Table 5 in this report, “Peak Hour Roadway Capacities,” shows the following directional capacity limit-level of service relationships for a two-lane rural highway, such as SR 29.

		LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Rural Highway	Maximum Peak Direction Volumes	100	330	620	870	1200
	Volume/Capacity Ratio	(.08)	(.28)	(.52)	(.73)	(1.00)

2. MINIMUM ACCEPTABLE OPERATION

Level of service D (LOS D) is the poorest acceptable roadway segment operation in Napa County.

G. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study.³

³ Mr. Paul Wilkinson, Napa County Public Works Department, February 2015.

VI. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for existing, year 2020 and year 2030 horizons at County request. The 2030 horizon reflects the County General Plan Buildout year. Traffic modeling for the General Plan shows about a 20 percent growth in two-way weekday AM peak hour traffic and about a 29 to 30 percent growth in two-way weekday PM peak hour traffic along SR 29 in the project area between 2014 and 2030. Projecting straight line traffic growth for analysis purposes, this translates into about a 7.5 percent growth in two-way AM peak hour traffic and about an 11 percent growth in two-way PM peak hour traffic from 2014 to the year 2020. Since traffic modeling projections were only available for weekday AM and PM peak hour conditions and not for the Saturday PM peak hour, Saturday two-way PM peak hour volumes on SR 29 were conservatively increased by the higher percentages found for the weekday PM peak hour.

Resultant year 2020 harvest and summer “Without Project” Friday and Saturday peak hour volumes are presented in **Figures 5** and **6**, respectively, while year 2030 harvest and summer “Without Project” Friday and Saturday peak hour volumes are presented in **Figures 7** and **8**, respectively.

VII. OFF-SITE CIRCULATION SYSTEM OPERATION – WITHOUT PROJECT

1. EXISTING OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond Mountain Road) – Table 3

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

**2. INTERSECTION PEAK HOUR SIGNAL WARRANT
EVALUATION (SR 29/Diamond Mountain Road) – Table 4**

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

**3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) –
Table 5A**

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS B northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS C southbound.

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C northbound and LOS C southbound.

B. SUMMER (NON-HARVEST)

**1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond
Mountain Road) – Table 3**

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

**2. INTERSECTION PEAK HOUR SIGNAL WARRANT
EVALUATION (SR 29/Diamond Mountain Road) – Table 4**

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) – Table 5B

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS B northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS C southbound.

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C northbound and LOS C southbound.

2. YEAR 2020 OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond Mountain Road) – Table 6

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION (SR 29/Diamond Mountain Road) – Table 7

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

**3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) –
Table 8A**

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS B northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS C southbound.

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS C southbound.

B. SUMMER (NON-HARVEST)

**1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond
Mountain Road) – Table 6**

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

**2. INTERSECTION PEAK HOUR SIGNAL WARRANT
EVALUATION (SR 29/Diamond Mountain Road) – Table 7**

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

**3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) –
Table 8B**

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C or B northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS C southbound.

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C or D northbound and LOS C southbound.

3. YEAR 2030 OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond Mountain Road) – Table 9

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS D

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION (SR 29/Diamond Mountain Road) – Table 10

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) – Table 11A

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable LOS C operation southbound, but **unacceptable LOS E operation northbound both north and south of Diamond Mountain Road.**

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and D southbound.

B. SUMMER (NON-HARVEST)

1. INTERSECTION LEVEL OF SERVICE (SR 29/Diamond Mountain Road) – Table 9

a) Friday AM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

b) Friday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS D

c) Saturday PM Peak Hour

Acceptable overall intersection operation: LOS A

Acceptable Diamond Mountain Road stop sign controlled operation: LOS C

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION (SR 29/Diamond Mountain Road) – Table 10

a) Friday AM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

b) Friday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

c) Saturday PM Peak Hour

Volumes would not meet peak hour signal warrant criteria #3.

3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 29) – Table 11B

a) Friday AM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS C northbound and LOS D southbound.

b) Friday PM Peak Hour

SR 29: Acceptable LOS C operation southbound, but **unacceptable LOS E operation northbound both north and south of Diamond Mountain Road.**

c) Saturday PM Peak Hour

SR 29: Acceptable operation both north and south of Diamond Mountain Road: LOS D northbound and LOS D southbound.

VIII. PROJECT IMPACT EVALUATION SIGNIFICANCE CRITERIA

A. SIGNIFICANCE CRITERIA

The following criteria were developed for recent traffic impact analyses in the County. These same criteria have been utilized in this study to determine the significance of impacts due to the project. An impact is considered to be significant if any of the following conditions are met.

- If a roadway segment has “Without Project” LOS A, B, C or D operation and deteriorates to LOS E or F operation with the addition of project traffic (and increases volumes by 1 percent or more), the impact is significant and would require mitigation.
- If a roadway segment already has “Without Project” unacceptable LOS E or F operation, an increase in directional traffic of 1 percent or greater is considered significant and would require mitigation.
- If an unsignalized intersection has “Without Project” overall LOS A, B, C or D operation and deteriorates to LOS E or F operation with the addition of project traffic (and increases volumes by 1 percent or more) – or – has a stop sign controlled movement operating at LOS A, B, C, D or E and deteriorates to LOS F with the additional project traffic (and increases volumes by 1 percent or more), the impact is considered significant and would require mitigation.
- If an unsignalized intersection already has “Without Project” overall LOS E or F operation – or – if a stop sign controlled movement or approach is already operating at LOS F, an increase in traffic passing through the intersection of 1 percent or more due to the project is considered to be significant and would require mitigation.
- If the addition of project traffic to an unsignalized intersection increases “Without Project” volumes to meet peak hour signal warrant criteria levels (and increases volumes by 1 percent or more), the impact is considered significant and would require mitigation.
- If “Without Project” volumes at an unsignalized intersection already meet peak hour signal warrant criteria levels and the level of service is already at an unacceptable level, an increase in traffic of 1 percent or more due to the project is considered significant and would require mitigation.
- If projected daily volumes on the project driveway in combination with volumes on the roadway providing access to the project driveway meet County warrant criteria for provision of a left turn lane on the approach to the project entrance – or – if peak

hour volumes at the project inbound access driveway intersection meet Caltrans left turn lane warrant criteria.

- If sight lines at project access driveways do not meet Caltrans stopping sight distance criteria based upon prevailing vehicle speeds.

IX. PROJECT TRIP GENERATION & DISTRIBUTION

A. TRIP GENERATION

Friday AM and PM peak hour and Saturday afternoon peak hour trip generation projections were developed with the assistance of the project applicant and their representative for all components of the employee, grape delivery and visitor activities at the proposed Beautiful Day Winery (see worksheets in the **Appendix**). Results are presented on an hourly basis in **Tables 12** and **13** for harvest Friday and Saturday conditions, while **Tables 14** and **15** present results for summer Friday and Saturday conditions. A summary of peak hour trips is presented in **Table 16**. During the harvest Friday AM peak traffic hour there would be a projected 2 inbound and 0 outbound vehicles, while during the harvest Friday PM peak traffic hour there would be a projected 0 inbound and 6 outbound vehicles. During the harvest Saturday PM peak traffic hour, there would be a projected 5 inbound and 6 outbound vehicles. As shown, winery employees would be expected on the local roadway network during both the harvest Friday AM and PM peak traffic hours, while during the Saturday PM peak hour all project traffic would be visitor related. During the harvest Friday AM peak hour, there could be 1 inbound grape delivery truck, or a reduction in truck traffic due to the elimination of the outhaul of grapes now being grown on the site that require off-site processing.

Summer project trip generation projections are the same as harvest for the Friday AM and PM and Saturday PM peak traffic hours. During a summer Friday AM peak hour there would be no grape truck traffic.

B. TRIP DISTRIBUTION

Project traffic was distributed to SR 29 in a pattern reflective of existing distribution patterns at the SR 29 intersection with the project driveway as well as the driveway on the west side of SR 29 opposite the project entrance. Most visitor and employee traffic would be expected to travel to/from the south on SR 29. During the Friday PM peak period (3:00-6:00) and the Saturday afternoon peak period (noon-6:00 PM) 100 percent of all in and outbound traffic using the site driveway traveled to or from the south, while during the Friday AM peak hour, outbound traffic traveled 100 percent to the south while inbound traffic was equally split from the north and south. The driveway on the west side of SR 29 opposite the project entrance had a more balanced distribution of in and outbound traffic during each of the three peak traffic periods. Grape truck traffic would be expected to access the site primarily using SR 29 from south of the site.

The harvest and summer Friday and Saturday project traffic increments expected on SR 29 during the times of ambient peak traffic flows are presented in **Figure 9**. Friday and Saturday Existing “With Project” peak hour volumes are presented in **Figures 10 and 11**, respectively; “With Project” peak hour volumes for year 2020 conditions are presented in **Figures 12 and 13**, respectively, and “With Project” peak hour volumes for 2030 conditions are presented in **Figures 14 and 15**, respectively.

C. PLANNED ROADWAY IMPROVEMENTS

There are no capacity increasing roadway improvements planned by Caltrans or the County on the local roadway network serving the project site.⁴ However, the applicant is proposing to construct a left turn lane on the southbound SR 29 approach to the project driveway.

X. PROJECT OFF-SITE IMPACTS

A. EXISTING WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. *Less than Significant.*

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 3

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. *Less than Significant.*

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 4

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. *Less than Significant.*

d) Roadway Segments (SR 29) – Table 5A

All analyzed roadway segments would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours. *Less than Significant.*

⁴ Paul Wilkinson, Napa County Public Works Department, February 2015.

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. *Less than Significant.*

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 3

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. *Less than Significant.*

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 4

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. *Less than Significant.*

d) Roadway Segments (SR 29) – Table 5B

All analyzed roadway segments would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours. *Less than Significant.*

B. YEAR 2020 WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. *Less than Significant.*

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 6

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. *Less than Significant.*

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 7

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. *Less than Significant.*

d) Roadway Segments (SR 29) – Table 8A

All analyzed roadway segments would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours. *Less than Significant.*

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. *Less than Significant.*

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 6

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. *Less than Significant.*

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 7

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. *Less than Significant.*

d) Roadway Segments (SR 29) – Table 8B

All analyzed roadway segments would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours. *Less than Significant.*

C. YEAR 2030 WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. *Less than Significant.*

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 9

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. *Less than Significant.*

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 10

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. *Less than Significant.*

d) Roadway Segments (SR 29) – Table 11A

All analyzed roadway segments, with one exception, would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours.

During the Friday PM peak traffic hour when “Without Project” northbound operation would be an unacceptable LOS E, the project would increase volumes by only 0.1 percent, which would be less than the County significance criteria limit of 1.0 percent traffic added. ***Less than Significant.***

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service or signal warrant impacts at the SR 29/Diamond Mountain Road intersection, or any level of service impacts along any analyzed SR 29 roadway segments during any Friday or Saturday peak traffic hours. ***Less than Significant.***

b) Intersection Level of Service (SR 29/Diamond Mountain Road) – Table 9

The SR 29/Diamond Mountain Road intersection would maintain acceptable Friday AM and PM peak hour as well as Saturday PM peak hour operation with the addition of project traffic. ***Less than Significant.***

c) Signalization Needs (SR 29/Diamond Mountain Road) – Table 10

The SR 29/Diamond Mountain Road intersection would not have “With Project” volumes exceeding signal warrant criteria levels during the Friday AM and PM or Saturday PM peak traffic hours. ***Less than Significant.***

d) Roadway Segments (SR 29) – Table 11B

All analyzed roadway segments, with one exception, would maintain acceptable operation with the addition of project traffic during the Friday AM and PM and Saturday PM peak traffic hours. During the Friday PM peak traffic hour when “Without Project” northbound operation would be an unacceptable LOS E, the project would increase volumes by only 0.1 percent, which would be less than the County significance criteria limit of 1.0 percent traffic added. ***Less than Significant.***

XI. PROJECT ACCESS IMPACTS

A. SIGHT LINE ADEQUACY AT PROJECT DRIVEWAY

Sight lines at the SR 29/project access driveway intersection are currently acceptable to the north along the state highway (at 580 feet), but are unacceptable to the south (at about 400 feet). Sight line to the south is blocked by the project frontage fence line as well as brush and trees.

However, sight lines would be acceptable to both the north and south along the state highway after realignment of the fence south of the project entrance by 9 feet to the east along the project frontage and removal of all brush and trees between the fence line and the edge of the state highway. After fence realignment, sight lines would be as follows for a driver exiting the site.

Sight line to the north along SR 29 (to see southbound vehicles) ± 580 feet

Sight line to the south along SR 29 (to see northbound vehicles) ± 580 feet

The Caltrans Design Manual (March 2014) states that stopping sight distance is the corner sight distance criteria to be utilized at private road connections to state highways. The minimum required stopping sight distances based upon various vehicle speeds are as follows.

SPEED	MINIMUM REQUIRED STOPPING SIGHT DISTANCE
50 mph	430 feet
55 mph	500 feet
60 mph	580 feet

The posted speed limit at the project entrance is 55 miles per hour, and some vehicles were observed traveling higher than the posted limit during two field surveys by Crane Transportation Group. Based upon the 60 mile per hour criteria, resultant sight lines to the north and south along SR 29 from the project driveway would be acceptable after fence realignment to the south of the entrance and clearing all brush and trees between the fence and the edge of the state highway. *Less than Significant Impact.*

B. PROJECT ENTRANCE LEFT TURN LANE REQUIREMENT

The project applicant will be providing a left turn lane on the southbound SR 29 approach to the project driveway. *Less than Significant Impact.*

XII. MARKETING EVENTS

Table 17 presents details of the number of guests, employees and hired event staffing that would likely be present for the 53 proposed marketing events during the year. Fifty events per year would be held with up to 40 guests (resulting in about 15-16 visitor vehicles). Total hired staffing for these 50 events would result in an additional 3 vehicles accessing the winery. Events would last about three to four hours and would occur between 10:00 AM and 10:00 PM on both weekdays and weekend days.

One wine auction event would be held each year with up to 100 guests (resulting in about 36 vehicle trips to/from the winery) as well as two wine releases per year with up to 100 guests each (also resulting in about 36 vehicles to/from the winery). Hired event staffing for each of these three events would result in an additional 3-5 vehicles accessing the winery. The wine auction would be about four hours long and would occur on a weekend day between 10:00 AM and 10:00 PM, while the wine releases would also be about four hours long and would also occur on a weekend day between 10:00 AM and 10:00 PM.

There will be no regular visitation allowed during any marketing events.

The potential exists that some marketing event traffic will be on SR 29 during times of peak traffic on a weekday or weekend afternoon. ***Potentially significant, less than significant with mitigation.***

XIII. MITIGATION MEASURES

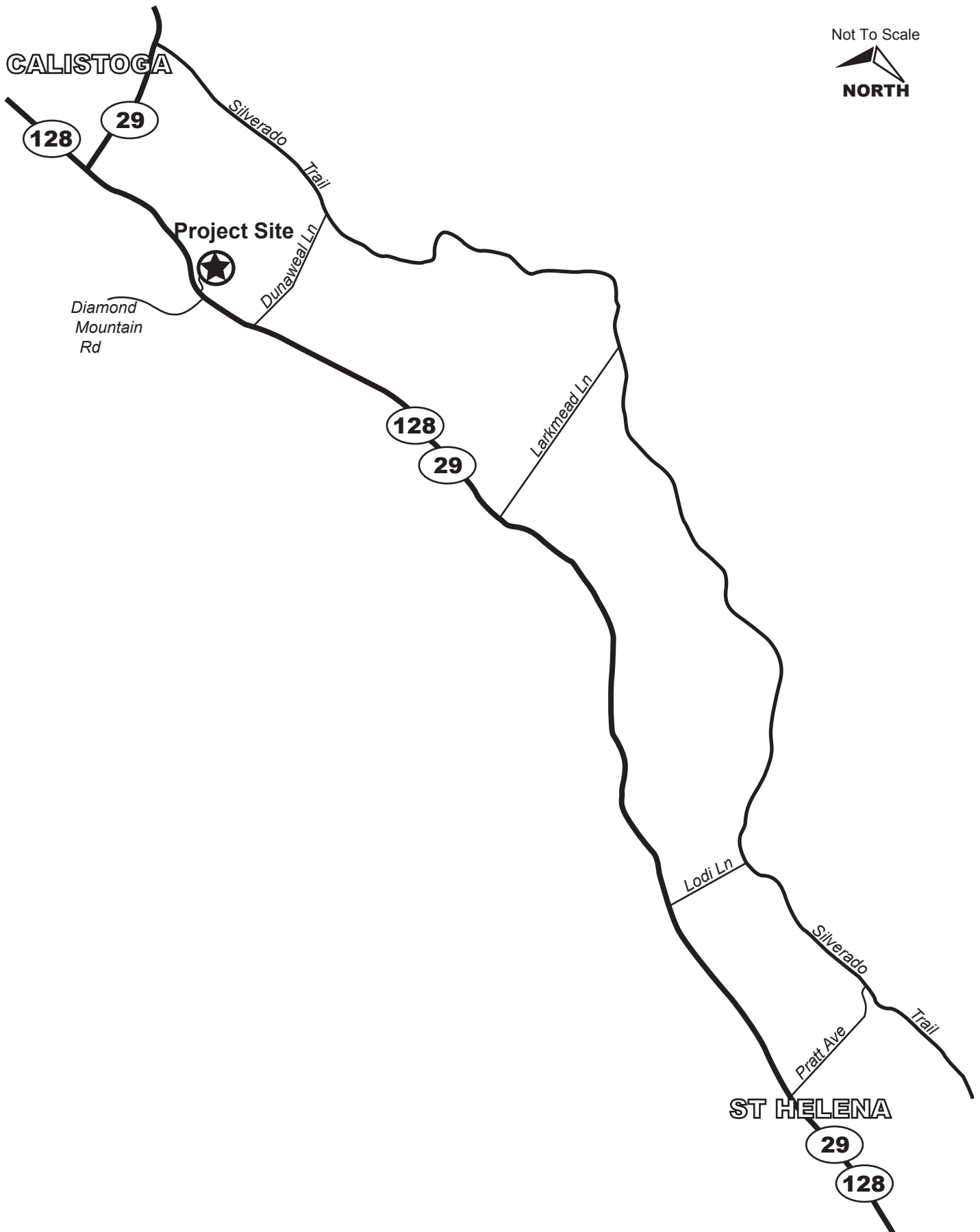
- Schedule marketing events to eliminate guest and hired event staff traffic from the local circulation system between 3:00 and 6:00 PM on all days.

XIV. CONCLUSIONS & RECOMMENDATIONS

The project would result in no significant off-site circulation system operational impacts to SR 29 or to the SR 29/Diamond Mountain Road intersection. A left turn lane will be provided on the southbound SR 29 approach to the project driveway. In addition, sight lines to the north and south along SR 29 from the project driveway will meet Caltrans *Highway Design Manual* stopping sight distance criteria after realignment of the fence to the south of the project entrance 9 feet to the east along the project frontage. Fence realignment and clearing all brush and trees between the fence and the edge of the state highway are part of the proposed project. Finally, marketing events should be scheduled to eliminate guest and event staff traffic from the local circulation system between 3:00 and 6:00 PM during any day of the week.

This Report is intended for presentation and use in its entirety, together with all of its supporting exhibits, schedules, and appendices. Crane Transportation Group will have no liability for any use of the Report other than in its entirety, such as providing an excerpt to a third party or quoting a portion of the Report. If you provide a portion of the Report to a third party, you agree to hold CTG harmless against any liability to such third parties based upon their use of or reliance upon a less than complete version of the Report.

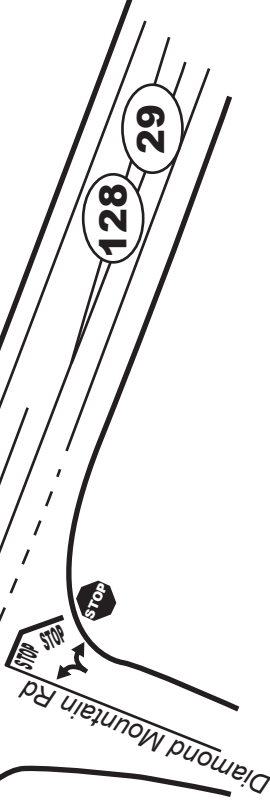
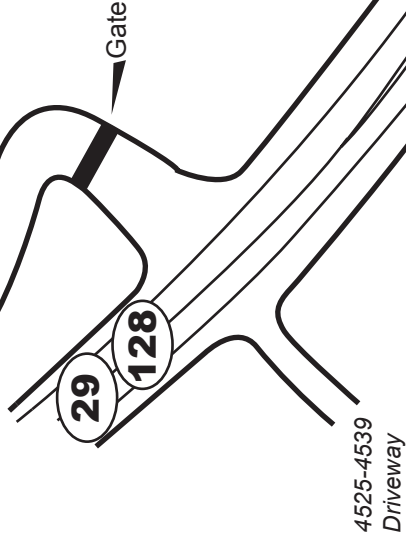
Figures



Beautiful Day Winery Traffic Study

Figure 1
Area Map

to PROJECT SITE



Beautiful Day Winery Traffic Study

Figure 2
Existing Lane Geometrics and
Intersection Control

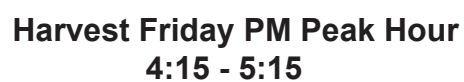
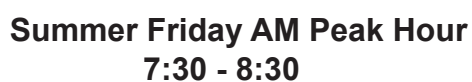
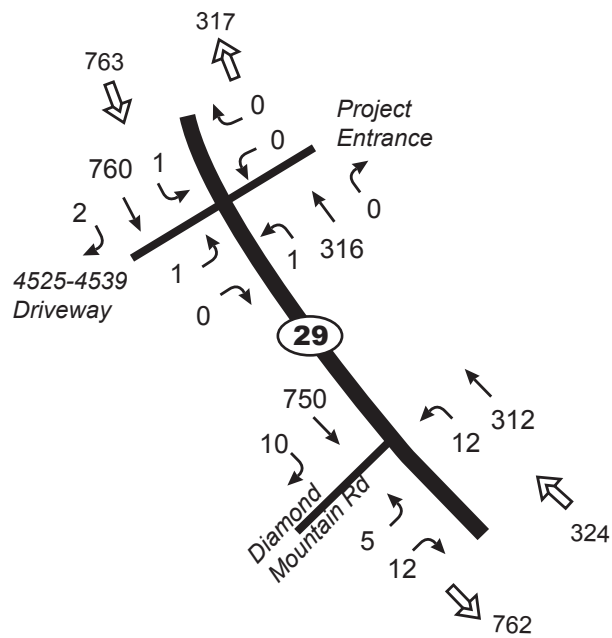


Figure 3

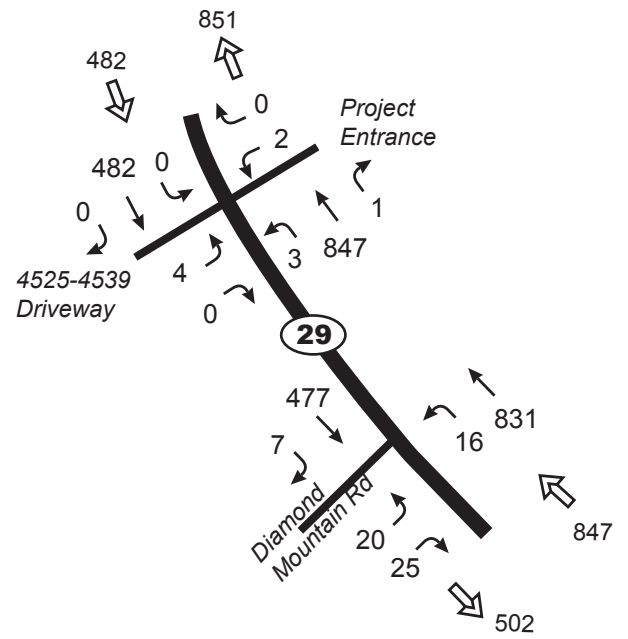
**2014 Harvest (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes**



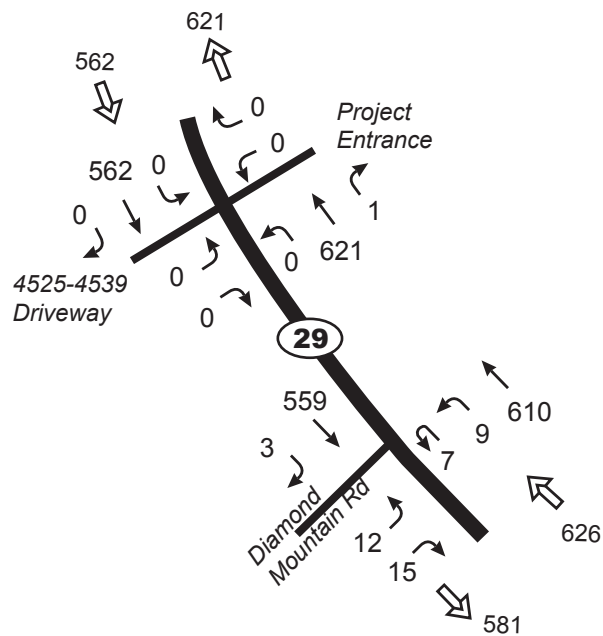
**2014 Summer Non-Harvest (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes**



Harvest Friday AM Peak Hour
7:30 - 8:30



Harvest Friday PM Peak Hour
4:15 - 5:15

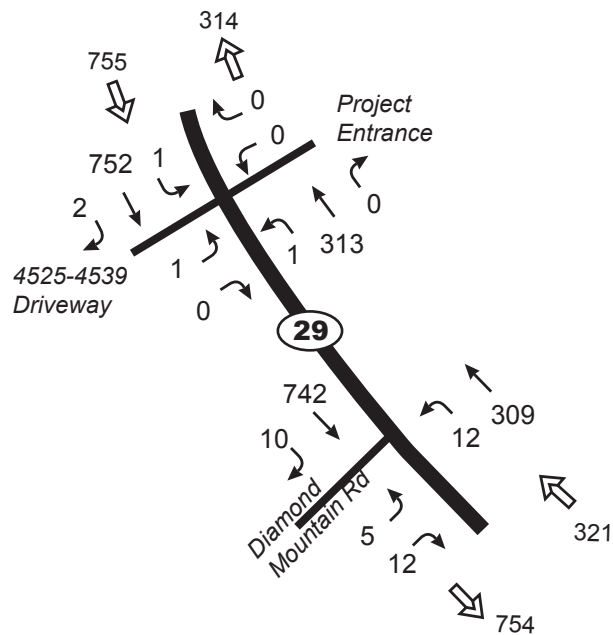


Harvest Saturday PM Peak Hour
3:00-4:00

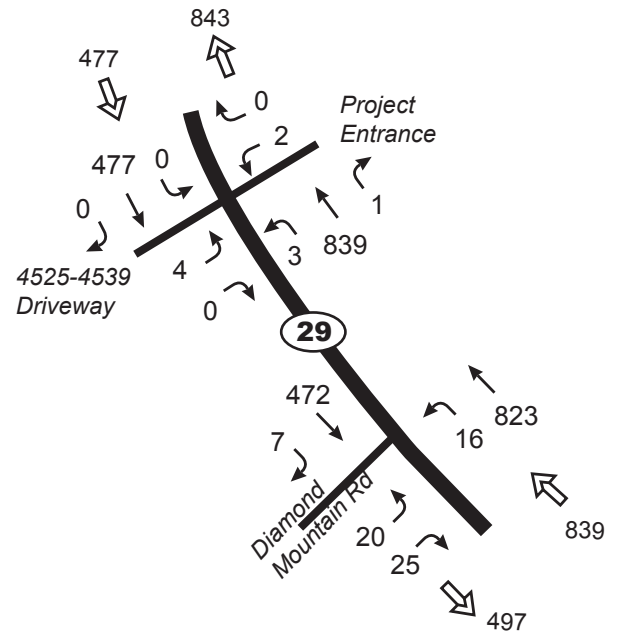
Figure 5

2020 Harvest (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes

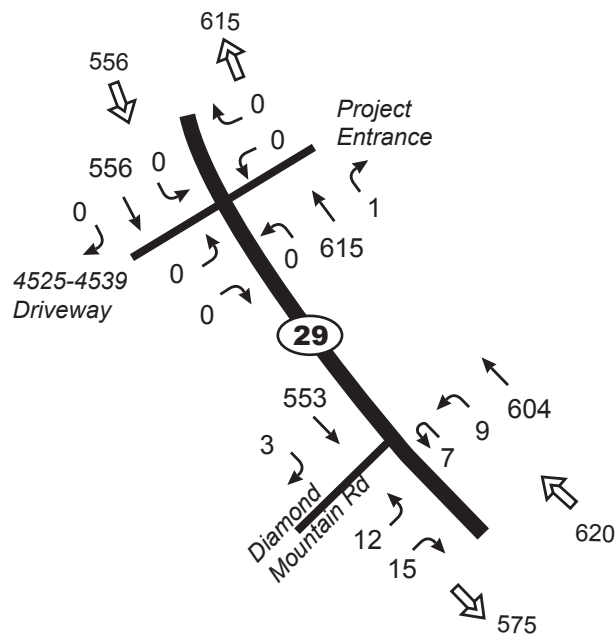




Summer Friday AM Peak Hour
7:30 - 8:30



Summer Friday PM Peak Hour
4:15 - 5:15



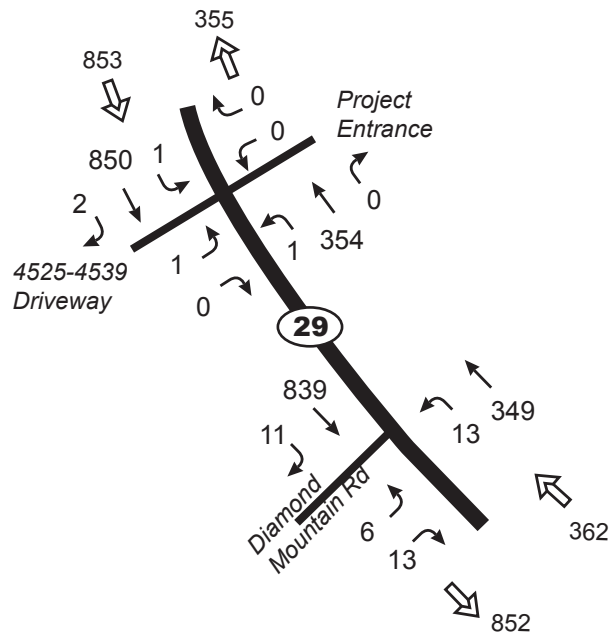
Summer Saturday PM Peak Hour
3:00-4:00

Figure 6

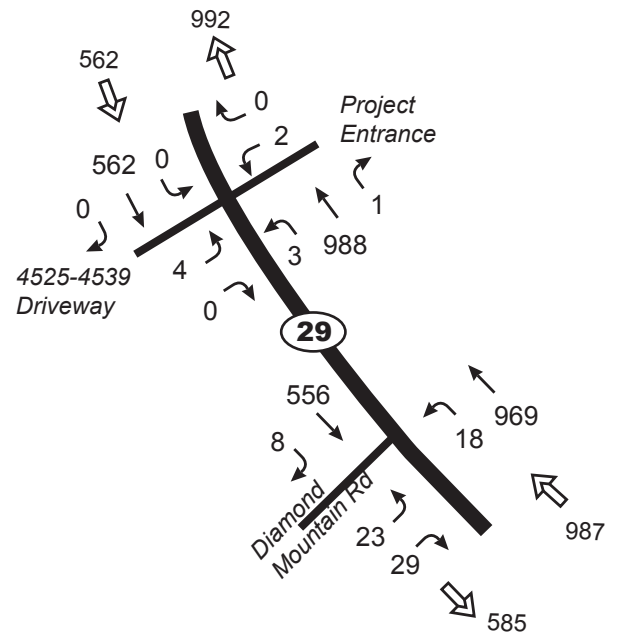
2020 Summer (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes



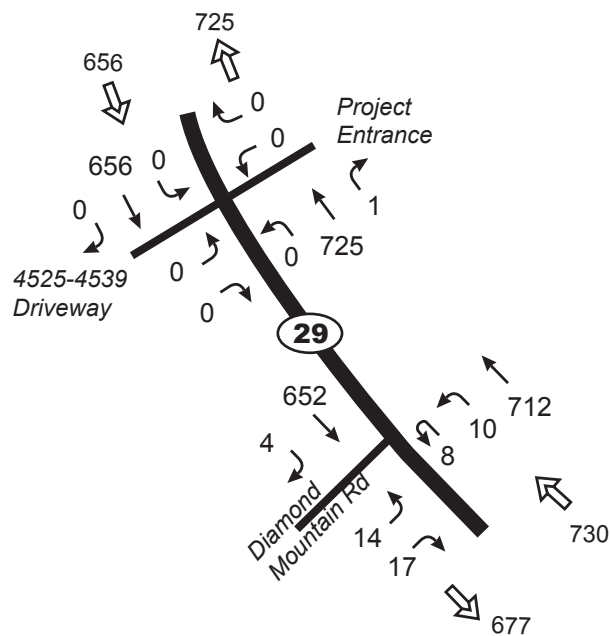
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Harvest Friday AM Peak Hour
7:30 - 8:30



Harvest Friday PM Peak Hour
4:15 - 5:15



Harvest Saturday PM Peak Hour
3:00-4:00

Beautiful Day Winery Traffic Study

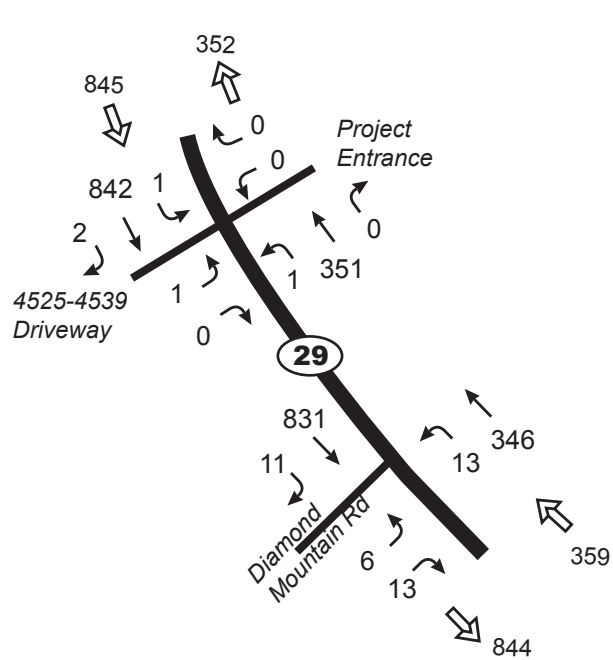
Figure 7

2030 Harvest (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes

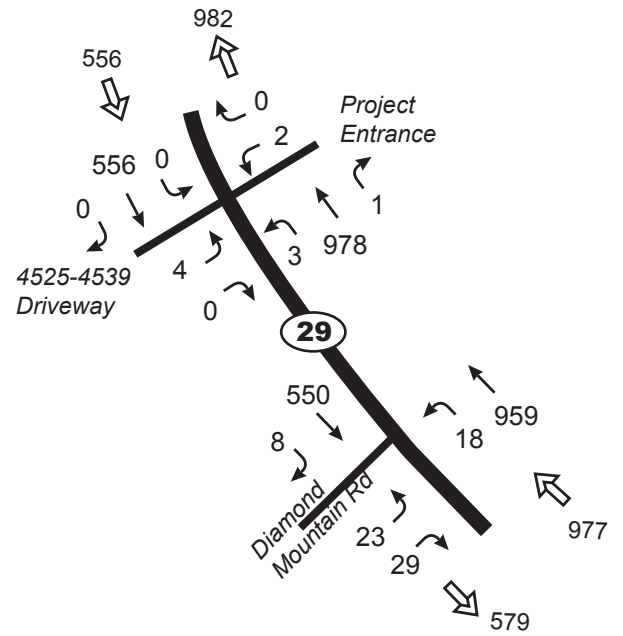


CRANE TRANSPORTATION GROUP

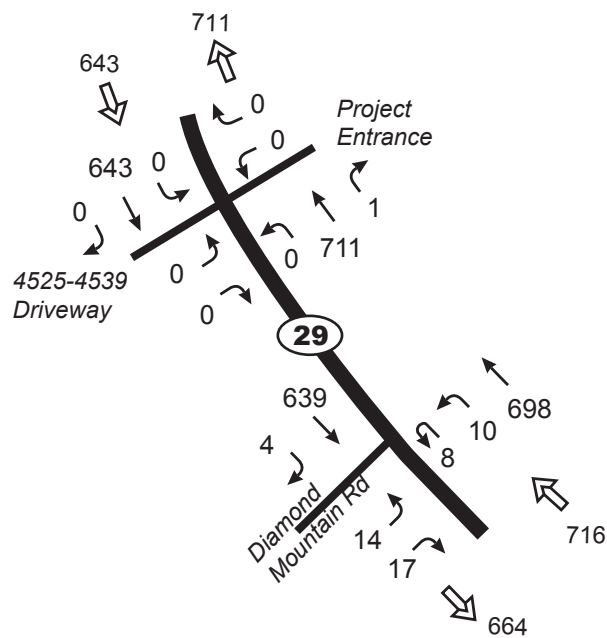
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**Summer Friday AM Peak Hour
7:30 - 8:30**



**Summer Friday PM Peak Hour
4:15 - 5:15**



**Summer Saturday PM Peak Hour
3:00-4:00**

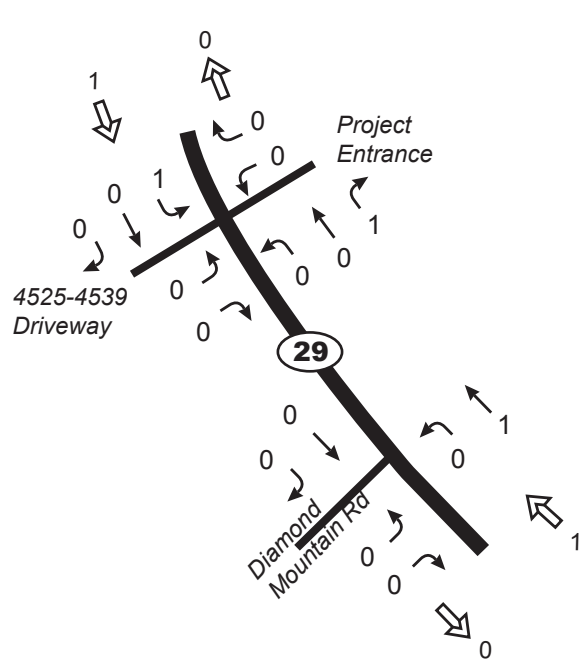
Beautiful Day Winery Traffic Study

Figure 8

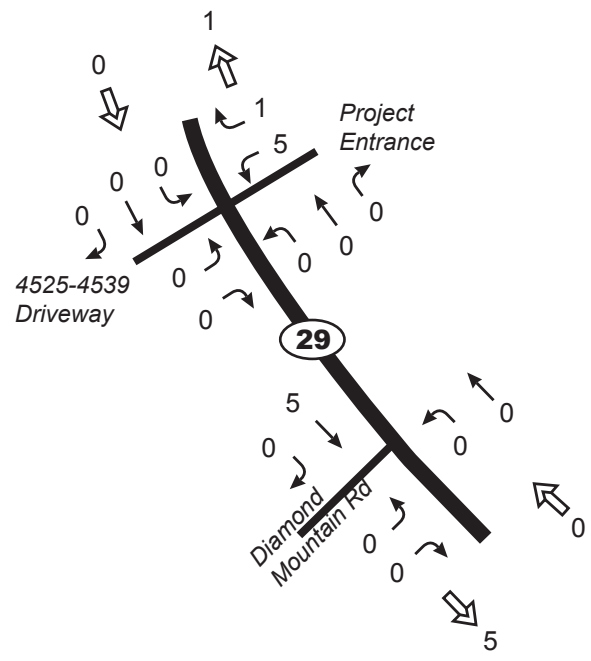
**2030 Summer (without Project)
Friday AM & PM and Saturday
PM Peak Hour Volumes**



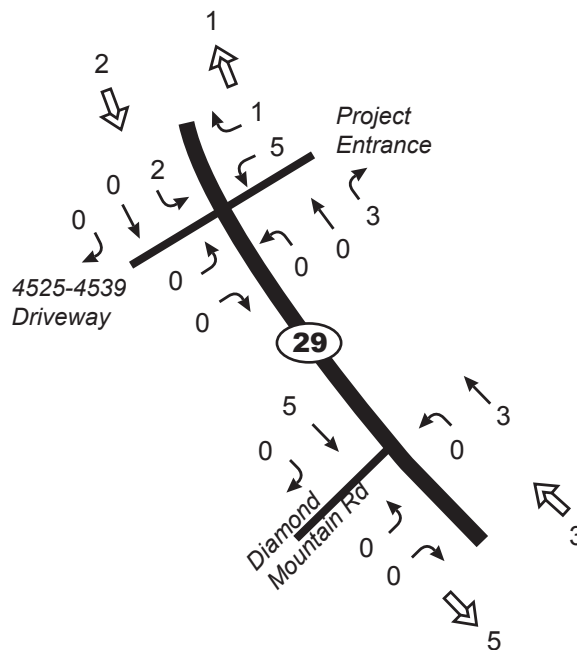
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Friday AM Peak Hour
7:30 - 8:30



Friday PM Peak Hour
4:15 - 5:15

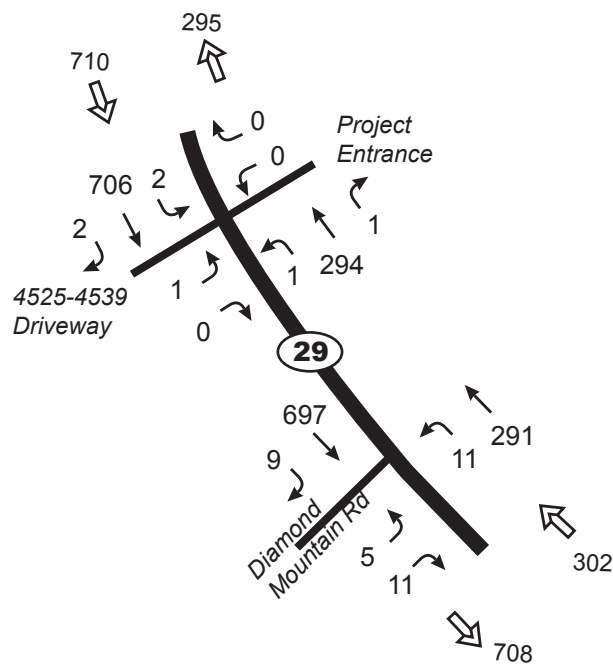


Saturday PM Peak Hour
3:00-4:00

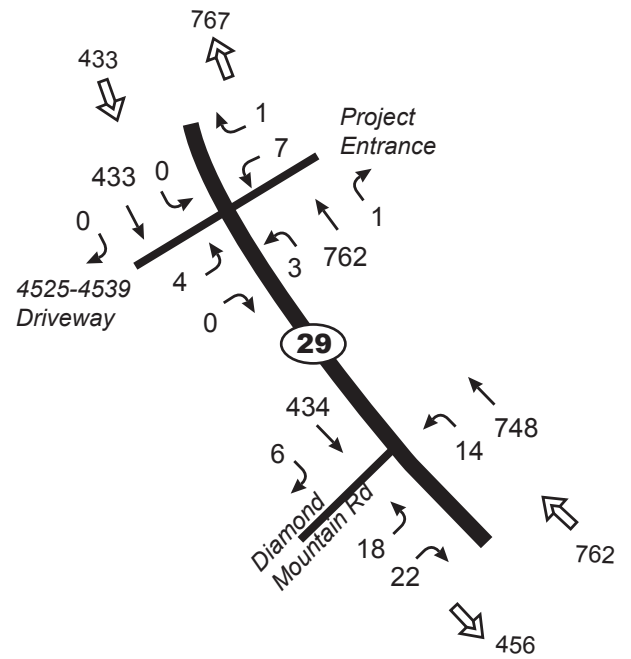


Figure 9
Harvest or Summer Project Increment
Friday AM & PM and Saturday
PM Peak Hour Volumes

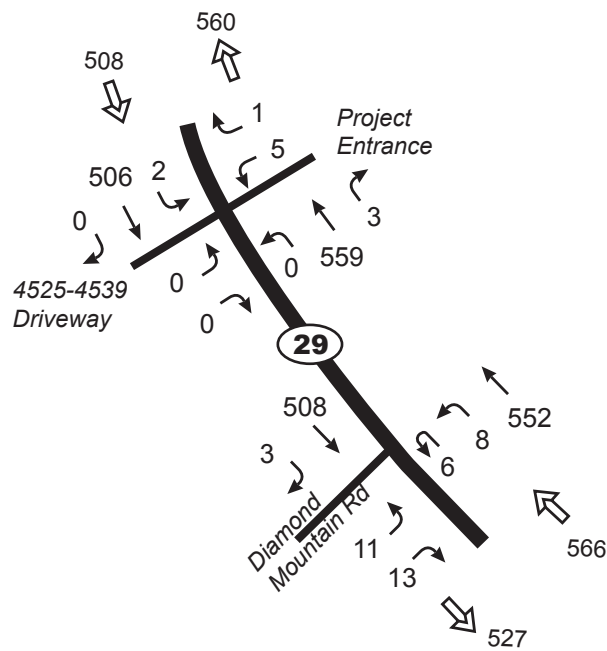
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Harvest Friday AM Peak Hour
7:30 - 8:30



Harvest Friday PM Peak Hour
4:15 - 5:15



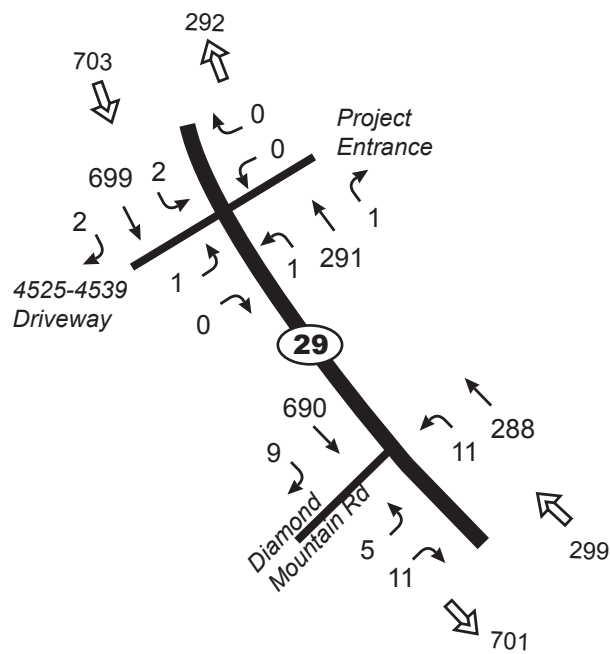
Harvest Saturday PM Peak Hour
3:00-4:00

Beautiful Day Winery Traffic Study

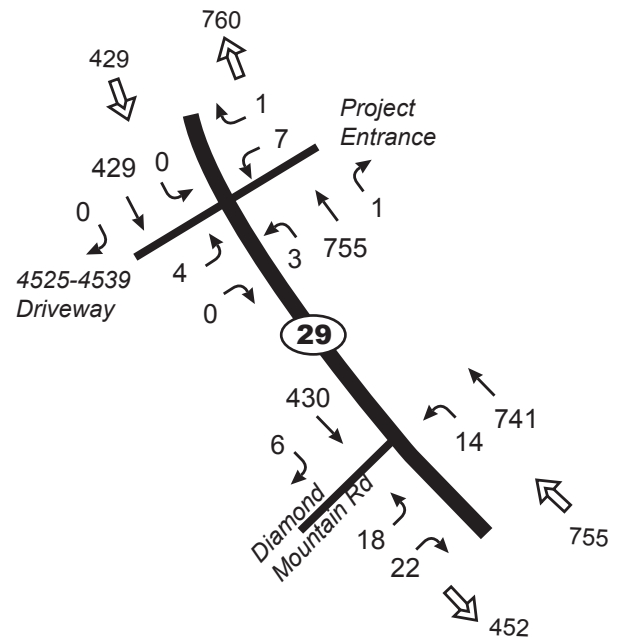


CRANE TRANSPORTATION GROUP

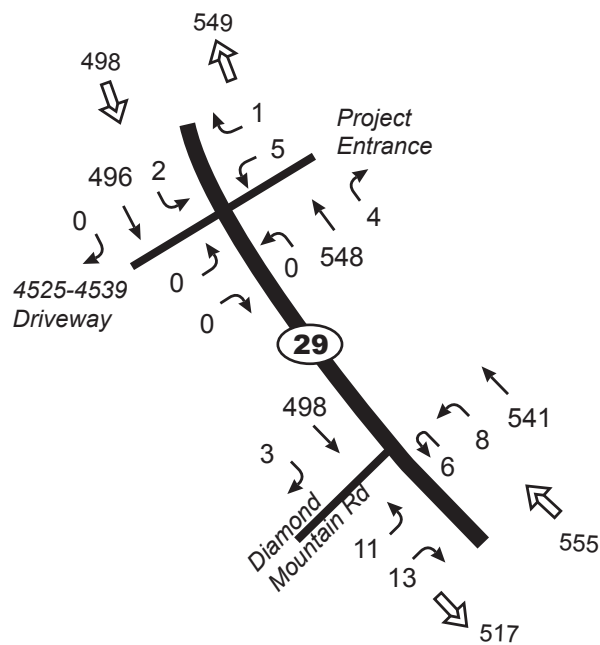
Figure 10
2014 Harvest with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes



**Summer Friday AM Peak Hour
7:30 - 8:30**



**Summer Friday PM Peak Hour
4:15 - 5:15**



**Summer Saturday PM Peak Hour
3:00-4:00**



**Figure 11
2014 Summer Non-Harvest with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes**

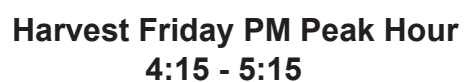
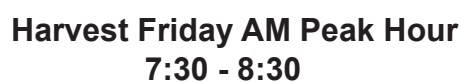
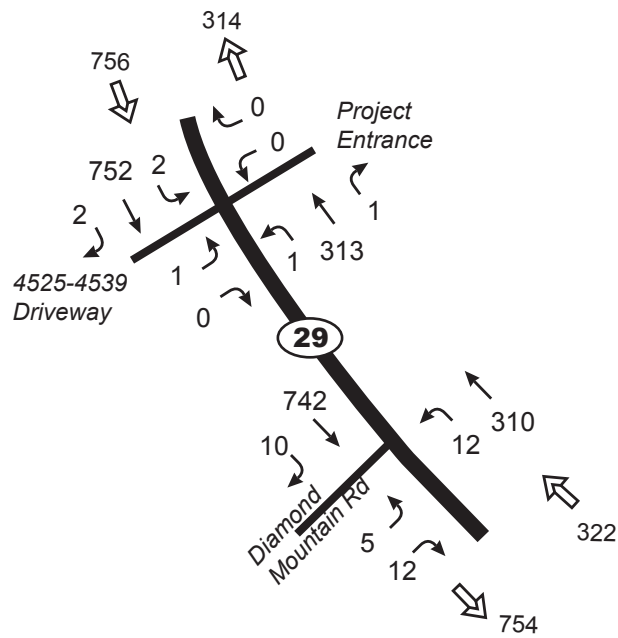
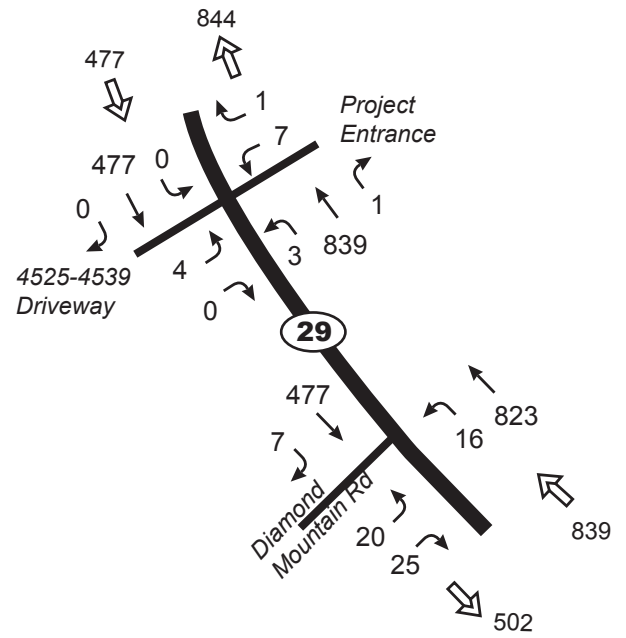


Figure 12
2020 Harvest with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes

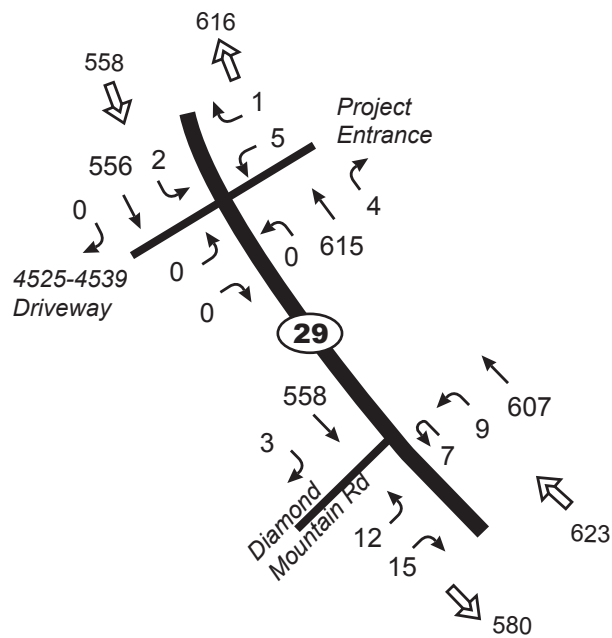
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**Summer Friday AM Peak Hour
7:30 - 8:30**



**Summer Friday PM Peak Hour
4:15 - 5:15**



**Summer Saturday PM Peak Hour
3:00-4:00**

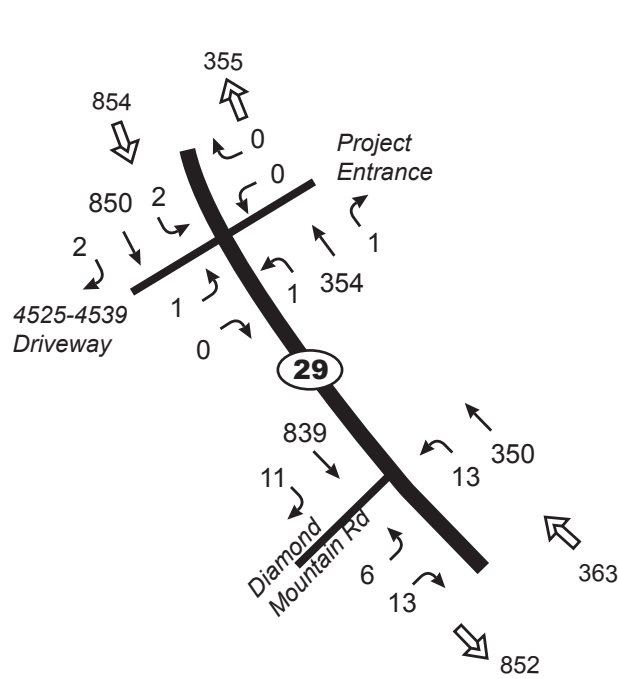
Beautiful Day Winery Traffic Study



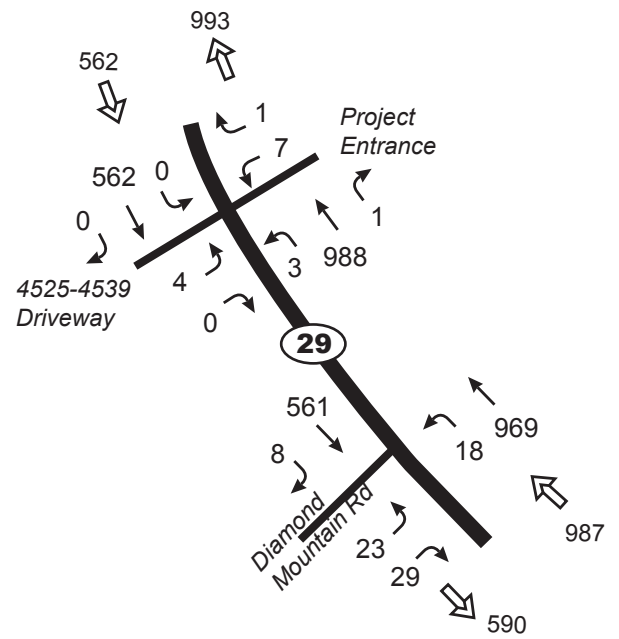
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**Figure 13
2020 Summer with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes**

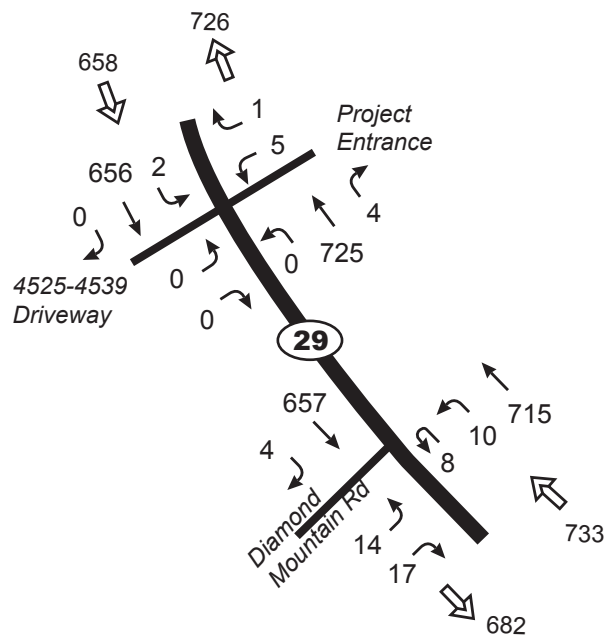
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Harvest Friday AM Peak Hour
7:30 - 8:30



Harvest Friday PM Peak Hour
4:15 - 5:15



Harvest Saturday PM Peak Hour
3:00-4:00

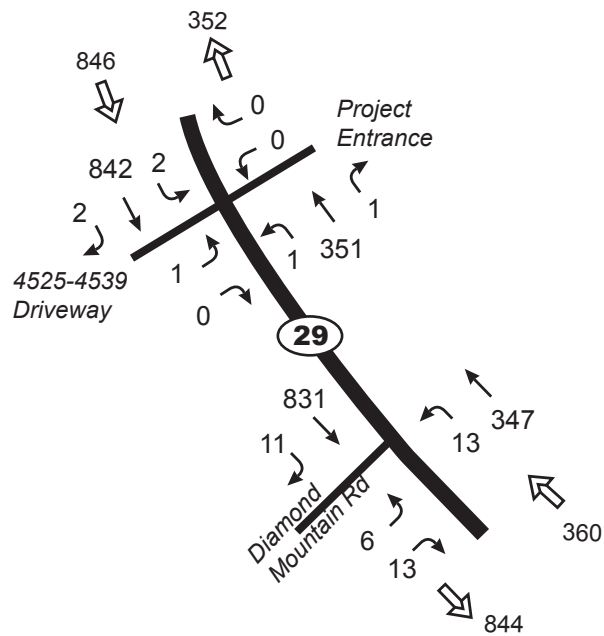
Beautiful Day Winery Traffic Study



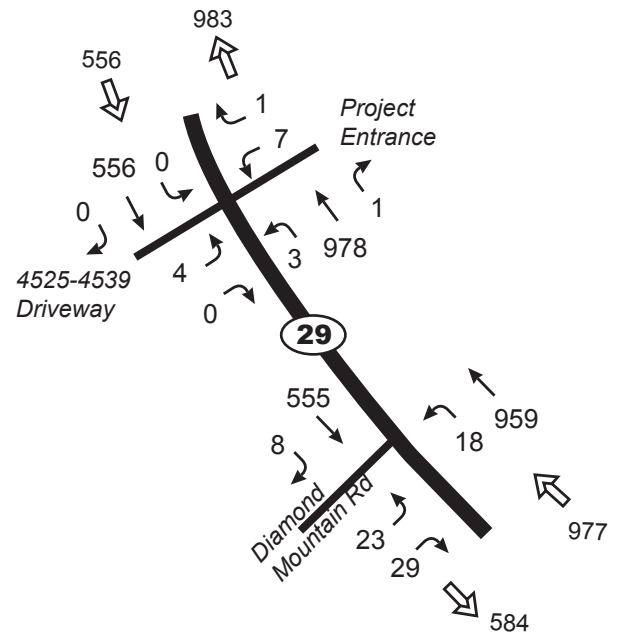
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Figure 14
2030 Harvest with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes

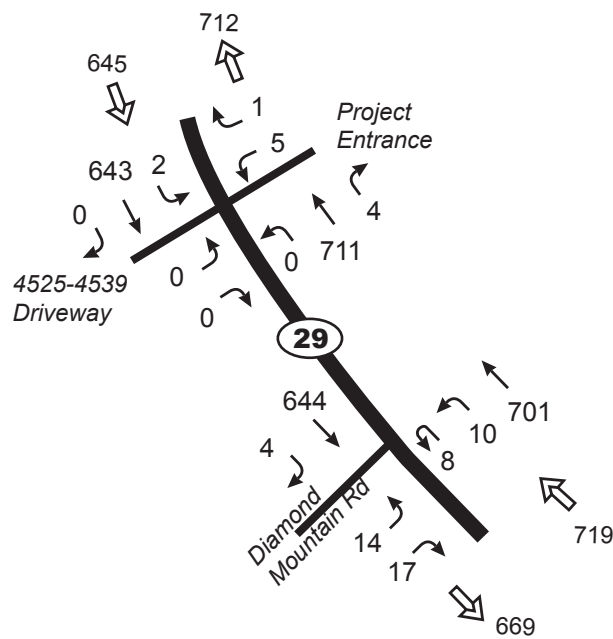
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Summer Friday AM Peak Hour
7:30 - 8:30



Summer Friday PM Peak Hour
4:15 - 5:15



Summer Saturday PM Peak Hour
3:00-4:00

Beautiful Day Winery Traffic Study



CRANE TRANSPORTATION GROUP

Figure 15
2030 Summer with Project
Friday AM & PM and Saturday
PM Peak Hour Volumes

Tables

Table 1**SIGNALIZED INTERSECTION LOS CRITERIA**

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0

Source: 2010 Highway Capacity Manual (Transportation Research Board).

Table 2**UNSIGNALIZED INTERSECTION LOS CRITERIA**

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Little or no delays	≤ 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded (for an all-way stop), or with approach/turn movement capacity exceeded (for a side street stop controlled intersection)	> 50.0

Source: 2010 Highway Capacity Manual (Transportation Research Board).

Table 3

INTERSECTION LEVEL OF SERVICE

SR 29-128/DIAMOND MOUNTAIN ROAD

EXISTING – 2014

HARVEST

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-16.4/A-9.3 ⁽¹⁾ A-.3 ⁽²⁾	C-16.4/A-9.3 A-.3	C-18.9/A-8.3 A-.5	C-19.0/A-8.3 A-.5	C-17.1/A-8.6 A-.4	C-17.3/A-8.6 A-.4

SUMMER (NON-HARVEST)

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-16.2/A-9.3 ⁽¹⁾ A-.3 ⁽²⁾	C-16.2/A-9.3 A-.3	C-18.7/A-8.3 A-.5	C-18.8/A-8.3 A-.5	C-16.8/A-8.3 A-.5	C-16.9/A-8.6 A-.4

⁽¹⁾ Unsignalized level of service – control delay in seconds. Diamond Mountain Road eastbound stop sign controlled approach/SR 29-128 northbound left turn.

⁽²⁾ **Unsignalized level of service – control delay in seconds (entire intersection).**

*Year 2010 Highway Capacity Manual (HCM) Analysis Methodology – individual approach or turn movement results
Year 2000 HCM results for overall intersection operation. No overall intersection operation results obtainable from 2010 software.*

Source: Crane Transportation Group

Table 4

INTERSECTION SIGNAL WARRANT EVALUATION

SR 29-128/DIAMOND MOUNTAIN ROAD

**Do volumes meet peak hour signal
Warrant #3 rural condition criteria?**

EXISTING – 2014

HARVEST

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

Source: Crane Transportation Group

Table 5A

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29-128

EXISTING – 2014

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	301	B	302	B	762	D	762	D	563	C	566	C
	SB	1200	708	D	708	D	451	C	456	C	522	C	527	C
SR 29-128 North of Project Entrance	NB	1200	295	B	295	B	766	D	767	D	559	C	560	C
	SB	1200	709	D	710	D	433	C	433	C	506	C	508	C

(1) Vol = volume

(2) LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable “Without Project” operation.

(3) [] = % project traffic added to road segment at locations with unacceptable “Without Project” operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 5B

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29-128

EXISTING – 2014

SUMMER (NON-HARVEST)

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	298	B	299	B	755	D	755	D	552	C	555	C
	SB	1200	701	D	701	D	447	C	452	C	512	C	517	C
SR 29-128 North of Project Entrance	NB	1200	292	B	292	B	759	D	760	D	548	C	549	C
	SB	1200	702	D	703	D	429	C	429	C	406	C	498	C

(1) Vol = volume

(2) LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable “Without Project” operation.

(3) [] = % project traffic added to road segment at locations with unacceptable “Without Project” operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 6

INTERSECTION LEVEL OF SERVICE**SR 29-128/DIAMOND MOUNTAIN ROAD****YEAR 2020****HARVEST**

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-17.4/A-9.6 ⁽¹⁾ A-.3 ⁽²⁾	C-17.4/A-9.6 A-.3	C-22.2/A-8.5 A-.6	C-22.3/A-8.5 A-.6	C-19.4/A-8.8 A-.4	C-19.6/A-8.8 A-.4

SUMMER (NON-HARVEST)

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-17.2/A-9.5 ⁽¹⁾ A-.3 ⁽²⁾	C-17.2/A-9.5 A-.3	C-21.8/A-8.4 A-.6	C-22.0/A-8.4 A-.6	C-19.1/A-8.8 A-.4	C-19.4/A-8.8 A-.4

⁽¹⁾ Unsignalized level of service – control delay in seconds. Diamond Mountain Road eastbound stop sign controlled approach/SR 29-128 northbound left turn.

⁽²⁾ **Unsignalized level of service – control delay in seconds (entire intersection).**

*Year 2010 Highway Capacity Manual (HCM) Analysis Methodology – individual approach or turn movement results
Year 2000 HCM results for overall intersection operation. No overall intersection operation results obtainable from 2010 software.*

Source: Crane Transportation Group

Table 7

INTERSECTION SIGNAL WARRANT EVALUATION

SR 29-128/DIAMOND MOUNTAIN ROAD

**Do volumes meet peak hour signal
Warrant #3 rural condition criteria?**

YEAR 2020

HARVEST

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

Source: Crane Transportation Group

Table 8A

ROADWAY SEGMENT LEVEL OF SERVICE**SR 29-128****YEAR 2020****HARVEST**

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	324	B	325	B	847	D	847	D	626	D	629	D
	SB	1200	762	D	762	D	502	C	507	C	581	C	586	C
SR 29-128 North of Project Entrance	NB	1200	317	B	317	B	851	D	852	D	621	D	622	D
	SB	1200	763	D	764	D	482	C	482	C	562	C	564	C

(1) Vol = volume

(2) LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable “Without Project” operation.

(3) [] = % project traffic added to road segment at locations with unacceptable “Without Project” operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 8B

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29-128

YEAR 2020

SUMMER (NON-HARVEST)

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	321	C	322	C	839	D	839	D	620	C/D	623	D
	SB	1200	754	D	754	D	497	C	502	C	575	C	580	C
SR 29-128 North of Project Entrance	NB	1200	314	B	314	B	843	D	844	D	615	C	616	C
	SB	1200	755	D	756	D	477	C	477	C	556	C	558	C

(1) Vol = volume

(2) LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable "Without Project" operation.

(3) [] = % project traffic added to road segment at locations with unacceptable "Without Project" operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 9

INTERSECTION LEVEL OF SERVICE**SR 29-128/DIAMOND MOUNTAIN ROAD****YEAR 2030****HARVEST**

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-20.2/A-10.0 ⁽¹⁾ A-.3 ⁽²⁾	C-20.2/A-10.0 A-.3	D-30.9/A-8.7 A-.7	D-31.1/A-8.8 A-.7	C-24.8/A-9.2 A-.5	D-25.2/A-9.2 A-.5

SUMMER (NON-HARVEST)

LOCATION	FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29-128/ Diamond Mountain Road	C-20.0/A-9.9 ⁽¹⁾ A-.3 ⁽²⁾	C-20.0/A-9.9 A-.3	D-30.3/A-8.7 A-.7	D-30.4/A-8.7 A-.7	C-24.1/A-9.1 A-.5	C-24.3/A-9.1 A-.5

⁽¹⁾ Unsignalized level of service – control delay in seconds. Diamond Mountain Road eastbound stop sign controlled approach/SR 29-128 northbound left turn.

⁽²⁾ **Unsignalized level of service – control delay in seconds (entire intersection).**

Year 2010 Highway Capacity Manual (HCM) Analysis Methodology – individual approach or turn movement results

Year 2000 HCM results for overall intersection operation. No overall intersection operation results obtainable from 2010 software.

Source: Crane Transportation Group

Table 10

INTERSECTION SIGNAL WARRANT EVALUATION

SR 29-128/DIAMOND MOUNTAIN ROAD

**Do volumes meet peak hour signal
Warrant #3 rural condition criteria?**

YEAR 2030

HARVEST

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR		FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
No	No	No	No	No	No

Source: Crane Transportation Group

Table 11A

ROADWAY SEGMENT LEVEL OF SERVICE**SR 29-128****YEAR 2030****HARVEST**

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	362	C	363	C	987	E (.823)	987	E (.823) [0%] ⁽³⁾	730	D	730	D
	SB	1200	852	D	852	D	585	C	590	C	677	D	682	D
SR 29-128 North of Project Entrance	NB	1200	355	C	355	C	992	E (.827)	993	E (.828) [0.1%] ⁽³⁾	725	D	726	D
	SB	1200	853	D	854	D	562	C	562	C	656	D	658	D

⁽¹⁾ Vol = volume⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable “Without Project” operation.⁽³⁾ [] = % project traffic added to road segment at locations with unacceptable “Without Project” operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 11B

ROADWAY SEGMENT LEVEL OF SERVICE**SR 29-128****YEAR 2030****SUMMER (NON-HARVEST)**

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 29-128 South of Diamond Mountain Road	NB	1200	359	C	360	C	977	E (.814)	977	E (.814) [0%] ⁽³⁾	716	D	719	D
	SB	1200	844	D	844	D	579	C	584	C	664	D	669	D
SR 29-128 North of Project Entrance	NB	1200	352	C	352	C	982	E (.818)	983	E (.819) [0.1%] ⁽³⁾	711	D	712	D
	SB	1200	845	D	846	D	556	C	556	C	643	D	645	D

⁽¹⁾ Vol = volume⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio) at locations with unacceptable “Without Project” operation.⁽³⁾ [] = % project traffic added to road segment at locations with unacceptable “Without Project” operation. Less than a 1% increase is not considered a significant impact.

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 12

PROJECT TRIP GENERATION BEAUTIFUL DAY WINERY

HARVEST

FRIDAY

	TOTAL	HOURS	TRIPS													
			AM						PM							
			7:00-8:00		8:00-9:00		7:30-8:30*		3:00-4:00		4:00-5:00		5:00-6:00		4:15-5:15*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees-Full Time	2	8:30AM-5:00PM	0	0	2	0	2	0	0	0	0	0	0	2	0	2
Production Employees-Full Time	2	7:00AM-7:00PM	0	0	0	0		0	0	0	0	0	0	0	0	0
Production Employees-Part Time	4	7:00AM-7:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	2	9:00AM-5:00PM	0	0	2	0	0	0	0	0	0	0	0	2	0	2
Grape Delivery Trucks (40% grown on site) 12-15 Days	0-2/day	6:00AM-2:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduction in Grape Outhaul Trucks	-1/day	6:00AM-2:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Trucks (Bottle Supply/Case Pickup)	1-2/week	7:00AM-3:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Visitors	75 (20 veh) ⁽²⁾	10:00AM-4:00PM	0	0	0	0	0	0	6	7	0	6	0	0	0	2
TOTAL			0	0	4	0	2	0	6	7	0	6	0	4	0	6

⁽¹⁾ Grapes typically delivered in the morning.

⁽²⁾ 2.6 visitors/vehicle average on weekdays per County data.

* Peak traffic hour along SR 29.

Source: Beautiful Day Winery project applicant; Compiled by: Crane Transportation Group

Table 13

PROJECT TRIP GENERATION BEAUTIFUL DAY WINERY

HARVEST

SATURDAY

	TOTAL	HOURS	TRIPS							
			2-3 PM		3-4 PM*		4-5 PM		5-6 PM	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	0	–	0	0	0	0	0	0	0	0
Production Employees – Full Time	2	7:00 AM- 7:00 PM	0	0	0	0	0	0	0	0
Production Employees – Part Time	4	7:00 AM- 7:00 PM	0	0	0	0	0	0	0	0
Tours/Tasting Employees	3	9:00 AM- 5:00 PM	0	0	0	0	0	0	0	3
Grape Delivery Trucks (40% grown on site)	0-2/day	6:00 AM- 2:00 PM	0	0	0	0	0	0	0	0
Reduction in Grape Outhaul Trucks	-1/day	6:00 AM- 2:00 PM	0	0	0	0	0	0	0	0
Visitors	75 (27 veh) ⁽²⁾	10:00 AM- 4:00 PM	6	5	5	6	0	5	0	0
TOTAL			6	5	5	6	0	5	0	3

⁽¹⁾ Grapes typically delivered in the morning.

⁽²⁾ 2.8 visitors/vehicle average on Saturdays per County data.

* Peak traffic hour along SR 29.

Source: Beautiful Day Winery project applicant; Compiled by: Crane Transportation Group

Table 14

PROJECT TRIP GENERATION BEAUTIFUL DAY WINERY

SUMMER (NON-HARVEST)

FRIDAY

	TOTAL	HOURS	TRIPS													
			AM						PM							
			7:00-8:00		8:00-9:00		7:30-8:30*		3:00-4:00		4:00-5:00		5:00-6:00		4:15-5:15*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees-Full Time	2	8:30AM-5:00PM	0	0	2	0	2	0	0	0	0	0	0	2	0	2
Production Employees-Full Time	2	7:00AM-5:30PM	0	0	0	0		0	0	0	0	0	0	2	0	0
Production Employees-Part Time	0	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	2	9:00AM-5:00PM	0	0	2	0	0	0	0	0	0	0	0	2	0	2
Other Trucks (Bottle Supply/Case Pickup)	1-2/week	7:00AM-3:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Visitors	75 (20 veh) ⁽¹⁾	10:00AM-4:00PM	0	0	0	0	0	0	6	7	0	6	0	0	0	2
TOTAL			0	0	4	0	2	0	6	7	0	6	0	6	0	6

⁽¹⁾ 2.6 visitors/vehicle average on weekdays per County data.

* Peak traffic hours along SR 29.

Source: Beautiful Day Winery project applicant; Compiled by: Crane Transportation Group

Table 15

PROJECT TRIP GENERATION BEAUTIFUL DAY WINERY

SUMMER (NON-HARVEST)

SATURDAY

	TOTAL	HOURS	TRIPS							
			2-3 PM		3-4 PM*		4-5 PM		5-6 PM	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	0	–	0	0	0	0	0	0	0	0
Production Employees – Full Time	0	–	0	0	0	0	0	0	0	0
Production Employees – Part Time	0	–	0	0	0	0	0	0	0	0
Tours/Tasting Employees	3	9:00 AM-5:00 PM	0	0	0	0	0	0	0	2
Visitors	75 (27 veh) ⁽¹⁾	10:00 AM-4:00 PM	6	5	5	6	0	5	0	0
TOTAL			6	5	5	6	0	5	0	2

⁽¹⁾ 2.8 visitors/vehicle average on Saturdays per County data.

* Peak traffic hour along SR 29.

Source: Beautiful Day Winery project applicant; Compiled by: Crane Transportation Group

Table 16

**PROJECT TRIP GENERATION SUMMARY
BEAUTIFUL DAY WINERY**

HARVEST

FRIDAY AM PEAK HOUR* (7:30-8:30)		FRIDAY PM PEAK HOUR* (4:15-5:15)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
2	0	0	6	5	6

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR* (7:30-8:30)		FRIDAY PM PEAK HOUR* (4:15-5:15)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
2	0	0	6	5	6

* Peak hour at the SR 29-128/Diamond Mountain Road intersection.

Source: Beautiful Day Winery; compiled by Crane Transportation Group

Table 17

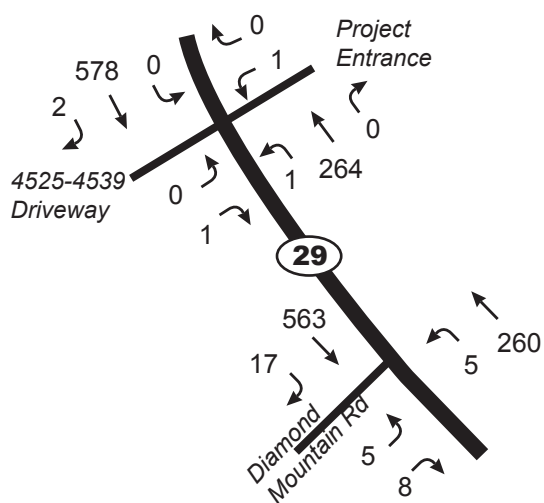
BEAUTIFUL DAY WINERY MARKETING EVENT TRAFFIC DETAILS

MARKETING EVENT	STAFF/GUEST CATEGORY	# OF PEOPLE	# OF VEHICLES	TIMES	REGULAR VISITATION ELIMINATED DURING MARKETING EVENT?
Marketing (50/year)	Guests	40	15-16	Between 10:00 AM & 10:00 PM 3-4 hours Weekdays & weekends	Yes
	Extra Winery Staff	0	0		
	Caterers	2	2		
	Entertainers	0	0		
	Delivery vehicles	1	1		
	Other				
Wine Auction (1/year)	Guests	100	36	Between 10:00 AM & 10:00 PM 4 hours Weekends	Yes
	Extra Winery Staff	0	0		
	Caterers	2	2		
	Entertainers	0	0		
	Delivery vehicles	1	1		
	Other				
Wine Release (2/year)	Guests	100	36	Between 10:00 AM & 10:00 PM 4 hours Weekends	Yes
	Extra Winery Staff	2	0		
	Caterers	4	3		
	Entertainers	0	0		
	Delivery vehicles	2	2		
	Other				
Other					

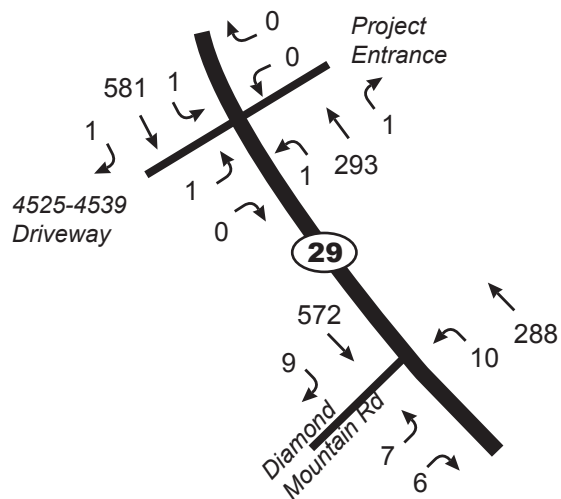
Source: Beautiful Day Winery applicant

Appendix

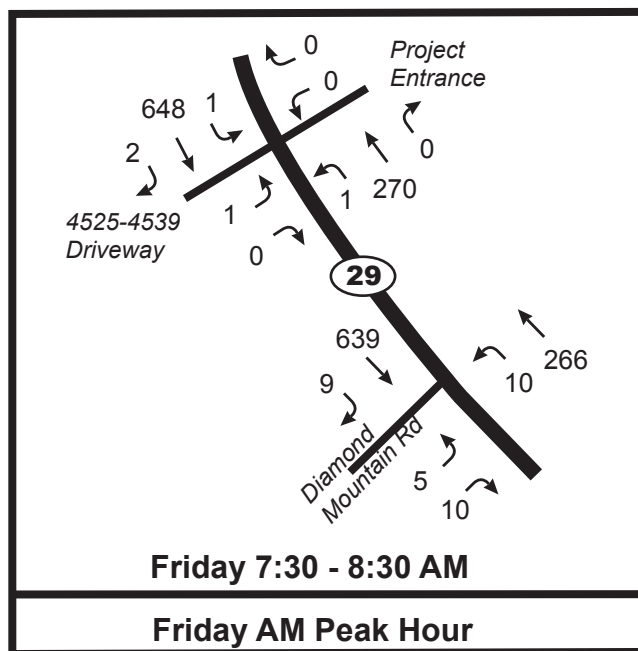
Not To Scale



Friday 7:00 - 8:00 AM



Friday 8:00 - 9:00 AM



Friday 7:30 - 8:30 AM

Friday AM Peak Hour

Beautiful Day Winery Traffic Study

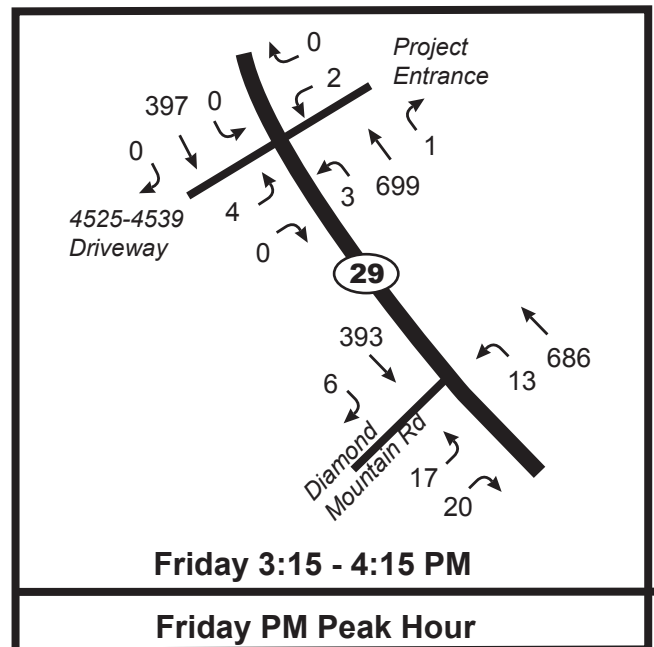
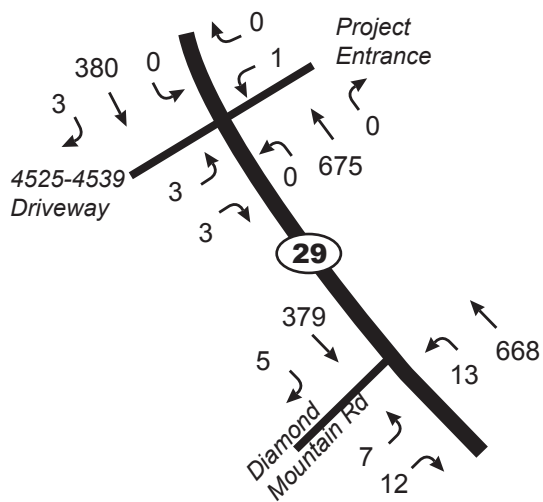
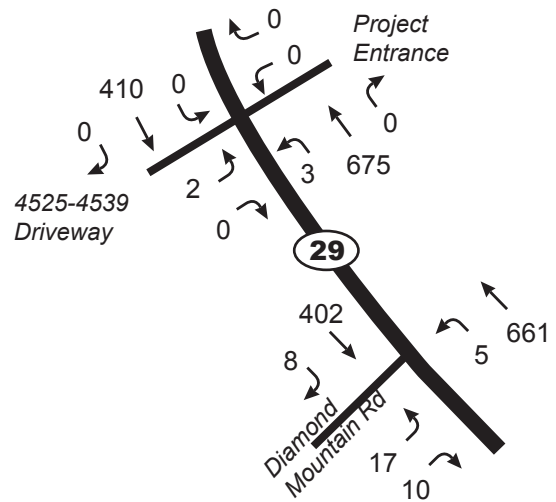
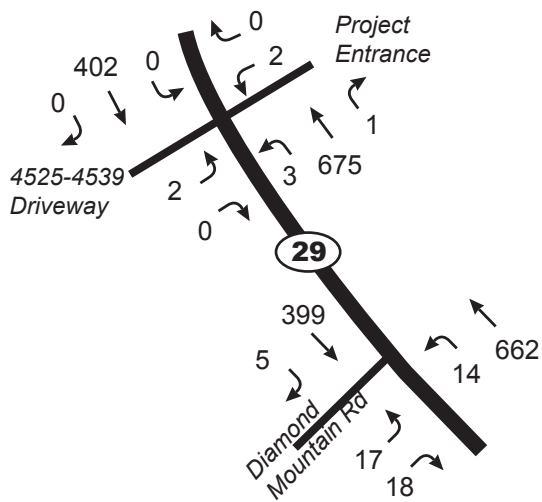
Appendix Figure 1

Friday AM Peak Period Volumes
March 27, 2015



CRANE TRANSPORTATION GROUP

Not To Scale



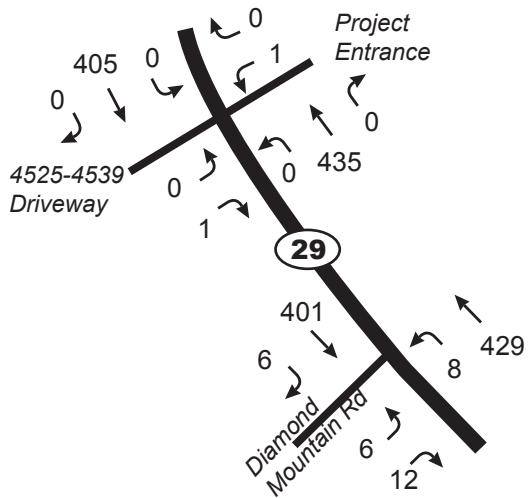
Beautiful Day Winery Traffic Study



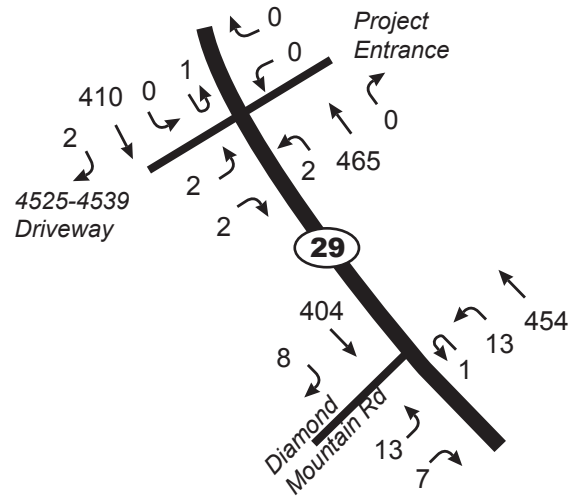
CRANE TRANSPORTATION GROUP

Appendix Figure 2
Friday PM Peak Period Volumes
March 27, 2015

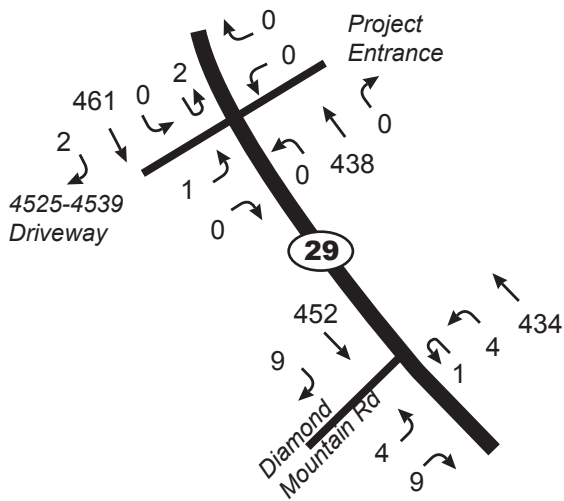
Not To Scale



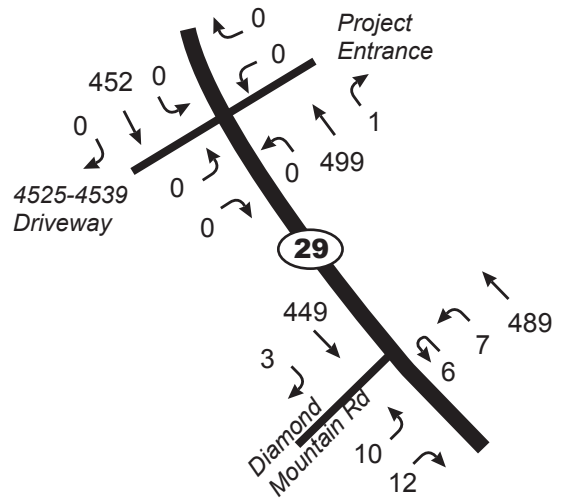
Saturday 12:00 - 1:00 PM



Saturday 1:00 - 2:00 PM

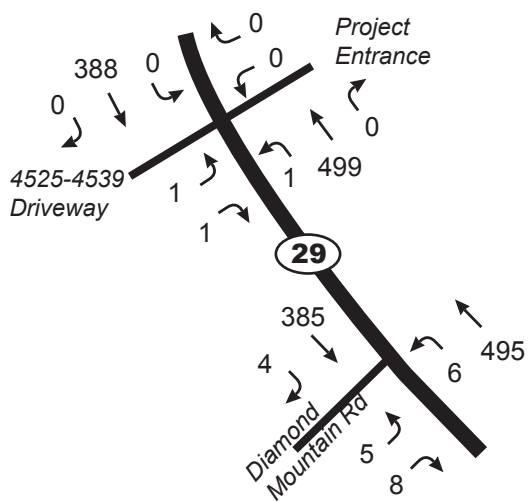


Saturday 2:00 - 3:00 PM

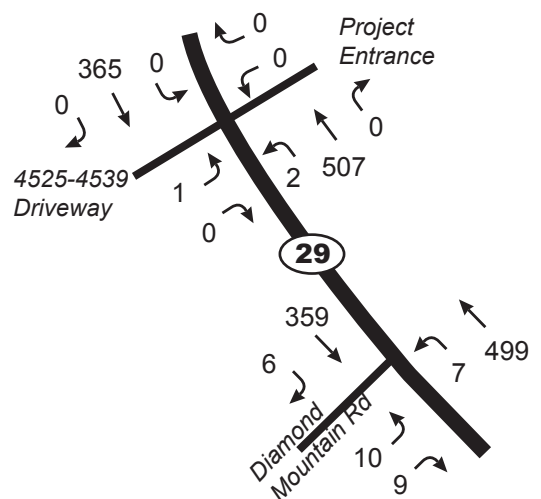


Saturday 3:00 - 4:00 PM

Saturday PM Peak Hour



Saturday 4:00 - 5:00 PM



Saturday 5:00 - 6:00 PM

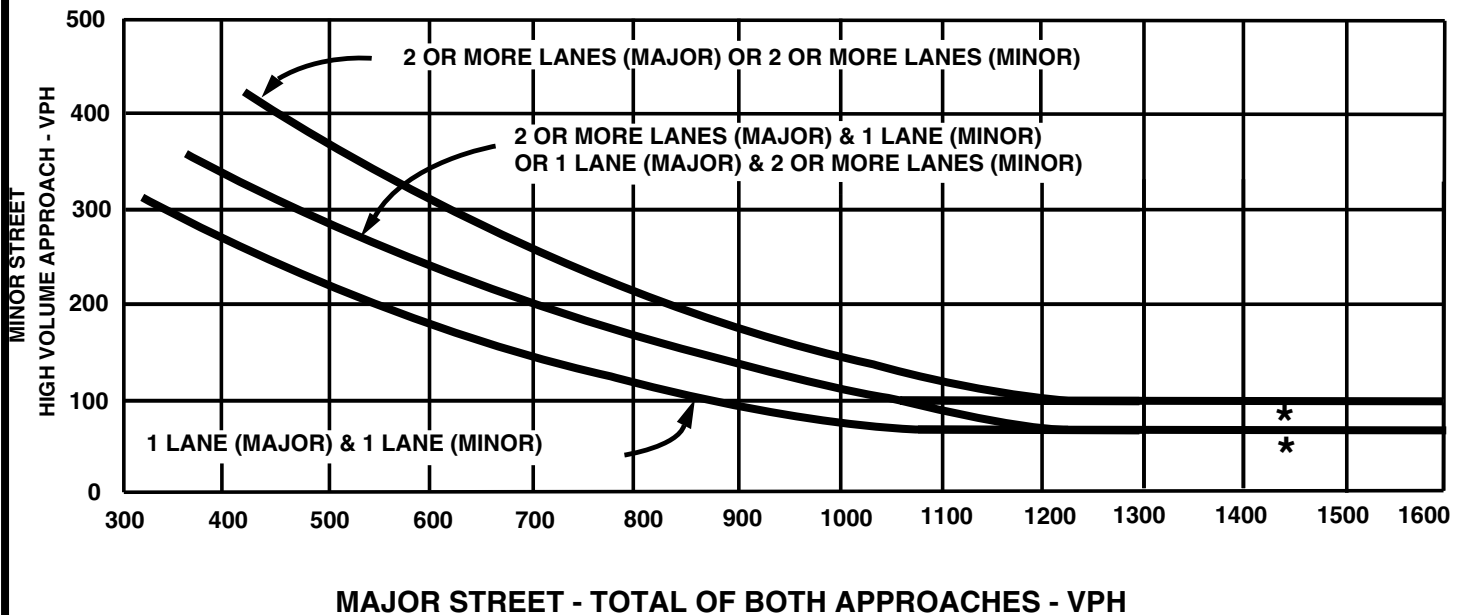
Beautiful Day Winery Traffic Study



CRANE TRANSPORTATION GROUP

Appendix Figure 3
Saturday PM Peak Period Volumes
March 21, 2015

PEAK HOUR VOLUME WARRANT #3 (Rural Area)



*** NOTE**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE

Source: California Manual on Uniform Traffic Control Devices, 2010



CRANE TRANSPORTATION GROUP

Rural Area Peak Hour Volume Warrant #3

BEAUTIFUL DAY WINERY

EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

Gallons/Year Production: 30,000

1st Year of Expected Full Production: 2020

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
A. Full-time admin employees # on Weekdays <u> 2 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 8:30 AM to 5:00 PM Saturday N/A Sunday N/A	Full-time admin employees # on Weekdays <u> 2 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 8:30 AM to 5:00 PM Saturday N/A Sunday N/A
B. Full-time production employees # on Weekdays <u> 2 </u> # on Saturday <u> 2 </u> # on Sunday <u> 2 </u> Work hours: Weekday 7:00 AM to 7:00 PM Saturday 7:00 AM to 7:00 PM Sunday 7:00 AM to 4:00 PM	Full-time production employees # on Weekdays <u> 2 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 7:00 AM to 3:30 PM Saturday N/A Sunday N/A
C. Part-time production employees # on Weekdays <u> 4 </u> # on Saturday <u> 4 </u> # on Sunday <u> 4 </u> Work hours: Weekday 7:00 AM to 7:00 PM Saturday 7:00 AM to 7:00 PM Sunday 7:00 AM to 4:00 PM	Part-time production employees # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday N/A Saturday N/A Sunday N/A
D. Tours & tasting employees # on Weekdays <u> 2 </u> # on Saturday <u> 3 </u> # on Sunday <u> 3 </u> Work hours: Weekday 9:00 AM to 5:00 PM Saturday 9:00 AM to 5:00 PM Sunday 9:00 AM to 5:00 PM	Tours & tasting employees # on Weekdays <u> 2 </u> # on Saturday <u> 3 </u> # on Sunday <u> 3 </u> Work hours: Weekday 9:00 AM to 5:00 PM Saturday 9:00 AM to 5:00 PM Sunday 9:00 AM to 5:00 PM

BEAUTIFUL DAY WINERY

EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
<p>E. Grape delivery trucks # on Weekdays <u>0-2</u> # on Saturday <u>0-2</u> # on Sunday <u>0</u> Delivery hours: Weekday 6:00 AM to 2:00 PM Saturday 6:00 AM to 2:00 PM Sunday N/A # days of grape delivery: 12-15</p>	<p>No grape delivery</p>
<p>F. Maximum tours/tasting visitors # on Weekdays <u>75</u> # on Saturday <u>75</u> # on Sunday <u>75</u> Tasting hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Sunday 10:00 AM to 4:00 PM</p>	<p>Maximum tours/tasting visitors # on Weekdays <u>75</u> # on Saturday <u>75</u> # on Sunday <u>75</u> Tasting hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Sunday 10:00 AM to 4:00 PM</p>
<p>G. Other employees # on Weekdays <u>0</u> # on Saturday <u>0</u> # on Sunday <u>0</u> Work hours: Weekday N/A Saturday N/A Sunday N/A</p>	<p>Other employees # on Weekdays <u>0</u> # on Saturday <u>0</u> # on Sunday <u>0</u> Work hours: Weekday N/A Saturday N/A Sunday N/A</p>
<p>H. Other trucks # on Weekdays <u>0-2</u> # on Saturday N/A # on Sunday N/A Delivery hours: Weekday 7:00 AM to 3:30 PM Saturday N/A Sunday N/A Occasional bottling supplies, case pickup</p>	<p>Other trucks # on Weekdays <u>0-2</u> # on Saturday N/A # on Sunday N/A Delivery hours: Weekday 7:00 AM to 3:30 PM Saturday N/A Sunday N/A</p>

BEAUTIFUL DAY WINERY

EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

I. Grape Source & Trucks

Percent grapes grown on site: 40%

Grapes grown off site – access route to winery entrance

From the south on SR 29: 80%

From the north on SR 29: 20%

Number of existing grape haul truck trips eliminated for the year due to use of on-site grapes for proposed winery: 12. Trucks going to Yountville/Napa.

J. Bottling

On-site bottling.