

TRAFFIC IMPACT REPORT
PROPOSED MOUNTAIN PEAK WINERY
ALONG SODA CANYON ROAD IN
NAPA VALLEY

May 13, 2014

Prepared for: Mountain Peak Winery

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I. INTRODUCTION

This report has been prepared to determine if the proposed Mountain Peak Winery along Soda Canyon Road will result in any significant circulation system impacts at the project driveway connection to Soda Canyon Road or at the Silverado Trail/Soda Canyon Road intersection. Analysis has been provided for harvest Friday and Saturday PM peak hour conditions for existing, year 2019 (first year of full project production) and year 2030 (general plan buildout) horizons.

II. SUMMARY OF FINDINGS

A. "WITHOUT PROJECT" OPERATING CONDITIONS

1. Silverado Trail near the Soda Canyon Road intersection has higher two-way traffic volumes during a Friday PM peak hour than during a Saturday afternoon peak traffic hour (1,545 two-way vehicles versus 1,245 two-way vehicles). Soda Canyon Road at the project driveway entrance also has higher two-way volumes during the Friday PM peak hour than during the Saturday PM peak traffic hour (62 two-way vehicles versus 46 two-way vehicles), while the project driveway had minimal traffic (1 vehicle) during each peak traffic hour.
2. The Silverado Trail intersection with Soda Canyon Road now has unacceptable delay on the stop sign controlled Soda Canyon Road approach during a harvest Friday PM peak traffic hour, but acceptable delay during a harvest Saturday afternoon peak traffic hour. The intersection also has harvest Friday PM peak hour volumes exceeding peak hour signal warrant criteria levels.
3. The Silverado Trail intersection with Soda Canyon Road will be experiencing unacceptable levels of service and delay for turns on the stop sign controlled intersection approach during the Friday and Saturday PM peak traffic hours in both 2019 and 2030.
4. The Silverado Trail intersection with Soda Canyon Road will have PM Peak hour harvest volumes exceeding peak hour signal warrant criteria levels during the Friday PM peak traffic hour in 2019, and during both the Friday and Saturday PM peak traffic hours in 2030.

B. PROJECT IMPACTS

1. The project will result in either about 7 to 8 inbound or 7 to 8 outbound trips during the harvest Friday or Saturday PM peak traffic hours along Silverado Trail. Project trips during these hours will be associated with visitors conducting tours and tasting by appointment.

2. The project will result in the reduction of about 88 grape haul truck round trips each harvest now using Soda Canyon Road, as grapes from nearby vineyards now being outhauled to Napa for processing will instead be processed at the new winery.
3. Project traffic during harvest will not produce any significant operational impacts at the Silverado Trail/Soda Canyon Road intersection during Friday or Saturday afternoon peak traffic conditions for the near term (year 2019) or long term (year 2030) analysis horizons.
4. Sight lines will be acceptable at the project's proposed employee and visitor driveway connections to Soda Canyon Road as well as at the realigned 3267 driveway connection. Vegetation will be cleared on the north side of Soda Canyon Road between driveways in order to maintain acceptable sight distances for drivers. Realigning the existing 3267 driveway connection from a 30- to a 90-degree approach will also be a benefit.

C. CONCLUSIONS

The project will result in no significant off-site circulation system operational impacts nor any sight line impacts with Soda Canyon Road traffic at the project employee or visitor driveway connections to Soda Canyon Road. In addition, realigning the 3267 driveway connection to Soda Canyon Road to a 90-degree approach will be an improvement. Vegetation will be cleared along the north side of Soda Canyon Road between the project employee and visitor driveways and the realigned 3267 driveway in order to maintain acceptable sight lines for drivers. There will also be a reduction of about 88 existing grape truck round trips from Soda Canyon Road each harvest due to nearby vineyards supplying 96 percent of all the winery's grapes and the elimination of outhaul truck trips from these vineyards on Soda Canyon Road and Silverado Trail.

III. PROJECT LOCATION & DESCRIPTION

The Mountain Peak Winery will be located on the north side of Soda Canyon Road about six miles northeast of the Silverado Trail/Soda Canyon Road intersection (see **Figure 1**). The current driveway connection serving a residential unit at 3265 Soda Canyon Road will be eliminated as part of the project and replaced by two new driveways. The first will connect to Soda Canyon Road about 100 feet west of the existing 3265 connection and will be used by winery employees and trucks. The second, to be used by visitors, will be located midway between the new employee driveway and the existing 3267 Soda Canyon Road driveway (in approximately the same location as the existing 3265 residential driveway). The 3267 driveway now intersects Soda Canyon Road at a 30-degree angle at the same location as the existing 3265 residential connection. However, the 3267 angled driveway connection to Soda Canyon Road will be reconfigured to provide a more standard 90-degree side road connection. **Figure 2** presents existing intersection geometrics and approach lanes, while **Figure 3** presents the revised driveway plan after project completion.

The proposed Mountain Peak Winery would have the following yearly production and employee, visitor and special event levels.

- 100,000 gallons per year production.
- Total 37 full- and part-time employees.¹
- Bottling on-site.
- 96 percent of the grapes will be grown on site. They are now outhauled to processing facilities in Napa in approximately 88 trucks. These truck trips will be eliminated from Soda Canyon Road. The remaining 4 percent of the grapes will be transported to the site in 3 to 4 trucks. However, these grapes may possibly also come from other nearby vineyards.
- Tours and tasting by appointment only – 7 days per week from 10:00 AM to 6:00 PM, 80 visitors/day maximum.
- Food and wine pairing events – 6 per month: 3 at 24 visitors per event and 3 at 12 visitors per event (between 10:00 AM & 10:00 PM).
- Marketing events – 4 per year, maximum 75 visitors per event. All events will be during off-peak traffic hours.
- Wine auction – 2 per year, maximum 125 visitors per event. Shuttle buses may be used for these two events.

In addition, the existing home on the project site will be removed.

IV. EXISTING CIRCULATION SYSTEM OPERATION

A. ANALYSIS LOCATIONS

The following two locations have been evaluated.

- Silverado Trail/Soda Canyon Road intersection
- Soda Canyon Road/Project Driveway intersections

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

B. VOLUMES

Friday 3:00 to 6:00 PM and Saturday 1:00 to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) in May 2013 at the Silverado Trail/Soda Canyon Road intersection, while Friday and Saturday counts during the same hours were conducted at the Soda Canyon Road/Project driveway and Soda Canyon Road/3267 driveway intersections on July 26 and 27, 2013. The peak traffic hours at Silverado Trail/Soda Canyon Road were 4:30-5:30 PM on Friday and 4:00-5:00 PM on Saturday. Resultant peak hour counts are presented in Figure 4.

¹ Employee and grape truck delivery details are presented in the Appendix.

Overall, two-way volumes along Silverado Trail at the Soda Canyon Road intersection were higher during the Friday peak hour (1,545 vehicles per hour [vph] versus 1,245 vph on Saturday), while two-way peak hour counts along Soda Canyon Road just west of the project access driveway intersection were also higher on Friday compared to Saturday (62 vph versus 46 vph).

May and July peak hour traffic counts were seasonally adjusted to reflect October harvest conditions based upon monthly adjustment factors utilized in nearby Napa Valley jurisdictions and SR 29 seasonal volume data from past studies. Overall, May and July counts would be expected to increase by about 3 percent to reflect fall harvest conditions. Resultant projected 2013 Friday and Saturday peak hour harvest volumes are presented in **Figure 5**.

C. ROADWAYS

Silverado Trail and Soda Canyon Road provide the only access to the project site. In the project vicinity, Silverado Trail has two well-paved 12-foot travel lanes and 8-foot paved shoulders that are signed and striped as Class II bicycle lanes. The posted speed limit is 55 miles per hour and the roadway is level. Soda Canyon Road has two travel lanes that gradually narrow as they extend uphill from Silverado Trail. There are minimal shoulder areas and frequent horizontal curves. Soda Canyon Road is stop sign controlled on its approach to Silverado Trail. A left turn lane is provided on the southbound Silverado Trail approach to Soda Canyon Road.

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. **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 to two or more levels of service better than the stop sign controlled movement. When overall operation also degrades to LOS 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.

3. Existing Intersection Operation During Harvest

Table 3 shows that during the 2013 harvest season, operation of the entire Silverado Trail/Soda Canyon Road intersection would be at acceptable levels of service (LOS B or A) during the Friday and Saturday peak traffic hours, respectively. Likewise, during the Saturday peak traffic hour the Soda Canyon Road stop sign controlled approach to Silverado Trail would be operating at an acceptable level of service (LOS E). However, during the Friday peak traffic hour, the stop sign controlled approach to Silverado Trail would be operating at an unacceptable level (LOS F).

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, 2010, 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 curve and takes only the hour with the highest volume of the day into account. Please see the **Appendix** for the warrant chart. To meet this warrant, a minimum of 100 vehicles per hour must approach the intersection on one of the side streets.

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. These criteria are applicable to the Silverado Trail/Soda Canyon Road intersection.

2. Signalization Needs Based Upon Warrant Criteria

Table 4 shows that currently the Silverado Trail/Soda Canyon Road intersection has PM peak hour volumes exceeding warrant #3 criteria levels on Friday, but not on Saturday.

F. PLANNED IMPROVEMENTS

There are no planned and funded capacity improvements at the Silverado Trail/Soda Canyon Road intersection.²

² Mr. Paul Wilkinson, Napa County Public Works Department, May 2013.

V. FUTURE HORIZON CIRCULATION SYSTEM OPERATION WITHOUT THE PROJECT

Project traffic impacts have been determined for near and long term horizons. The near term horizon reflects the first year that the project will be at full production. Based upon input from the project applicant, the expected first year of full production will be 2019. The long term horizon reflects the County's general plan buildout year, which is 2030. Future horizon year volumes have been determined based upon traffic modeling projections for the year 2030 from the County's General Plan Circulation Element. This document showed an approximate 32 percent growth in weekday PM peak hour traffic along Silverado Trail between the years 2000 and 2030. Projecting straight-line traffic growth for analysis purposes, this translated into about a 7 percent growth in traffic from 2013 to the year 2019, and a 19 percent growth in traffic from 2013 to 2030.

Since traffic modeling projections were available for a weekday PM peak hour only and not a Saturday peak hour, north and southbound Saturday volumes on Silverado Trail were both uniformly increased by the percentages above. However, due to the greater detail available for weekday volumes which showed higher increases in southbound versus northbound traffic, Friday PM peak hour volumes were adjusted directionally, with the guidance that the two-way volume percent increases should be as listed above.

A. YEAR 2019 WITHOUT PROJECT EVALUATION

1. Volumes

Year 2019 "Without Project" Friday and Saturday PM peak hour harvest volumes are presented in **Figure 6**.

2. Intersection Level of Service

Table 3 shows that in 2019 during the harvest season, "Without Project" operation of the entire Silverado Trail/Soda Canyon Road intersection would be at acceptable levels of service during the Friday and Saturday PM peak traffic hours (LOS C on a Friday and LOS A on a Saturday). However, during both the Friday and Saturday PM peak hours, the stop sign controlled Soda Canyon Road approach to Silverado Trail would be operating at unacceptable levels (LOS F).

3. Intersection Signalization Needs

Table 4 shows that in 2019 during the harvest season, the Silverado Trail/Soda Canyon Road intersection would have PM peak hour "Without Project" volumes exceeding warrant #3 criteria levels on Friday, but not Saturday.

B. YEAR 2030 WITHOUT PROJECT EVALUATION

1. Volumes

Year 2030 “Without Project” Friday and Saturday PM peak hour harvest volumes are presented in **Figure 7**.

2. Intersection Level of Service

Table 3 shows that in 2030 during the harvest season, “Without Project” operation of the entire Silverado Trail intersection with Soda Canyon Road would be at acceptable levels of service during the Friday and Saturday PM peak traffic hours (LOS E on a Friday and LOS A on a Saturday). However, during both the Friday and Saturday PM peak hours, the stop sign controlled Soda Canyon Road approach to Silverado Trail would be operating at unacceptable levels (LOS F).

3. Intersection Signalization Needs

Table 4 shows that in 2030 during the harvest season, the Silverado Trail/Soda Canyon Road intersection would have both Friday and Saturday PM peak hour volumes exceeding peak hour signal warrant #3 criteria levels.

VI. PROJECT IMPACTS

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 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 – 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, 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, 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.

B. TRIP GENERATION

Friday and Saturday afternoon 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 Mountain Peak Winery. Results are presented on an hourly basis in **Table 5** for Friday and Saturday afternoon conditions. As shown, no winery administrative or production employees would be expected on the local roadway network during harvest Friday or Saturday peak hour conditions, as all employees would be working until at least 6:00 PM during this time of year. Visitor-serving employees would also be working until at least 6:00 PM every day, as tours/tasting by appointment would close at this time. In addition, the minimal three to four grape deliveries from out of the area each year would only result in one grape delivery per day, which would typically be scheduled in the morning. The only winery-related traffic expected on the local roadway network during the Friday or Saturday PM peak traffic hours along Silverado Trail would be associated with visitors. Assuming an average size group of ± 20 people entering the winery from 4:00 to 4:30 or leaving between 5:00 and 6:00 PM, this would result in about 8 vehicles accessing the winery during any given ambient peak traffic hour on a Friday, and about 7 vehicles accessing the winery during any given hour on a Saturday. Based upon research by Napa County, higher vehicle occupancies are typical on a weekend versus a weekday.

It should also be noted that the use of grapes from on-site vineyards for 96 percent of all winery production would eliminate about 88 outhaul trucks each harvest now transporting grapes from the vineyards to processing facilities in Napa. The vast majority of eliminated truck trips are now occurring on weekday mornings. In addition, the minimal 3-4 grape deliveries from out of the area each year associated with custom crush would only result in one grape delivery per day for only four days, which would typically be scheduled in the morning.

C. TRIP DISTRIBUTION

Project traffic was distributed to Silverado Trail in a pattern reflective of existing distribution patterns at the Soda Canyon Road intersection: ± 85 percent to/from the south and 15 percent to/from the north on a Friday afternoon, with ± 60 percent to/from the south and 40 percent to/from the north on a Saturday afternoon. The Friday and Saturday project traffic increments expected on Silverado Trail during the times of ambient PM peak hour traffic flow are presented in **Figure 8**, while Friday and Saturday “With Project” PM peak hour volumes for the years 2019 and 2030 are presented in **Figures 9 and 10**, respectively.

D. YEAR 2019 INTERSECTION IMPACTS (SODA CANYON ROAD)

1. Level of Service

Project traffic would not produce a significant level of service impact at the Silverado Trail/Soda Canyon Road intersection during the year 2019 Friday or Saturday PM peak traffic hours along Silverado Trail. Project traffic would not change any acceptable operation to unacceptable conditions, nor would it increase volumes by 1 percent or more at any location where "Without Project" operation would be unacceptable. Project volume increases would be 0.5 percent.

2. Signalization Needs

Project traffic would not produce a significant signalization needs impact at the Silverado Trail/Soda Canyon Road intersection during the year 2019 Friday or Saturday PM peak traffic hours along Silverado Trail. Project traffic would not increase volumes to meet signal warrant #3 criteria, nor would it increase volumes by 1 percent or more where "Without Project" volumes would already meet peak hour signal warrant criteria levels. Project volume increases would be 0.5 percent.

E. YEAR 2030 INTERSECTION IMPACTS (SODA CANYON ROAD)

1. Level of Service

Project traffic would not produce a significant level of service impact at the Silverado Trail/Soda Canyon Road intersection during the year 2030 Friday or Saturday PM peak traffic hours along Silverado Trail. Project traffic would not change any acceptable operation to unacceptable conditions, nor would it increase volumes by 1 percent or more where "Without Project" operation would be unacceptable. Project volume increases would be 0.5 percent or less.

2. Signalization Needs

Project traffic would not produce a significant signalization needs impact at the Silverado Trail/Soda Canyon Road intersection during the year 2030 Friday or Saturday PM peak traffic hours along Silverado Trail. Project traffic would not increase volumes to meet signal warrant #3 criteria, nor would it increase volumes by 1 percent where "Without Project" volumes would already meet peak hour signal warrant criteria levels. Project volume increases would be 0.5 percent or less.

F. SIGHT LINE ADEQUACY

Project Employee Driveway Connection to Soda Canyon Road

Sight lines will be acceptable for drivers turning from the project employee driveway to see Soda Canyon Road traffic. Sight lines to the east would be about 300 feet and to the west about 270 feet. Based upon a travel speed along Soda Canyon Road of 25 to 35 miles per hour, the

required stopping sight distance would range from 155 to 250 feet.³ Sight lines would have been limited for drivers exiting from the project employee driveway due to vegetation on the north side of the road. However, vegetation between the new and realigned driveway connections will be removed or cut back to provide acceptable sight lines between driveways.

Project Visitor Driveway Connection to Soda Canyon Road

Sight lines will be acceptable for drivers turning from the project visitor driveway to Soda Canyon Road. Sight lines to the east and west will be at least 270 feet, with 250 feet or less of stopping sight distance required.

Realigned 3267 Driveway Connection to Soda Canyon Road

Sight lines will be acceptable for drivers turning from the realigned 3267 driveway approach to see Soda Canyon Road traffic. Sight lines to the east will be about 260 feet, and to the west about 270 feet. At most, 250 feet of stopping sight distance would be required based upon prevailing speeds along Soda Canyon Road. In addition, traffic turning to the west from the 3267 driveway will be going at a very slow speed when they approach the project visitor and employee driveways.

VII. CONCLUSIONS

The project will result in no significant off-site circulation system operational impacts nor any sight line impacts with Soda Canyon Road traffic at the project employee or visitor driveway connections to Soda Canyon Road. In addition, realigning the 3267 driveway connection to Soda Canyon Road to a 90-degree approach will be an improvement. Vegetation will be cleared along the north side of Soda Canyon Road between the project employee and visitor driveways and the realigned 3267 driveway in order to maintain acceptable sight lines for drivers. There will also be a reduction of about 88 existing grape truck round trips from Soda Canyon Road each harvest due to nearby vineyards supplying 96 percent of all the winery's grapes and the elimination of outhaul truck trips from these vineyards on Soda Canyon Road and Silverado Trail.

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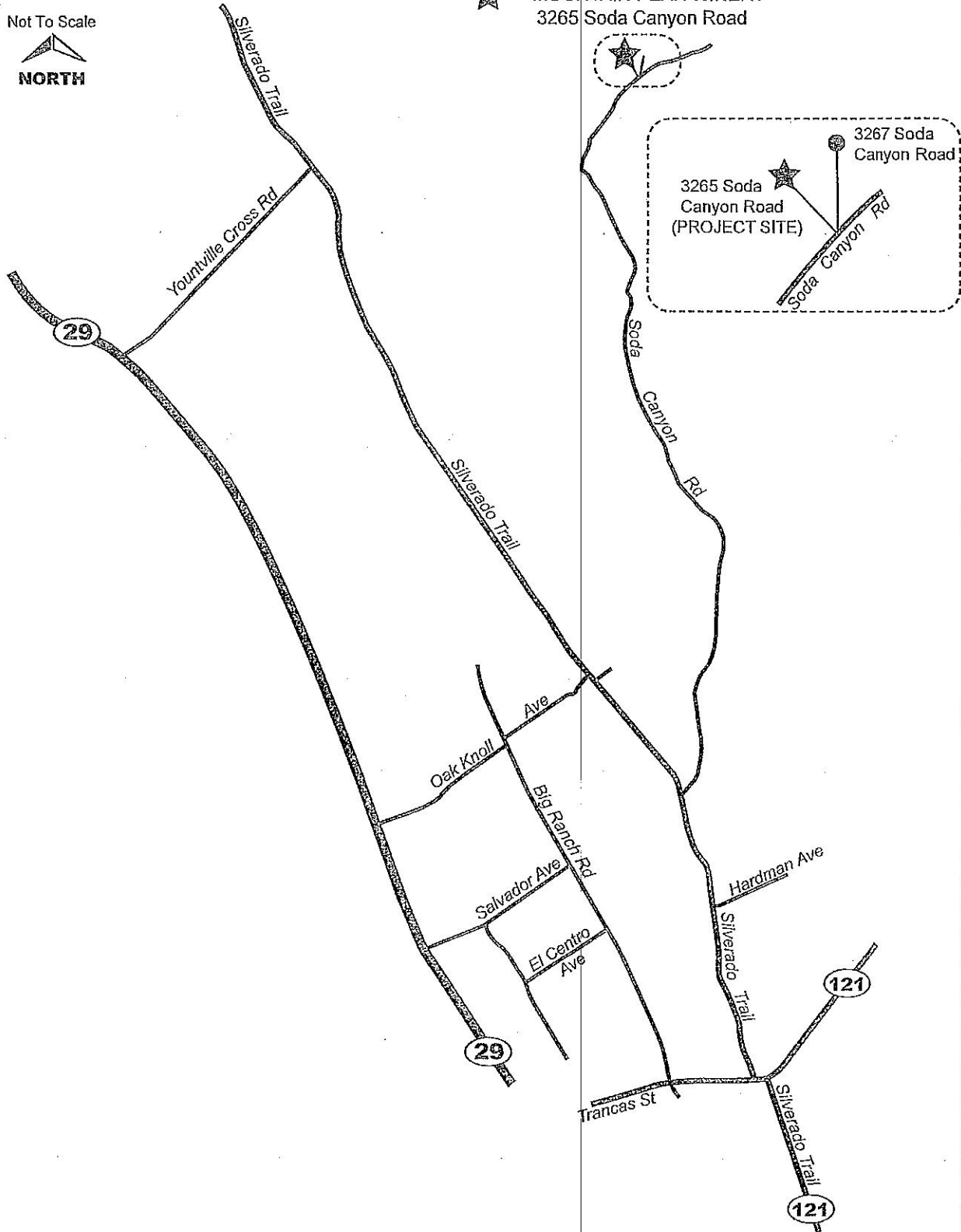
³ A Policy on Geometric Design of Highways and Streets, 2011, AASHTO.

Figures

Not To Scale



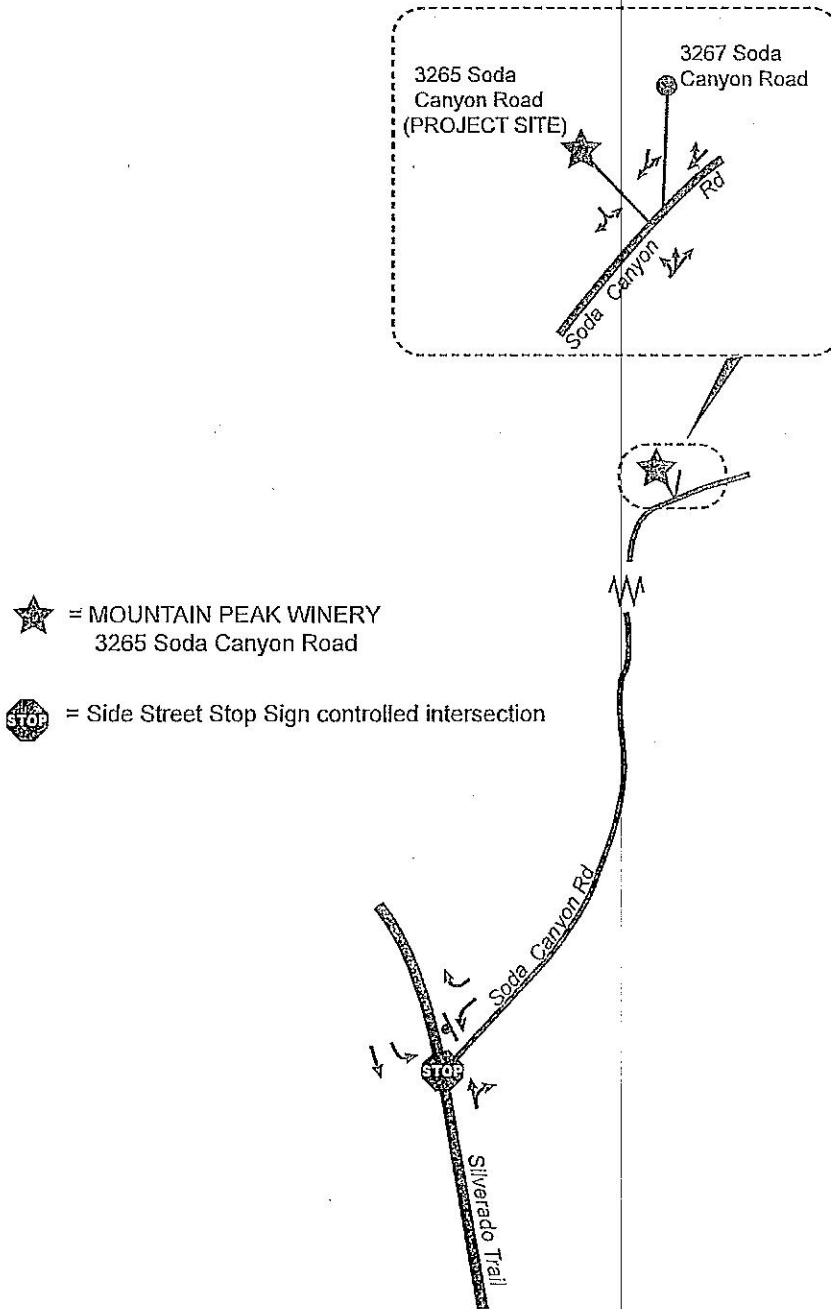
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3265 Soda Canyon Road



Mountain Peak Winery Traffic Study

Figure 1
Area Map

Not To Scale
NORTH

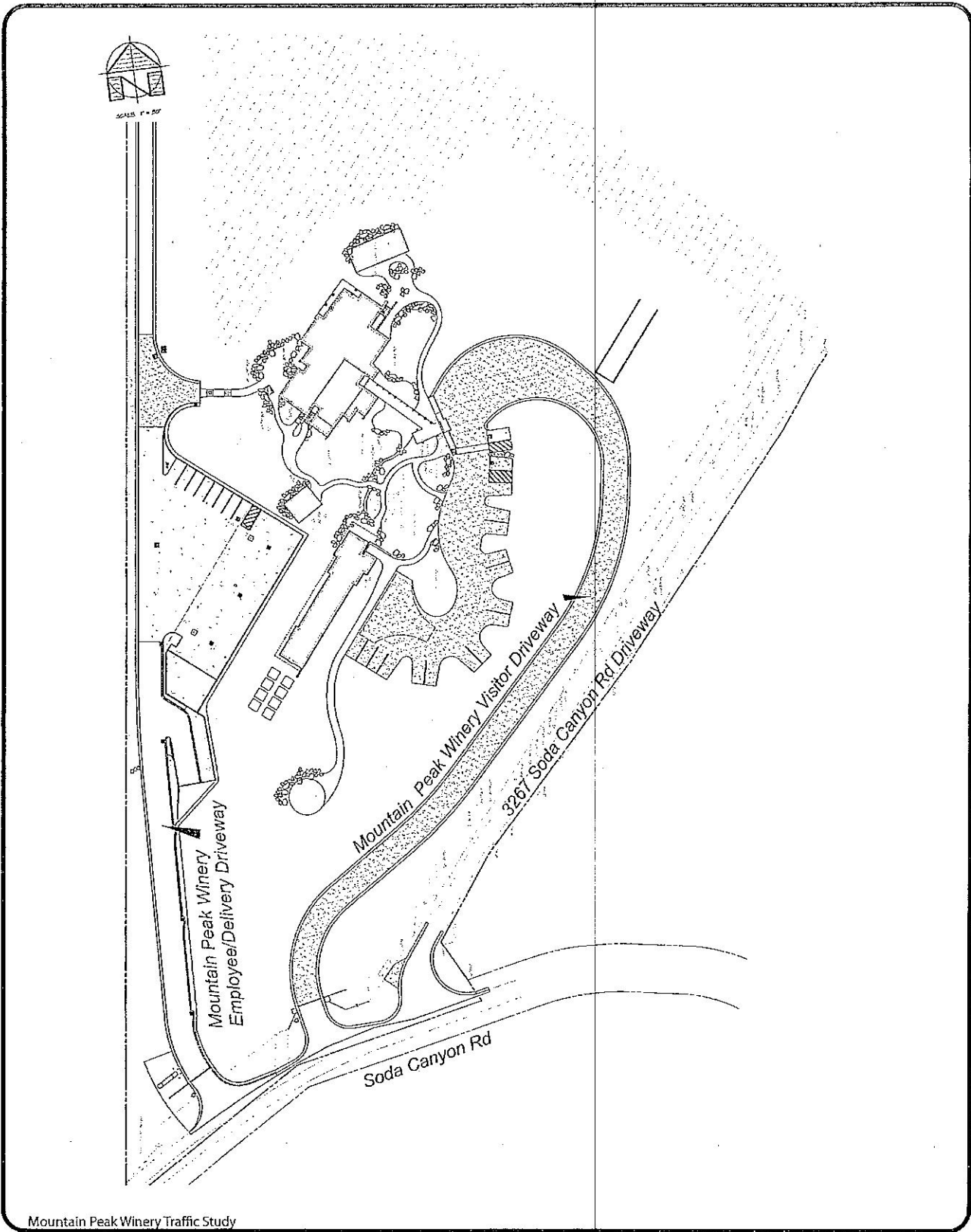


Mountain Peak Winery Traffic Study



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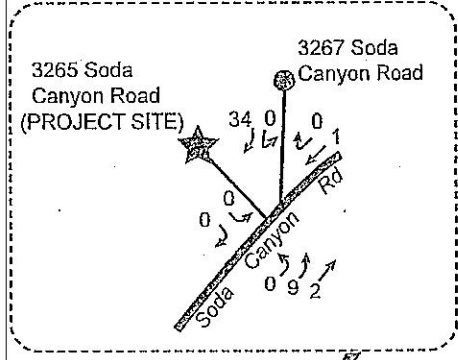
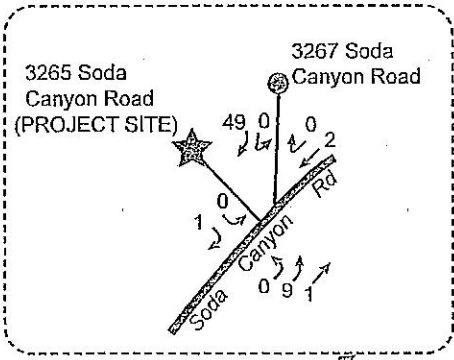
Figure 2
Existing Lane Geometrics
and Intersection Control



Mountain Peak Winery Traffic Study

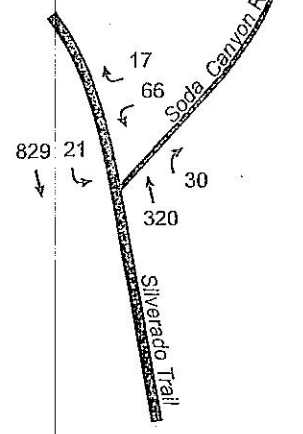
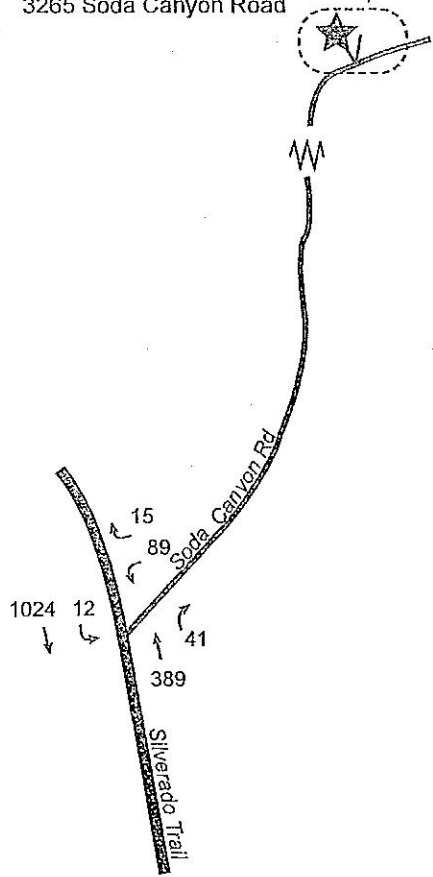
**Figure 3
Site Plan**

Not To Scale



★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road

★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road



Friday
4:30-5:30 PM

Saturday
4:00-5:00 PM

Mountain Peak Winery Traffic Study

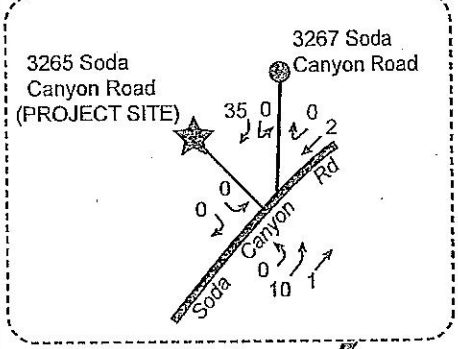
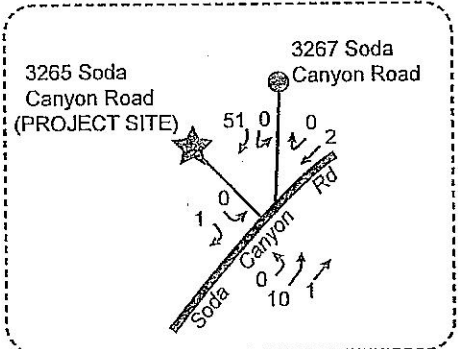
Figure 4

**Existing (2013) May Friday and Saturday
PM Peak Hour Volumes**



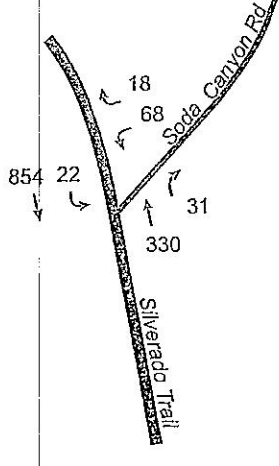
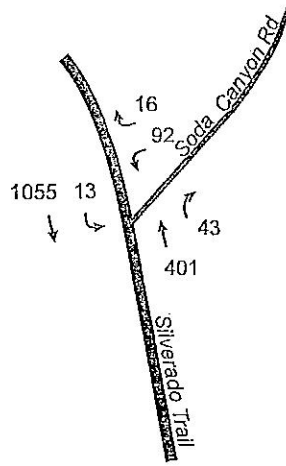
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★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road

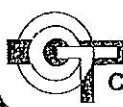
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3265 Soda Canyon Road



Friday
4:30-5:30 PM

Saturday
4:00-5:00 PM

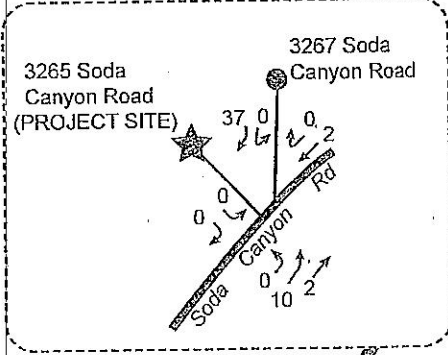
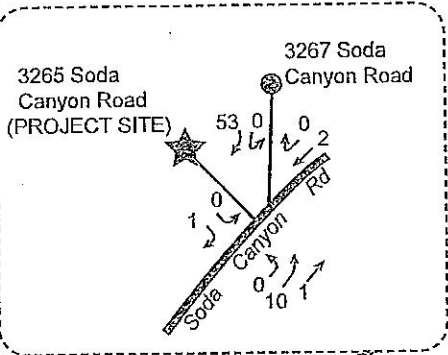
Mountain Peak Winery Traffic Study



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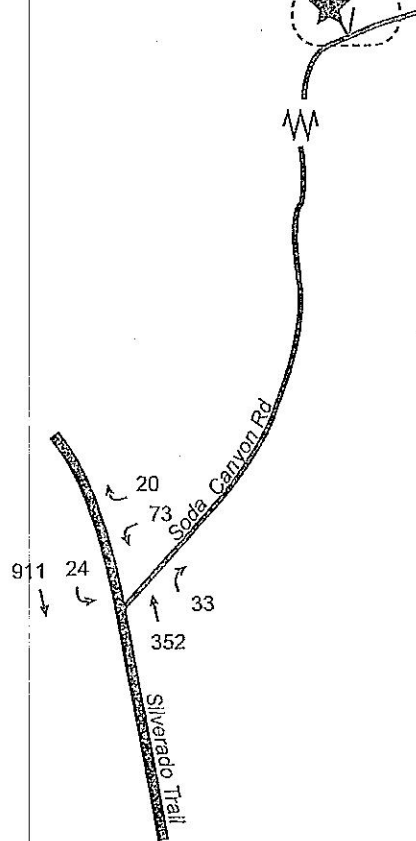
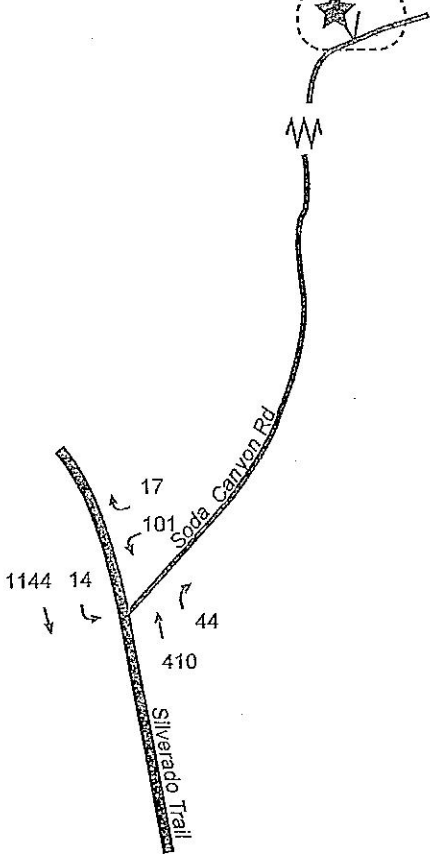
Figure 5
Existing (2013) Without Project
Harvest Friday and Saturday
PM Peak Hour Volumes

Not To Scale



★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road

★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road



Friday
4:30-5:30 PM

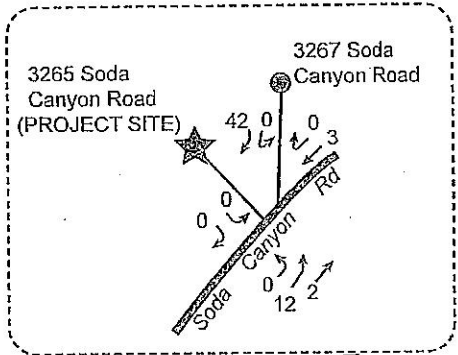
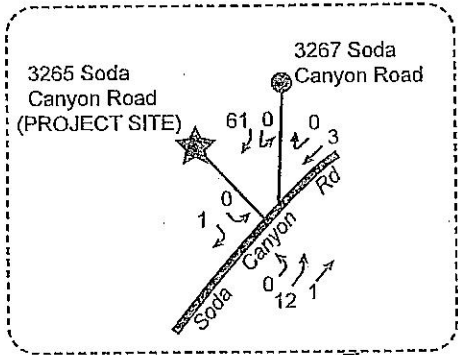
Saturday
4:00-5:00 PM

Mountain Peak Winery Traffic Study

Figure 6
Year 2019 (Without Project)
Harvest Friday and Saturday
PM Peak Hour Volumes

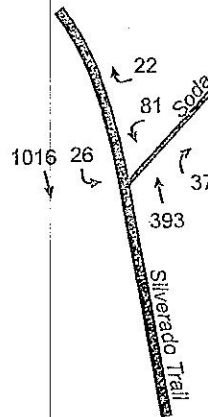
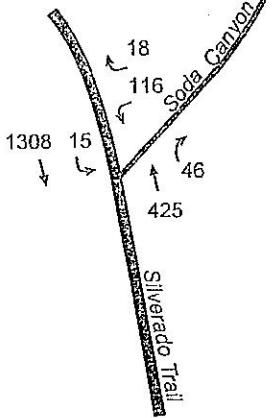


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★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road

★ = MOUNTAIN PEAK WINERY
3265 Soda Canyon Road



Friday
4:30-5:30 PM

Saturday
4:00-5:00 PM

Mountain Peak Winery Traffic Study



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Figure 7
Year 2030 (Without Project)
Harvest Friday and Saturday
PM Peak Hour Volumes

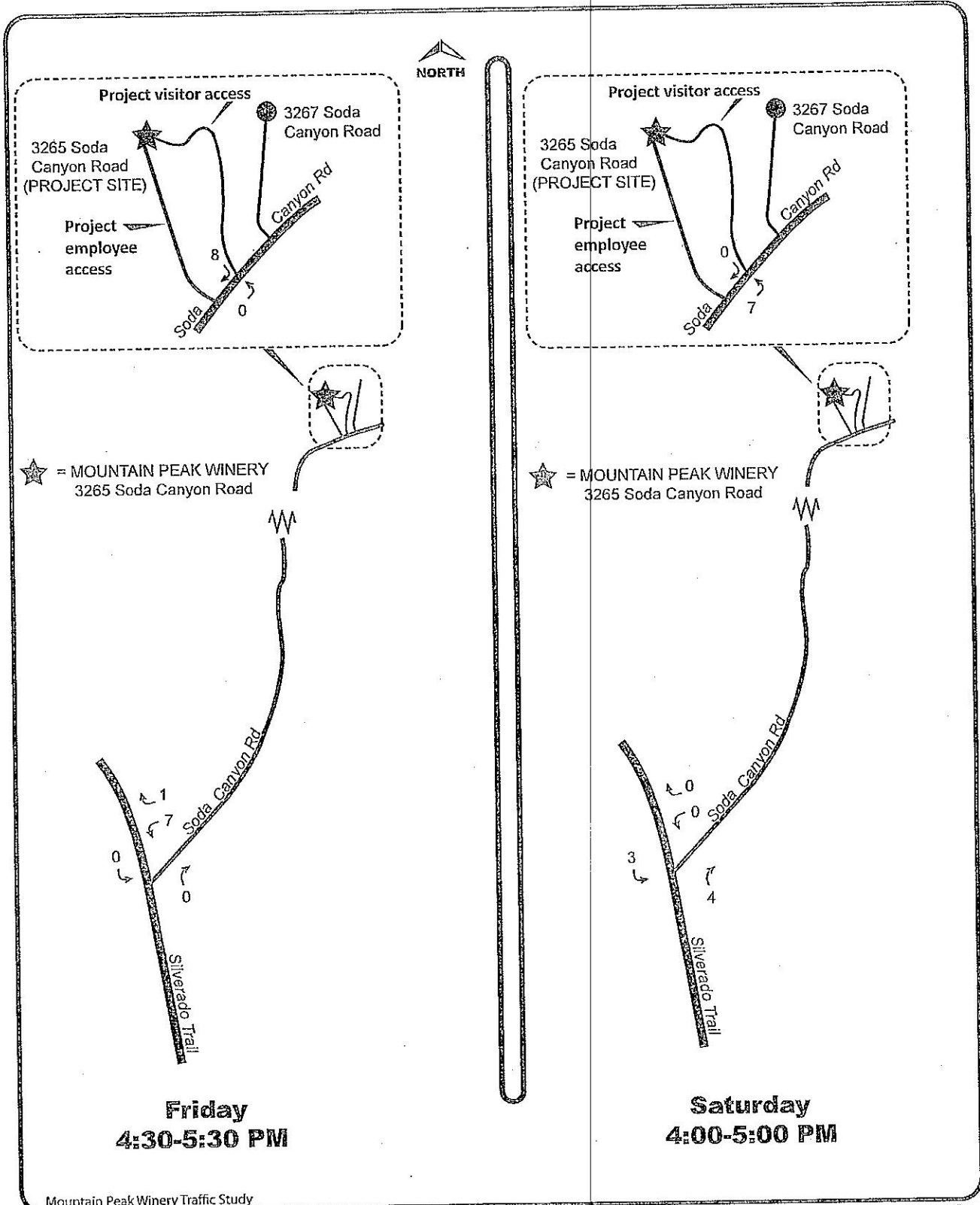
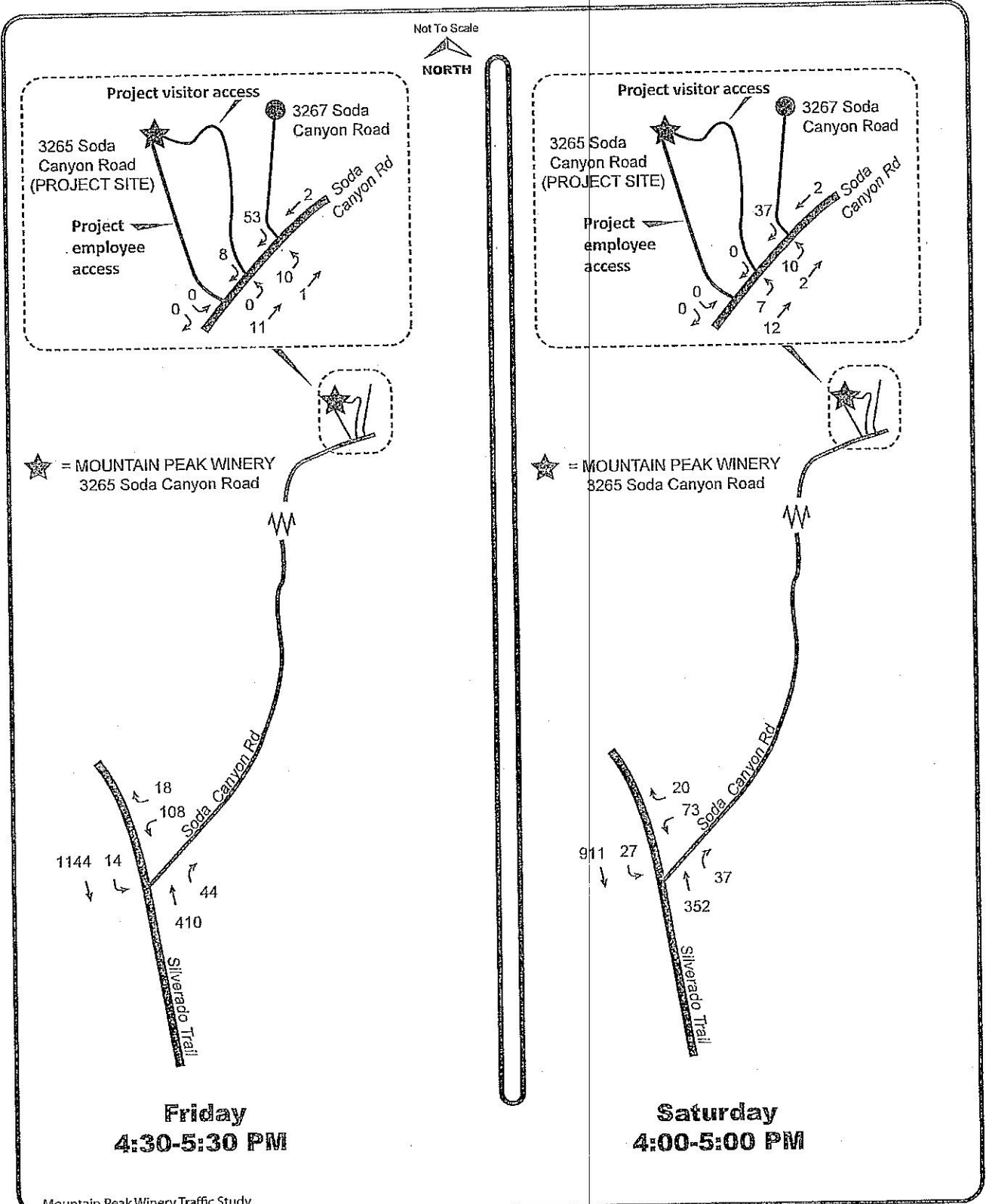


Figure 8
Project Traffic Increment



Mountain Peak Winery Traffic Study

Figure 9
Year 2019 with Project
Harvest Friday and Saturday
PM Peak Hour Volumes

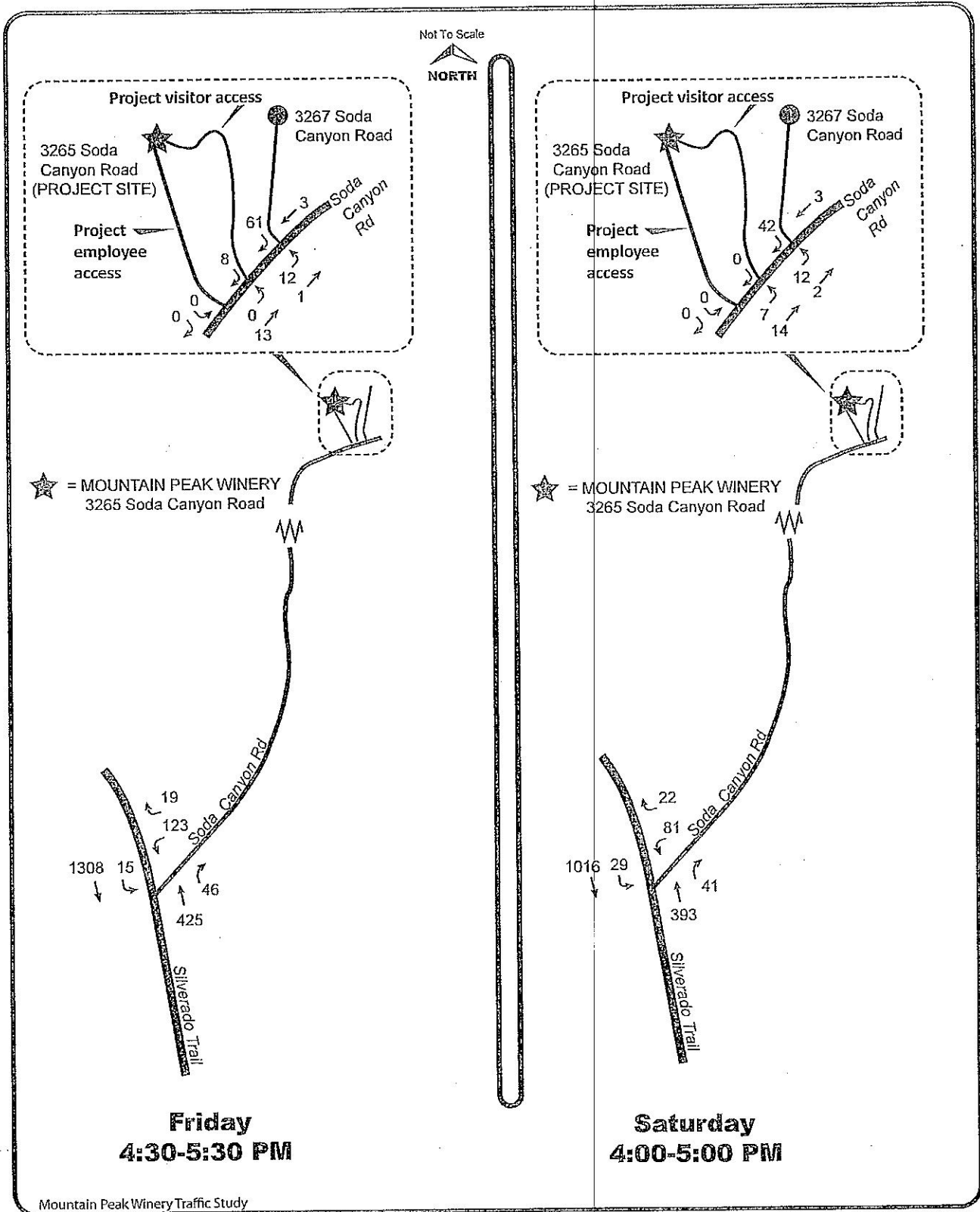


Figure 10
Year 2030 with Project
Harvest Friday and Saturday
PM Peak Hour Volumes

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

HARVEST FRIDAY PM PEAK HOUR

LOCATION	EXISTING	YEAR 2019		YEAR 2030	
		W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
Silverado Trail/ Soda Canyon Rd.	F-152/A-8.4 ⁽¹⁾ B-10.5 ⁽²⁾	F-238/A-8.4 C-18.0	F-268/A-8.4 C-21.4 (0.5%)*	F-486/A-8.5 E-36.4 (0.4%)*	F-531/A-8.5 E-41.7

⁽¹⁾ Unsignalized level of service – control delay in seconds. Soda Canyon Road westbound stop sign controlled approach/Silverado Trail southbound left turn.

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

HARVEST SATURDAY PM PEAK HOUR

LOCATION	EXISTING	YEAR 2019		YEAR 2030	
		W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
Silverado Trail/ Soda Canyon Rd.	E-41.2/A-8.2 ⁽¹⁾ A-2.8 ⁽²⁾	F-52.3/A-8.2 A-3.7	F-54.4/A-8.2 A-3.8 (0.5%)*	F-88.9/A-8.4 A-6.3	F-92.5/A-8.4 A-6.5 (0.5%)*

⁽¹⁾ Unsignalized level of service – control delay in seconds. Soda Canyon Road westbound stop sign controlled approach/Silverado Trail southbound left turn.

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

* (Percent project traffic.) Less than a 1% increase is not considered a significant impact.

*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

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

FRIDAY PM PEAK HOUR

LOCATION	EXISTING	YEAR 2019		YEAR 2030	
		W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
Silverado Trail/ Soda Canyon Rd.	Yes	Yes	Yes (0.5%)*	Yes	Yes (0.4%)

SATURDAY PM PEAK HOUR

LOCATION	EXISTING	YEAR 2019		YEAR 2030	
		W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
Silverado Trail/ Soda Canyon Rd.	No	No	No	Yes	Yes (0.5%)

* (Percent project traffic.) Less than a 1% increase is not considered a significant impact.

Source: Crane Transportation Group

Table 5
PROJECT TRIP GENERATION
MOUNTAIN PEAK WINERY

HARVEST FRIDAY

	TOTAL	HOURS	TRIPS						
			3-4 PM		4-5 PM		5-6 PM		
			IN	OUT	IN	OUT	IN	OUT	
Admin Employees	10	8AM-6PM	0	0	0	0	0	0	0
Production Employees – Full Time	9	6AM-6PM	0	0	0	0	0	0	0
Production Employees – Part Time	4	6AM-6PM	0	0	0	0	0	0	0
Tours/Tasting Employees	10	8AM-6PM	0	0	0	0	0	0	0
Custom Crush Grape Delivery Trucks – 4/year	1/day	Between 6AM-6PM*	0	0	0	0	0	0	0
Grape Outhaul Trucks from Winery Vineyards Being Eliminated (88/year)	-(1-2/day)	Between 6AM-6PM**	0	0	0	0	0	0	0
Visitors	80 total = 31 vehicles***	10AM-6PM	0	8	8	0	0	0	8

* Grapes typically delivered in the morning.

** Grape outhaul from vineyards to Napa being eliminated, typically during the morning.

*** 2.6 visitors/vehicle average on weekdays per County data.

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	10	8AM-6PM	0	0	0	0	0	0	0	0	0
Production Employees – Full Time	9	6AM-6PM	0	0	0	0	0	0	0	0	0
Production Employees – Part Time	4	6AM-6PM	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	10	8AM-6PM	0	0	0	0	0	0	0	0	0
Custom Crush Grape Delivery Trucks – 4/year	1/day	Between 6AM-6PM*	0	0	0	0	0	0	0	0	0
Grape Outhaul Trucks from Winery Vineyards Being Eliminated (88/year)	-(1-2/day)	Between 6AM-6PM**	0	0	0	0	0	0	0	0	0
Visitors	80 total = 29 vehicles***	10AM-6PM	7	0	0	7	7	0	0	0	7

* Grapes typically delivered in the morning.

** Grape outhaul from vineyards to Napa being eliminated, typically during the morning.

*** 2.8 visitors/vehicle average on Saturdays per County data.

Source: Crane Transportation Group

Appendix

Appendix
MOUNTAIN PEAK WINERY
EMPLOYEE, VISITOR & TRUCK INFORMATION

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
<p>A. Full-time admin employees # on Weekdays <u>10</u> # on Saturday <u>10</u> Work hours: Weekday 8AM to 6PM Saturday 8AM to 6PM</p>	<p>Full-time admin employees # on Weekdays <u>10</u> # on Saturday <u>10</u> Work hours: Weekday 8AM to 6PM Saturday 8AM to 6PM</p>
<p>B. Full-time production employees # on Weekdays <u>9</u> # on Saturday <u>9</u> Work hours: Weekday 6AM to 6PM Saturday 6AM to 6PM</p>	<p>Full-time production employees # on Weekdays <u>6</u> # on Saturday <u>6</u> Work hours: Weekday 6AM to 6PM Saturday 6AM to 6PM</p>
<p>C. Part-time production employees # on Weekdays <u>4</u> # on Saturday <u>4</u> Work hours: Weekday 6AM to 6PM Saturday 6AM to 6PM</p>	<p>Part-time production employees # on Weekdays <u>0</u> # on Saturday <u>0</u> Work hours: Weekday NA Saturday NA</p>
<p>D. Part-time administration employees # on Weekdays <u>4</u> # on Saturday <u>0</u> Work hours: Weekday 9AM to 6PM Saturday NA</p>	<p>Part-Time Administration Employees # on Weekdays <u>4</u> # on Saturday <u>0</u> Work hours: Weekday 9AM to 6PM Saturday NA</p>
<p>E. Tours & tasting employees # on Weekdays <u>10</u> # on Saturday or Sunday <u>10</u> Work hours: Weekday 8AM to 6PM Saturday 8AM to 6PM Sunday 8AM to 6PM</p>	<p>Tours & tasting employees # on Weekdays <u>10</u> # on Saturday or Sunday <u>10</u> Work hours: Weekday 8AM to 6PM Saturday 8AM to 6PM Sunday 8AM to 6PM</p>

Appendix
MOUNTAIN PEAK WINERY
EMPLOYEE, VISITOR & TRUCK INFORMATION

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
<p>F. Grape Delivery Trucks to Winery (4% of Production) # on Weekdays <u>1</u> # on Saturday <u>1</u> Delivery hours: Weekday 6AM to 6PM Saturday 6AM to 6PM # days of grape delivery: Any day of the week during harvest. Total of 4 trucks/year.</p>	<p>No grape delivery</p>
<p>G. Grape Outhaul Trucks from Winery Vineyards Being Eliminated from Soda Canyon Road # on Weekdays <u>1-2</u> # on Saturday <u>1-2</u> Outhaul hours: Weekday 6AM to 6PM Saturday 6AM to 6PM # days of grape outhaul: Any day of the week during harvest. Total of 88 trucks being eliminated.</p>	<p>No grape outhaul</p>
<p>H. Maximum tours/tasting visitors (by appointment) # on Weekdays <u>80</u> # on Saturday <u>80</u> Hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Maximum 350 visitors/week</p>	<p>Maximum tours/tasting visitors (by appointment) # on Weekdays <u>80</u> # on Saturday <u>80</u> Hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Maximum 350 visitors/week</p>
<p>I. Other employees? # on Weekdays <u>none</u> # on Saturday <u>none</u> Work hours: Weekday _____ to _____ Saturday _____ to _____</p>	<p>Other employees? # on Weekdays <u>none</u> # on Saturday <u>none</u> Work hours: Weekday _____ to _____ Saturday _____ to _____</p>

Appendix
MOUNTAIN PEAK WINERY
EMPLOYEE, VISITOR & TRUCK INFORMATION

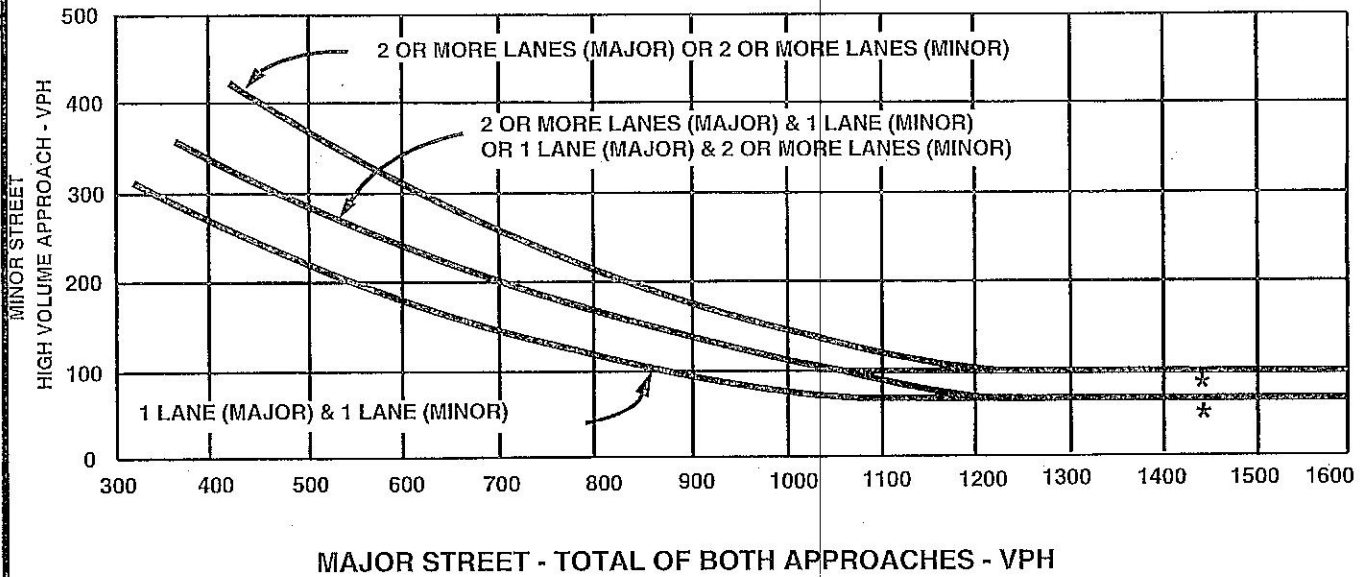
HARVEST CONDITIONS	NON-HARVEST CONDITIONS
J. Other trucks? # on Weekdays < 1/week # on Saturday _____ Work hours: Weekday 8:00 AM to 6:00 PM	Other trucks? # on Weekdays < 1/week # on Saturday _____ Work hours: Weekday 8:00 AM to 6:00 PM
K. Mobile bottling No activity	Mobile bottling 10 days/year max 1 truck in by 8AM/out at 6PM

Percent grapes grown on site = 50%

Percent grapes imported to the site that will come from the north on Silverado Trail = 90%

Percent grapes imported to the site that will come from the south on Silverado Trail = 10%

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



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Rural Area Peak Hour Volume Warrant #3