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Traffic Impact Study
Staglin Family Vineyards Major Modification
P18-00253-MOD

TRAFFIC IMPACT REPORT

THE STAGLIN FAMILY VINEYARD USE PERMIT MODIFICATION 2018

July 28, 2020

with Revisions January 7, 2021

Prepared for: **THE STAGLIN FAMILY VINEYARD USE PERMIT MODIFICATION**

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I. INTRODUCTION

This report has been prepared at the request of the Staglin Family Vineyard to determine whether the proposed visitors to the winery, as detailed in their 2018 use permit modification application, will result in any significant circulation impacts to the local roadway network. The project site is located on the north side of Bella Oaks Lane about ¾-mile west of State Route 29 (SR29) (see **Figure 1 Regional Map**, **Figure 2 Site Specific Air Photo** and **Figure 3 Site Plan**). The scope of analysis includes evaluation of SR29 north and south of Bella Oaks Lane as well as the Bella Oaks Lane intersections with SR29 and the vineyard driveway for harvest year 2019, Year 2025 and cumulative (year 2030) horizons. The scope of service for this traffic study was developed to provide analysis requested by both the Napa County Public Works and the Planning, Building & Environmental Sciences departments.

II. EXECUTIVE SUMMARY OF PROJECT IMPACTS AND RECOMMENDED IMPROVEMENTS

A. IMPACTS

1. PROPOSED PROJECT HARVEST FRIDAY & SATURDAY PM PEAK HOUR TRIP GENERATION

TWO-WAY PM PEAK HOUR TRIPS	
HARVEST FRIDAY	HARVEST SATURDAY
7	10

2. SIGNIFICANCE OF PROJECT IMPACTS

a. Arterial Level of Service (State Route 29)
- Less than significant

b. Intersection Level of Service (State Route 29/Bella Oaks Lane and Project Driveway/Bella Oaks Lane) - Less than significant

c. Sight Line Adequacy at Project Driveway/Bella Oaks Lane Intersection

- Less than significant – Driveway sight lines extend over 600 feet in both directions.

d. Parking, Transportation Demand Management, Marketing Events

- Less than significant - There is abundant space available for parking on-site, and the existing designated parking areas can be expanded as needed, subject to Fire Department approval.[1] All parking demand will be accommodated on the site at all times for events of all sizes. A TDM coordinator will be appointed to reduce traffic generation potential for daily employee traffic, such as promoting and coordinating employee carpools and rideshares and promoting and making available use of shuttle bus and limousine service for medium and large size marketing events.

B. RECOMMENDED IMPROVEMENTS

- None required.

[1] Per telephone conversations with Mrs. Shari Staglin, CEO, Staglin Family Vineyard, January 7 and June 3, 2020.

III. SUMMARY OF "WITHOUT AND WITH PROJECT" OPERATING CONDITIONS

A. "WITHOUT PROJECT" OPERATING CONDITIONS - Friday & Saturday PM Peak Hours

1. ARTERIAL LEVEL OF SERVICE

a. SR29 North and South of Bella Oaks Lane

- Existing - Acceptable
- Year 2025 & Cumulative (2030) - Acceptable

2. INTERSECTION LEVEL OF SERVICE

a. SR29/Bella Oaks Lane - stop sign controlled approach

- Existing – Acceptable
- Year 2025 & Cumulative - Acceptable

3. INTERSECTIONS WITH VOLUMES MEETING RURAL PEAK HOUR SIGNAL WARRANT #3 CRITERIA

a. SR29/Bella Oaks Lane

- Existing, 2025 & Cumulative (2030) conditions **do not meet** rural signal Warrant #3 criteria.

B. PROJECT IMPACTS

1. OFF-SITE

a. ARTERIAL LEVEL OF SERVICE (SR29) - Less than Significant

1) State Route 29

- **Existing -** Operation would remain at acceptable levels.
- **Year 2025** - Project traffic would not increase 2-way volumes by 1% or greater along the segments of SR29 already operating unacceptably at LOS E during the Friday and Saturday PM peak hours.
- **Cumulative (2030) -** Project traffic would not increase the growth in 2-way traffic from 2019 to 2030 by 5% or greater along

segments of SR29 that would already be operating unacceptably at LOS E during the Friday and Saturday PM peak hours.

b. INTERSECTION LEVEL OF SERVICE - Less than Significant

1) SR29/ Bella Oaks Lane

- **Existing -** Operation would remain at acceptable levels.
- **Year 2025 or Cumulative -** Project traffic would not increase delay by more than 5 seconds or greater on the stop sign controlled Bella Oaks Lane approach to SR29, which would already be operating at an acceptable LOS D during both the Friday and Saturday PM peak hours.

2) Project Driveway/Bella Oaks Lane

- **Existing, Year 2025 or Cumulative -** Operation would remain at acceptable levels.

c. PROJECT DRIVEWAY/BELLA OAKS LANE INTERSECTION - Less than Significant

Sight lines at the Project Driveway/Bella Oaks Lane intersection exceed minimum Caltrans stopping sight distance criteria.

d. MARKETING EVENTS - Less than Significant

The total of 32 marketing events per year with 12 attendees and the 16 events per year with 32 attendees will not exceed the 44 visitors by appointment limit being requested in the use permit modification.

The larger events (3 events per year with up to 100 attendees – restricted to evenings, 6:00 PM to 10:00 PM, 1 per year with up to 100 attendees – restricted to daytime, 10:00 AM to 4:00 PM, and one event per year with up to 250 attendees – restricted to scheduling sometime between 11:00 AM and 11:00 PM, will have limousine and shuttle bus service provided.

C. CONCLUSIONS & RECOMMENDATIONS

The project would result in no significant off-site circulation system operational impacts to SR29 at Bella Oaks Lane or the SR29/Bella Oaks Lane intersection. New traffic would occur on weekdays and weekends. Sight lines at the project driveway connection to Bella Oaks Lane would remain acceptable and continue to meet Caltrans stopping sight distance criteria, and there would continue to be no left turn lane warranted on Bella Oaks Lane at the Project Driveway. In addition, the SR 29/Bella Oaks Lane intersection would not have Friday or Saturday PM peak hour volumes meeting rural peak hour signal Warrant #3 criteria for existing or future conditions. Two-way volumes would increase on Bella Oaks Lane near SR 29; for example, during a Harvest Friday existing PM peak hour volumes would increase due to the project from 45 vehicles to 52 vehicles, and during a Harvest Saturday existing PM peak hour volumes would increase due to the project from 17 to 27 vehicles.

There would be 48 new small marketing events each year; 32 with 12 attendees (resulting in only 5 guest vehicles), and 16 with up to 32 attendees (resulting in only 13 guest vehicles). On days with small events, regular visitation would be limited so as not to exceed the daily 44 visitors by appointment limit being requested in the use permit modification. There would also be five new large marketing events (with 100 to 250 guests). Large events would make use of shuttle bus and limousine service:

- 3 with 100 guests would occur from 6:00 PM – 10:00 PM
- 1 with 100 guests would occur from 10:00 AM – 4:00 PM
- 1 with 250 guests would occur between 11:00 AM and 11:00 PM

There are no resulting recommended requirements or mitigation measures.

IV. PROJECT LOCATION & DESCRIPTION

The Staglin Family Vineyard is located at 1570 Bella Oaks Lane. The entrance driveway is located about three-quarters of a mile west of SR29 on the north side of Bella Oaks Lane.

The purpose of the project application is to amend Use Permit #98072 and subsequent use permit modifications for Staglin Family Vineyard to modify elements of the winery's marketing program. The existing use permit authorizes wine production, retail wine sales, tours and tastings, marketing events and other accessory activities within a +/- 4,000 sf structure and within a portion of the +/- 22,750 sf cave located on parcel 027-250-064. No changes are requested to production facilities, existing winery structures, or winery infrastructure at this time.

REQUESTED MODIFICATIONS & CLARIFICATIONS:

Staglin Family Vineyard requests the following revisions and clarifications to the approved use permit:

- **Daily Tours and Tasting Program** - Modify the approved tours and tastings program to allow activities for up to 44 visitors per day, by appointment, weekday and weekend. Tours and tastings to take place between 10AM and 4PM.
- **Marketing Program** - Modify the approved marketing program to increase the number of events per the list below. The tasting room will be closed to tasting appointments during marketing events of 40 persons or more. Events of 50 or larger attendees will be held outdoors. Food for all marketing events will be prepared by a licensed caterer with minimal preparation (heating and plating) on site. Portable toilets will be available for all events. The proposed events are as follows:
    - 32 events per year with 12 attendees maximum; between 11:00 AM and 11:00 PM
    - 16 events per year with 32 attendees maximum; between 11:00AM and 11:00PM
    - 3 events per year with 100 attendees maximum; between 6:00PM and 11:00PM
    - 1 event per year with 100 attendees maximum; between 10:00AM and 4:00PM.
    - 1 event per year with 250 attendees maximum; between 1:00PM and 4:00PM
- **Parking** - There is abundant space available for parking on-site, and the existing designated parking areas can be expanded as needed.[2] No specific changes in parking areas are proposed.
- **Employees** - Increase number of employees to 11 full-time and 5 part-time.

V. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

1. INTERSECTIONS

The following locations have been evaluated.

a. **SR29/Bella Oaks Lane intersection** (The Bella Oaks Lane eastbound approach is stop sign controlled.)

b. **Bella Oaks Lane /Project Driveway intersection** (The project driveway approach is assumed in this analysis to be stop sign controlled.)

Figure 4 presents a schematic of approach lane geometrics and control at the SR29/Bella Oaks intersection.

[2] Per telephone conversation with Mrs. Shari Staglin, CEO, Staglin Family Vineyard, January 7, 2020.

2. ARTERIAL ROADWAY SEGMENTS

The following locations have been evaluated.

a. State Route 29 Just North and South of the Bella Oaks Lane

B. VOLUMES

1. ANALYSIS SEASONS AND DAYS OF THE WEEK

Project traffic impacts have been evaluated during 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). Therefore, only September harvest conditions were selected for evaluation.

In regards to the peak traffic days of the week, the Napa County Travel Behavioral Study[3] 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 12:00 noon to 6:00 PM as well as Saturday 12:00 noon to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) on two Fridays and two Saturdays in October and November 2019 at the Bella Oaks Lane intersection with SR29 while four days of 24-hours hose counts were conducted at the project driveway. The October peak traffic hours for the SR 29/Bella Oaks Lane intersection were determined to be 3:00 to 4:00 PM on Friday and 2:15 to 3:15 PM on Saturday. The November peak traffic hours for the for the SR 29/Bella Oaks Lane intersection were determined to be 2:45 to 3:45 PM on Friday and Saturday. Based upon direction from County Public Works, results from the two Friday counts were averaged and the results shown in **Figure 5**, while results from the two Saturday counts were also averaged and the results are also shown in **Figure 5**. Peak hour counts from each count day are presented in **Appendix A.**

Overall, October harvest Friday PM peak hour two-way volumes along SR29 at Bella Oaks Lane are higher on Saturday than on Friday (about 1818 vehicles on Friday versus 1986 vehicles on Saturday). However, in November, Friday and Saturday volumes are very similar (about 1768 vehicles on Friday versus 1750 vehicles on Saturday).

[3] Fehr & Peers, December 8, 2014.

Daily (24-hour) directional volumes were also conducted for two Fridays and two Saturdays in October and November on Bella Oaks Lane at the project driveway. Count results are presented in **Appendix A**.

C. ROADWAYS

Roadway descriptions are based upon the designation that SR 29 runs in a general north-south direction through the project area, while Bella Oaks Lane runs in an east-west direction. The project site is located along the north side of Bella Oaks. **Figure 4** presents existing intersection geometrics and control.

State Route 29 (SR 29) provides the only major regional access to the west side of the Napa Valley and a connection to Bella Oaks Lane. In the vicinity of the Bella Oaks Lane intersection it has two well-paved 12-foot travel lanes and eight-foot-wide paved shoulders. The posted speed limit is 50 miles per hour and the roadway is level and straight. SR 29 is not controlled on its approaches to the Bella Oaks Lane tee intersection, but a left turn lane is provided on the northbound intersection approach and a median refuge area is provided north of the intersection to facilitate left turns from Bella Oaks Lane. There are Class II (signed and striped) bicycle lanes on both sides of the state highway.

Bella Oaks Lane is a two-lane, paved rural collector County road extending westerly from its tee intersection with SR 29. It is stop sign controlled on its single lane approach to the state highway. It also crosses the single track of the Napa Wine Train just west of SR 29. Flashing gates and lights protect the crossing. There is never more than one train crossing an hour during the afternoon and early evening, currently the only times of train activity. Bella Oaks Lane is stop sign controlled on its eastbound approach to the railroad crossing. The roadway has no centerline or sideline stripes.

Bella Oaks Lane is straight and level from SR 29 to the project driveway, located about ¾-mile west of SR 29. West of the railroad crossing there is a posted speed limit of 25 mph when pedestrians are crossing; otherwise, there is no posted speed limit. Bella Oaks Lane is generally 20-feet wide with no shoulders. There is no left turn lane on the Bella Oaks Lane eastbound approach to the project driveway.

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.

Unsignalized Intersections. For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2017 *Highway Capacity Manual Version 6* (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. 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 1** summarizes the relationship between delay and LOS for unsignalized intersections.

2. MINIMUM ACCEPTABLE OPERATION

Napa County's currently minimum acceptable operating standard for unsignalized intersections is Level of Service D (LOS D) for side street stop sign controlled approaches at two-way stop intersections and for overall operation at all-way-stop intersections. It should be noted, however, that the recently approved General Plan Update Circulation element shows that LOS F is now acceptable for SR 29 in the project area. However, to provide a conservative analysis the LOS D criterion as minimum acceptable has been used.

E. ARTERIAL LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

The 2017 Highway Capacity Manual Version 6 arterial analysis methodology has been utilized for analysis of State Route 29. Analysis results are presented as a level of service, volume to capacity ratio and percent time following. Input includes directional volumes, road and shoulder widths, percent trucks and RVs, terrain characteristics, percent available passing distance, etc.

2. MINIMUM ACCEPTABLE OPERATION

Napa County's currently minimum acceptable operating standard for unsignalized arterial is Level of Service D (LOS D).

F. INTERSECTION SIGNAL WARRANTS

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 10 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 *California Manual on Uniform Traffic Control Devices, 2014, Revision 3 (2014 CMUTCD Rev. 3)*. Section 4C of the 2014 CMUTCD Rev. 3 provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the 2014 CMUTCD Rev. 3, 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.

2. MINIMAL ACCEPTABLE OPERATION

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. For intersections in rural locations (with local area population less than 10,000 people or where the posted speed limit or 85th percentile speed on the uncontrolled intersection approaches is greater than 40 miles per hour) a 70 percent warrant is applied. The regular and 70 percent warrants are typically referred to as the urban and rural peak hour warrants. Rural warrant criteria have been used for evaluation of the SR29/Bella Oaks Lane intersection. Please see **Appendix B** for the existing condition warrant charts.

G. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study.[4]

[4] Ms. Charlene Gallina, Supervising Planner, Napa County Planning Department, September 2018.

H. EXISTING PEDESTRIAN AND BICYCE FACILITIES NEAR THE PROJECT

There are no pedestrian walkways along Bella Oaks Lane and none are planned by the project. Likewise, there are no existing or planned Class I to IV Bicycle facilities along Bella Oaks Lane and none are planned by the project. There are Class II (signed and striped) bike lanes on SSR 29.

VI. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for harvest existing (2019), year 2025 and cumulative (year 2030) horizons at County request. The 2030 cumulative horizon reflects the County General Plan Buildout year. Traffic modeling for the General Plan shows the following growths in two-way traffic between 2019 and 2030 for the following roadways.

Route	2019 to 2030 Projected Growth in 2-Way PM Peak Hour Traffic
SR29	PM peak hour = 15.3%
Bella Oaks Lane	PM peak hour = 22%

Projecting straight line traffic growth for analysis purposes, this translates into the following growths in two-way traffic between 2019 and 2025 for the same roadways.

Route	2019 to 2025 Projected Growth in 2-Way PM Peak Hour Traffic
SR29	PM peak hour = 8.4%
Bella Oaks Lane	PM peak hour = 12.1%

Since traffic modeling projections were only available for weekday PM peak hour conditions and not for the Saturday PM peak hour, Saturday two-way PM peak hour volumes were increased by the percentages found for the weekday PM peak hour.

Resultant year 2025 harvest "Without Project" Friday and Saturday PM peak hour volumes and cumulative (year 2030) harvest "Without Project" Friday and Saturday PM peak hour volumes are presented in **Figure 5**.

VII. OFF-SITE HARVEST CIRCULATION SYSTEM OPERATION – WITHOUT PROJECT

A. YEAR 2019 HARVEST (WITHOUT PROJECT) OPERATING CONDITIONS

1. EXISTING INTERSECTION LEVEL OF SERVICE - see Table 2; Appendix C provides capacity worksheets.

a. SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Bella Oaks Lane stop sign controlled eastbound approach: LOS C

b. PROJECT DRIVEWAY/ BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Project Driveway stop sign controlled southbound approach: LOS A

2. EXISTING ARTERIAL SEGMENT LEVEL OF SERVICE – see Table 3

a) SR29 JUST NORTH & SOUTH OF BELLA OAKS LANE

- **Friday PM Peak Hour**
  Northbound – LOS D
  Southbound – LOS E
- **Saturday PM Peak Hour**
  Northbound – LOS E
  Southbound – LOS E

3. EXISTING SIGNAL WARRANT EVALUATION – see Table 4 and Appendix B

a) SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Volumes **do not meet** rural peak hour signal Warrant #3 criteria.

B. YEAR 2025 HARVEST (WITHOUT PROJECT) OPERATING CONDITIONS

1. 2025 INTERSECTION LEVEL OF SERVICE – see Table 2

a) SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Bella Oaks Lane stop sign controlled eastbound approach: LOS D

b) PROJECT DRIVEWAY/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Project Driveway stop sign controlled southbound approach: LOS A

2. 2025 ARTERIAL SEGMENT LEVEL OF SERVICE – see Table 3

a) SR29 JUST NORTH & SOUTH OF BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

  Northbound – LOS E
  Southbound – LOS E

3. 2025 SIGNAL WARRANT EVALUATION – see Table 4

a) SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Volumes **would not meet** rural peak hour signal Warrant #3 criteria.

C. CUMULATIVE (YEAR 2030) HARVEST (WITHOUT PROJECT) OPERATING CONDITIONS

1. 2030 INTERSECTION LEVEL OF SERVICE – see Table 2

a) SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Bella Oaks Lane stop sign controlled eastbound approach: LOS D

b) PROJECT DRIVEWAY/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Acceptable Project Driveway southbound approach: LOS A

2. 2030 ARTERIAL SEGMENT LEVEL OF SERVICE – see Table 3

a) SR29 JUST NORTH & SOUTH OF BELLA OAKS LANE
Friday & Saturday PM Peak Hours

Northbound – LOS E
Southbound – LOS E

3. 2030 SIGNAL WARRANT EVALUATION – see Table 4

a) SR29/BELLA OAKS LANE

- **Friday & Saturday PM Peak Hours**

Volumes **would not meet** rural peak hour signal Warrant #3 criteria.

VIII. SIGNIFICANCE CRITERIA

A. COUNTY OF NAPA

The following criteria have recently been developed for traffic impact analyses in Napa County.

EXISTING + PROJECT CONDITIONS

A. ARTERIAL SEGMENTS

A project would cause a significant impact requiring mitigation if:

1. An arterial segment operates at LOS A, B, C or D during the selected peak hours without project trips, and deteriorates to LOS E or F with the addition of project trips, or
2. An arterial segment operates at LOS E or F during the selected peak hours without project trips, and the addition of project trips increases the total segment volume by one percent or more.

For the second criterion, the following equation should be used if the arterial operates at LOS E or F without the project:

Project Contribution % = Project Trips ÷ Existing Volumes

B. SIGNALIZED INTERSECTIONS

A project would cause a significant impact requiring mitigation if:

1. A signalized intersection operates at LOS A, B, C or D during the selected peak hours without project trips, and deteriorates to LOS E or F with the addition of project trips, or
2. A signalized intersection operates at LOS E or F during the selected peak hours without project trips, and the addition of project trips increases the total entering volume by one percent or more.

For the second criteria, the following equation should be used if the signalized intersection operates at LOS E or F without the project:

Project Contribution % = Project Trips ÷ Existing Volumes

Maintaining LOS D or better at all signalized intersections would sometimes require expanding the physical footprint of an intersection. In some locations around the County, expanding physical transportation infrastructure could be in direct conflict with the County's goals of preserving the area's rural character, improving safety, and sustaining the agricultural industry, making these potential improvements infeasible. The County's Circulation Element lists intersections that are slated for improvement or expansion in unincorporated Napa County.[5]

Transportation studies should individually consider the feasibility of potential mitigation measures with respect to right-of-way acquisition, regardless of the intersection's place in the Circulation Element's identified improvement lists, and present potential alternative mitigation measures that do not require right-of-way acquisition. County staff would then review that information and make the decision about the feasibility of the identified potential mitigations.

For intersections that cannot be improved without substantial additional right-of-way according to both the Circulation Element and the individual transportation impact study, and where other mitigations such as updating signal timing, signal phasing and operations, and/or signing and striping improvements do not improve the LOS, LOS E or F will be considered acceptable and the one percent threshold would not apply. Analysis of signalized intersection LOS should still be presented for informational purposes, and there should still be an evaluation of effects on safety and local access, per Policy CIR-18.

C. UNSIGNALIZED INTERSECTIONS (ALL WAY STOP AND SIDE STREET STOP SIGN CONTROLLED)

LOS for all way stop controlled intersections is defined as an average of the delay at all approaches. LOS for side street stop controlled intersections is defined by the delay and LOS for

[5] According to the Circulation Element dated June 8, 2008, the following intersections can be altered or expanded as a mitigation measure: SR-12/Airport Boulevard/SR-29, SR-221/SR-12/Highway 29, and several intersections along SR-29 and SR-128 north of Napa. The significance criteria shown above should apply to facilities where appropriate based upon the most recent Circulation Element chapter of the General Plan.

the worst case approach. The recommended interpretation of Policy CIR-16 regarding unsignalized intersection significance criteria is as follows:

1. An unsignalized intersection operates at LOS A, B, C or D during the selected peak hours without project trips, the LOS deteriorates to LOS E or F with the addition of project traffic, and the peak hour traffic signal warrant criteria should also be evaluated and presented for information purposes, or
2. An unsignalized intersection operates at LOS E or F during the selected peak hours without project trips and the project increases stop sign controlled delay by 5 seconds or greater. The peak hour traffic signal warrant criteria should also be evaluated and presented for informational purposes.

Project Contribution % = Project Trips ÷ Existing Volumes

CUMULATIVE+ PROJECT CONDITIONS

A. ARTERIAL SEGMENTS, SIGNALIZED INTERSECTIONS AND UNSIGNALIZED INTERSECTIONS

A project would cause a significant cumulative impact requiring mitigation if:

1. The overall amount of expected traffic growth causes conditions to deteriorate such that any of the significance criteria described above for existing conditions are met, and
2. The project's contribution to a significant cumulative impact for arterials or signalized intersections would be equal to or greater than five percent of the growth in traffic from existing to cumulative conditions.
3. The project's contribution to a cumulative significant impact at an unsignalized intersection would result with an increase in stop sign controlled delay of 5 seconds or greater.

A project's contribution to a cumulative condition would be calculated as the project's percentage contribution to the total growth in traffic from existing conditions.

Project Contribution % = Project Trips ÷ (Cumulative Volumes - Existing Volumes)

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

IX. PROJECT IMPACT EVALUATION

A. TRIP GENERATION

1. METHODOLOGY

Project trip generation was determined using one of the three possible methodologies recently approved by Napa County Public Works for transportation impact study analysis. Method "c" has been used in this analysis. As detailed by Public Works, perform a site-specific analysis by first conducting actual daily trip counts at the driveway of the project on two Fridays and two Saturdays (for winery use permit modifications). Next, determine the increment of net new daily traffic due to the use permit modification proposed project using trip rates from the use permit Winery Traffic Information/Trip Generation sheets (**Appendix E**). Based upon the two Friday and two Saturday 24-hour winery driveway counts, determine which hour on each day had the highest combined inbound + outbound traffic and determine the percent of total traffic occurring during those hours in relation to the daily counts. Apply these percentages to the net new Friday and Saturday daily traffic increments for the project to determine the amount of project traffic that would be expected to occur during the winery's peak traffic hour. Finally, assume that the winery's peak hourly traffic will occur at the same time as the ambient peak traffic on the adjacent roadway system.

B. TRIP DISTRIBUTION

Project trip distribution on a harvest Friday and Saturday PM peak hour is expected to be predominantly to and from the south on SR29. See **Figure 6.**

C. OFF-SITE IMPACTS

1. EXISTING (2019) HARVEST + PROJECT CONDITIONS

a. SUMMARY

Project traffic would not result in any significant level of service impacts along SR29 or Bella Oaks Lane or at the Bella Oaks Lane intersections with SR29 or the Project Driveway during the Friday or Saturday PM peak traffic hours.
Less than significant.

b. 2019 INTERSECTION LEVEL OF SERVICE IMPACTS – see Table 2

- **SR29/Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS C with the addition of project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS C with the addition of project traffic. ***Less than significant.***

- **Project Driveway/Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***

c. 2019 ARTERIAL SEGMENT IMPACTS – see Table 3

- **SR29 North of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS D northbound and LOS E southbound. The project would not increase total segment volumes by 1 percent or more (0.1%). ***Less than significant.***
  - Saturday PM Peak Hour
    Operation would remain LOS E northbound and LOS E southbound. The project would not increase total segment volumes by 1 percent or more (0.2%). ***Less than significant.***

- **SR29 South of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS D northbound and LOS E southbound. The project would not increase total segment volumes by 1 percent or more (0.3%). ***Less than significant.***
  - Saturday PM Peak Hour
    Operation would remain LOS E northbound and LOS E southbound. The project would not increase total segment volumes by 1 percent or more (0.3%). ***Less than significant.***

d. 2019 SIGNAL WARRANT EVALUATION – see Table 4

Signal warrant information is provided for informational purposes only per County significance criteria.

- **SR29/ Bella Oaks Lane**
  - Friday PM Peak Hour
    Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic. ***Less than significant.***

2. YEAR 2025 HARVEST + PROJECT CONDITIONS

a. SUMMARY

Project traffic would not result in any significant level of service impacts along SR29 or at the Bella Oaks Lane intersections with SR29 or the Project Driveway during the Friday or Saturday PM peak traffic hours.
Less than significant.

b. 2025 INTERSECTION LEVEL OF SERVICE IMPACTS – see Table 2

- **SR29/ Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS D with the addition of project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS D with the addition of project traffic. ***Less than significant.***

- **Project Driveway/Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***

c. 2025 ARTERIAL SEGMENT IMPACTS – see Table 3

- **SR29 North of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase total segment volumes by 1 percent or more (0.1%). ***Less than significant***
  - Saturday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase total segment volumes by 1 percent or more (0.2%). ***Less than significant.***

- **SR29 South of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase total segment volumes by 1 percent or more (0.2%). ***Less than significant.***
  - Saturday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase total segment volumes by 1 percent or more (0.3%). ***Less than significant.***

d. 2025 SIGNAL WARRANT EVALUATION – see Table 4

Signal warrant information is provided for informational purposes only per County significance criteria.

- **SR29/ Bella Oaks Lane**
  - Friday PM Peak Hour
    Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic.
  - Saturday PM Peak Hour
    Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic.

3. CUMULATIVE (YEAR 2030) HARVEST + PROJECT CONDITIONS

a. SUMMARY

Project traffic would not result in any significant level of service impacts along SR29 or at the Bella Oaks Lane intersections with SR29 or the Project Driveway during the Friday or Saturday PM peak traffic hours.
Less than significant.

b. 2030 INTERSECTION LEVEL OF SERVICE IMPACTS – see Table 2

- **SR29/ Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS D with the addition of project traffic. ***Less than significant.***

- Saturday PM Peak Hour
  Operation of the stop sign controlled Bella Oaks Lane intersection approach would remain an acceptable LOS D with the addition of project traffic. ***Less than significant.***

- **Project Driveway/ Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***
  - Saturday PM Peak Hour
    Operation of the Project Driveway approach to Bella Oaks Lane would remain an acceptable LOS A with the addition of project traffic. ***Less than significant.***

c. 2030 ARTERIAL SEGMENT IMPACTS – see Table 3

- **SR29 North of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase the change in two-way segment volumes between 2019 and 2030 by 5 percent or more (0.7%). ***Less than significant.***
  - Saturday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase the change in two-way segment volumes between 2019 and 2030 by 5 percent or more (1.3%). ***Less than significant.***

- **SR29 South of Bella Oaks Lane**
  - Friday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase the change in two-way segment volumes between 2019 and 2030 by 5 percent or more (1.7%). ***Less than significant.***
  - Saturday PM Peak Hour
    Operation would remain LOS E in both directions. The project would not increase the change in two-way segment volumes between 2019 and 2030 by 5 percent or more (2.0%). ***Less than significant.***

d. 2030 SIGNAL WARRANT EVALUATION – see Table 4

Signal warrant information is provided for informational purposes only per County significance criteria.

- **SR29/Bella Oaks Lane**
  - Friday PM Peak Hour

Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic.

- Saturday PM Peak Hour

  Volumes **would not meet** rural peak hour signal Warrant #3 criteria with or without project traffic.

X. OTHER POTENTIAL PROJECT IMPACTS

A. SIGHT LINES AT THE PROJECT DRIVEWAY/BELLA OAKS LANE INTERSECTIONS – see Figure 8.

The Caltrans Highway Design Manual (2019) states that stopping sight distance is the corner sight distance criteria to be utilized at private road connections to arterial roadways. The minimum required stopping sight distances based upon various vehicle speeds are as follows.

SPEED	MINIMUM REQUIRED STOPPING SIGHT DISTANCE
30 mph	200 feet
35 mph	250 feet
40 mph	300 feet

- Sight lines at the Project Driveway/Bella Oaks Lane intersection are currently acceptable to the east and west along Bella Oaks Lane.

  Sight line to the east along Bella Oaks Lane (to see westbound vehicles): 600+ feet
  Sight line to the west along Bella Oaks Lane (to see eastbound vehicles): 600+ feet

There is no posted speed limit on Bella Oaks Lane at or near the project entrance. Vehicles were observed traveling at speeds from 25 to 40 mph during field surveys by Crane Transportation Group. Based upon the 40 mile per hour criterion, resultant sight lines to the east and west along Bella Oaks Lane from the Project Driveway would be acceptable. ***Less than significant***.

B. MARKETING EVENTS

The project proposes to increase the number of events per the bulleted list below. The tasting room will be closed to tasting by appointment during marketing events that would result in exceeding the 44 visitor maximum. Food for all marketing events will be prepared by a licensed

caterer with minimal preparation (heating and plating) on site. Portable toilets will be available for all events. The proposed events are as follows:

- 32 events per year with 12 attendees maximum; between 11:00 AM and 11:00 PM
- 16 events per year with 32 attendees maximum; between 11:00AM and 11:00PM
- 3 events per year with 100 attendees maximum; between 6:00PM and 11:00PM.*
- 1 event per year with 100 attendees maximum; between 10:00AM and 3:00PM.*
- 1 event per year with 250 attendees maximum; between 1:00PM and 4:00PM.*

- Shuttle bus and limousine service is proposed for larger events. ***Less than significant.***

C. ON-SITE PARKING AND INTERNAL CIRCULATION

Consistent with the applicant's recent discussions with County staff, twelve (12) striped parking spaces are proposed for typical day use.[6] As shown on the Site Plan, two of the twelve spaces will be designed and designated for ADA.

The larger marketing events will usually involve use of shuttle buses, vans and limousines. As occurs today for large events, vans and limousines may drop off, then return later to pick up passengers. These larger vehicles can be directed to appropriate onsite parking locations as needed (see Site Plan), such as an area near the caves entry, as well as south of the caves area (i.e., immediately south of the residence access road and west of the primary two-way access road, there is an asphalt parking area available for overflow parking. This 70-foot by 15-foot parking pad is referred to as the "westernmost overflow parking area".)

If employee plus visitor parking requires additional spaces, vehicles can also be accommodated along one side of the winery access roads, subject to Fire Department approval. For example, for the 450-person annual Music Festival for Brain Health held on the property, the county approved the use of the winery access roads for parking; the approval for this event involved onsite inspection by Fire Department personnel.

For a maximum 250-guest event, if 50 percent (125 attendees) arrived via shuttle, van or limousine at an average of eight attendees per vehicle, sixteen parking spaces could be required for the large vehicles. These could be accommodated within the Event Parking and/or westernmost overflow parking area.

If the remainder of guests (125) all arrived by passenger vehicle, at the County's weekday visitor rate of 2.6 per vehicle, an additional 48 spaces would be required. Thus, a total of 16 + 48 spaces (64) spaces could be required for guest parking.

[6] Per telephone discussions between Trevor Hawkes, County of Napa, and Shari Staglin, Staglin Family Vineyard CEO, July, 2020.

Employee parking might require another 10 or 20 spaces. Thus, for the largest event, a total of 84 spaces might be required. With the existing 12 striped spaces in use, 72 overflow spaces could be required. An Event Parking area and the westernmost overflow parking area (described above) could accommodate about 1/2 half of the needed overflow (36 spaces), resulting in the additional 36 spaces required for temporary, event-related parking along one side of the one-way access road. At 25 feet per vehicle, this would result in 900 feet of roadway shoulder being occupied by event parking for visitors on a maximum event day, assuming approval by the Fire Department for the temporary roadside parking.

Note: the winery will have the option of utilizing valet parking for very large events in addition to the services of shuttle buses, vans and limousines for some groups of visitors.

Internal circulation design (roadway & parking dimensions/parking spaces, turnaround areas and radii for emergency vehicle and large truck movements) has been provided to meet all County and CAL FIRE design criteria.

Conclusion: There is abundant space available for parking on-site, and the existing designated parking areas can be expanded as needed.[7] All parking demand will be accommodated on the site at all times for events of all sizes.
Less than significant.

D. VEHICLE MILES TRAVELED (VMT) REDUCTIONS

It is an upcoming requirement of all jurisdictions in the state to reduce the Vehicle Miles Traveled (VMT) of traffic associated with new developments to lower levels than would have resulted with comparable projects in the past (per State Senate Bill 743, which will take effect in July 2020). This will help reduce greenhouse gas emissions and vehicle congestion. SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing level of service (LOS) with vehicle miles of travel (VMT) and providing analysis of land use and transportation projects that will help reduce future growth in VMT. This shift in transportation impact focus is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions.

The approach to analysis of VMT is generally developed through computer modeling of land use activities. For wineries this may require projections of the length of employee and visitor trips. VMT calculations model individual land uses, and are intended to consider all vehicle miles travelled associated with an individual land use. The calculations can then be used to determine the change in total miles travelled due to a project that would alter the land use.

Quantitative reduction guidelines have not yet been set for modeling the vehicle activity of wineries in Napa County, but all wineries are expected to develop ongoing programs that will

[7] Per telephone conversations with Mrs. Shari Staglin, CEO, Staglin Family Vineyard, January 7 and June 3, 2020.

provide incentives to reduce daily and commute period employee traffic as well as implement measures to entice guests to use travel modes other than the automobile or to travel at times other than peak congestion periods.

E. TRANSPORTATION DEMAND MANAGEMENT (TDM)

Staglin Family Vineyard has developed a Transportation Demand Management (TDM) plan for the purpose of accomplishing VMT reduction goals.

Staglin Family Vineyard Transportation Demand Management (TDM) Plan

The applicant will appoint a TDM coordinator to carry out the proposed plan. Measures may include the following:

1. Electric car charging for employees and guests

2. Bike racks and storage areas for employees and guests

3. High occupancy vehicle use (vans and shuttle buses) will be encouraged for large marketing events; shuttle buses will be provided for all large events with 100 or more guests

4. Employee work hours will be staggered to the greatest extent possible to avoid congestion during the peak traffic hours along S.R. 29

5. Work at home or at remote location opportunities (telecommuting) will be offered when possible

6. Guest appointments will be scheduled, to the extent possible, to avoid travel during the peak traffic hours along S.R. 29

7. Staglin Family Vineyard will enroll in "Napa Valley Forward", a program aimed at reducing traffic along major roads in the Napa Valley by promoting carpooling, vanpooling, bike riding, and use of transit

8. Staglin Family Vineyard will enroll in the "Bay Area Commuter Benefits Program" whereby employees report their carpooling activities and may receive company paid subsidies

F. YEARLY TRIPS

Based upon the County formula, the Staglin Family Winery is currently generating 9,124 yearly trips, while with the use permit modification yearly trip generation would be 24,783 trips, resulting in an increase of 15,659 yearly trips. The basis for these volumes is provided in **Appendix E**.

XI. RECOMMENDED MEASURES

- None required.

XII. CONCLUSIONS & RECOMMENDATIONS

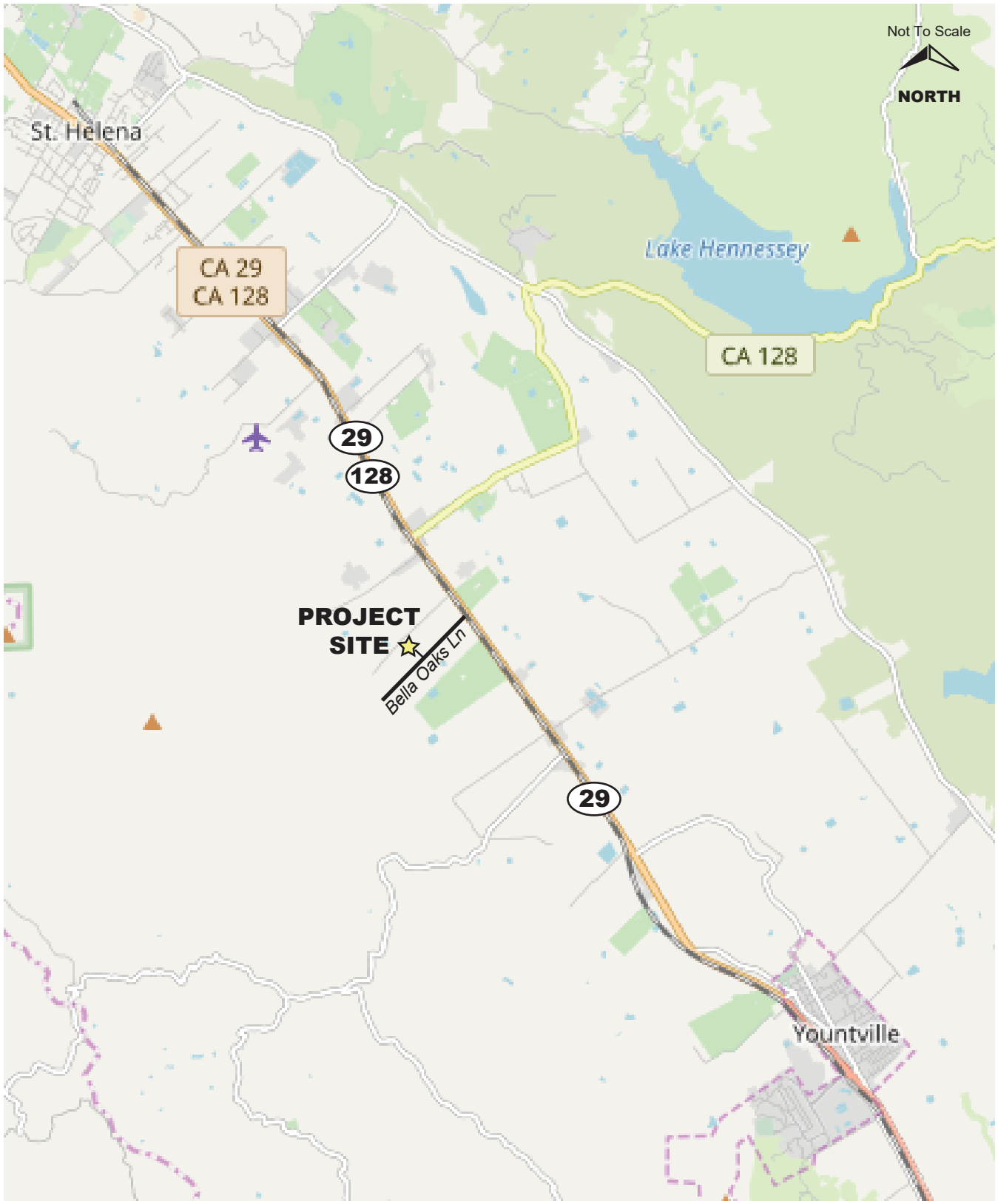
The project would result in no significant off-site circulation system operational impacts to SR29 at Bella Oaks Lane or the SR29/Bella Oaks Lane intersection. New traffic would occur on weekdays and weekends. Sight lines at the project driveway connection to Bella Oaks Lane would remain acceptable and continue to meet Caltrans stopping sight distance criteria, and there would continue to be no left turn lane warranted on Bella Oaks Lane at the Project Driveway. In addition, the SR 29/Bella Oaks Lane intersection would not have Friday or Saturday PM peak hour volumes meeting rural peak hour signal Warrant #3 criteria for existing or future conditions. Two-way volumes would increase on Bella Oaks Lane near SR 29; for example, during a Harvest Friday existing PM peak hour volumes would increase due to the project from 45 vehicles to 52 vehicles; during a Harvest Saturday existing PM peak hour volumes would increase due to the project from 17 to 27 vehicles.

There would be 48 new small marketing events each year; 32 with 12 attendees (resulting in only 5 guest vehicles), and 16 with up to 32 attendees (resulting in only 13 guest vehicles). On days with small events, regular visitation would be limited so as not to exceed the daily 44 visitors by appointment limit being requested in the use permit modification. There would also be five new large marketing events (with 100 to 250 guests). Large events would make use of shuttle bus and limousine service:

- 3 with 100 guests would occur from 6:00 PM – 10:00 PM
- 1 with 100 guests would occur from 10:00 AM – 4:00 PM
- 1 with 250 guests would occur between 11:00 AM and 11:00 PM

There are no resulting recommended requirements or mitigation measures.

FIGURES

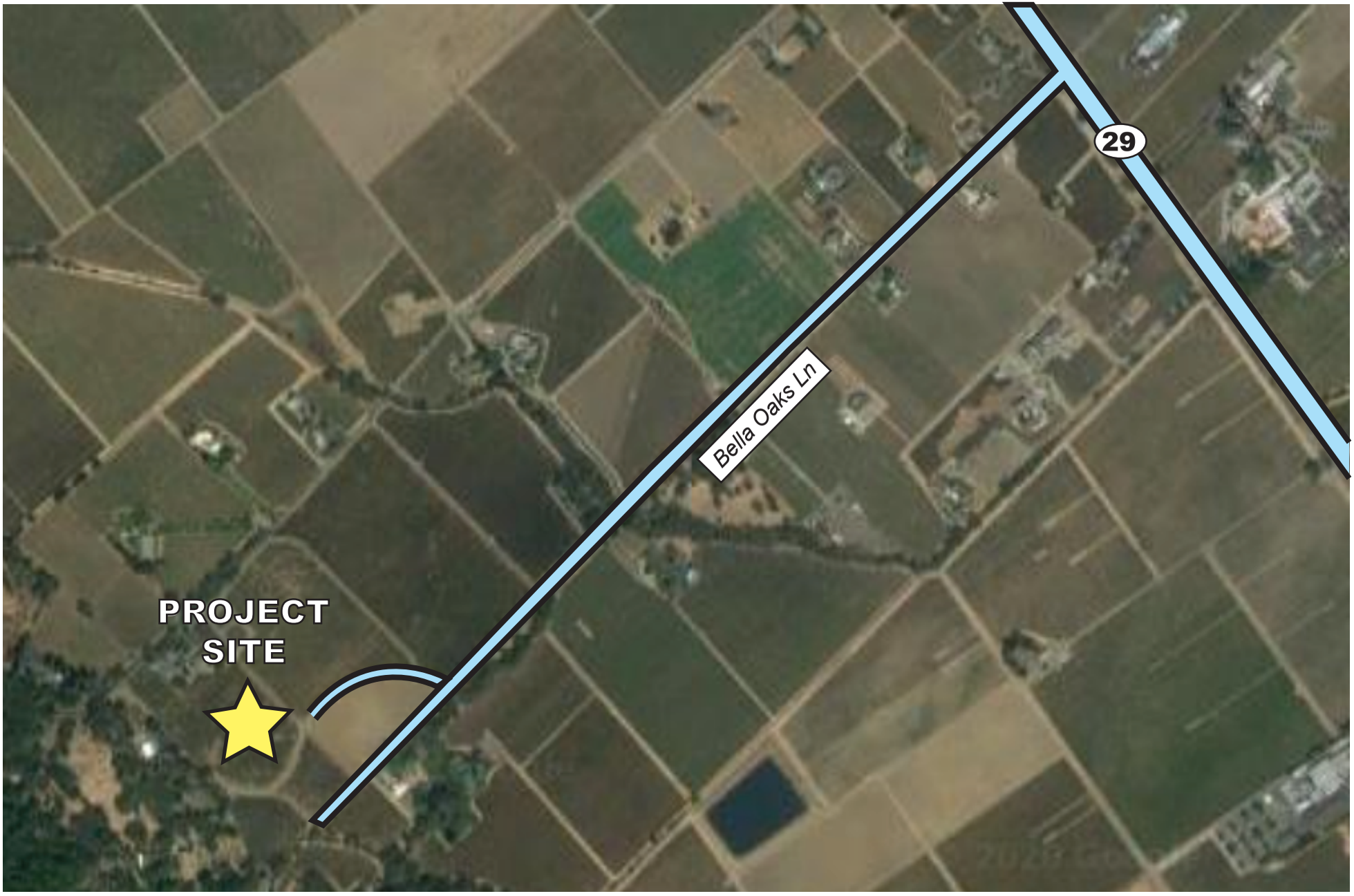


Staglin Family Vineyard Traffic Study

CRANE TRANSPORTATION GROUP

Figure 1

Area Map



Staglin Family Vineyard Traffic Study

CRANE TRANSPORTATION GROUP

Figure 2
Site Specific Air Photo

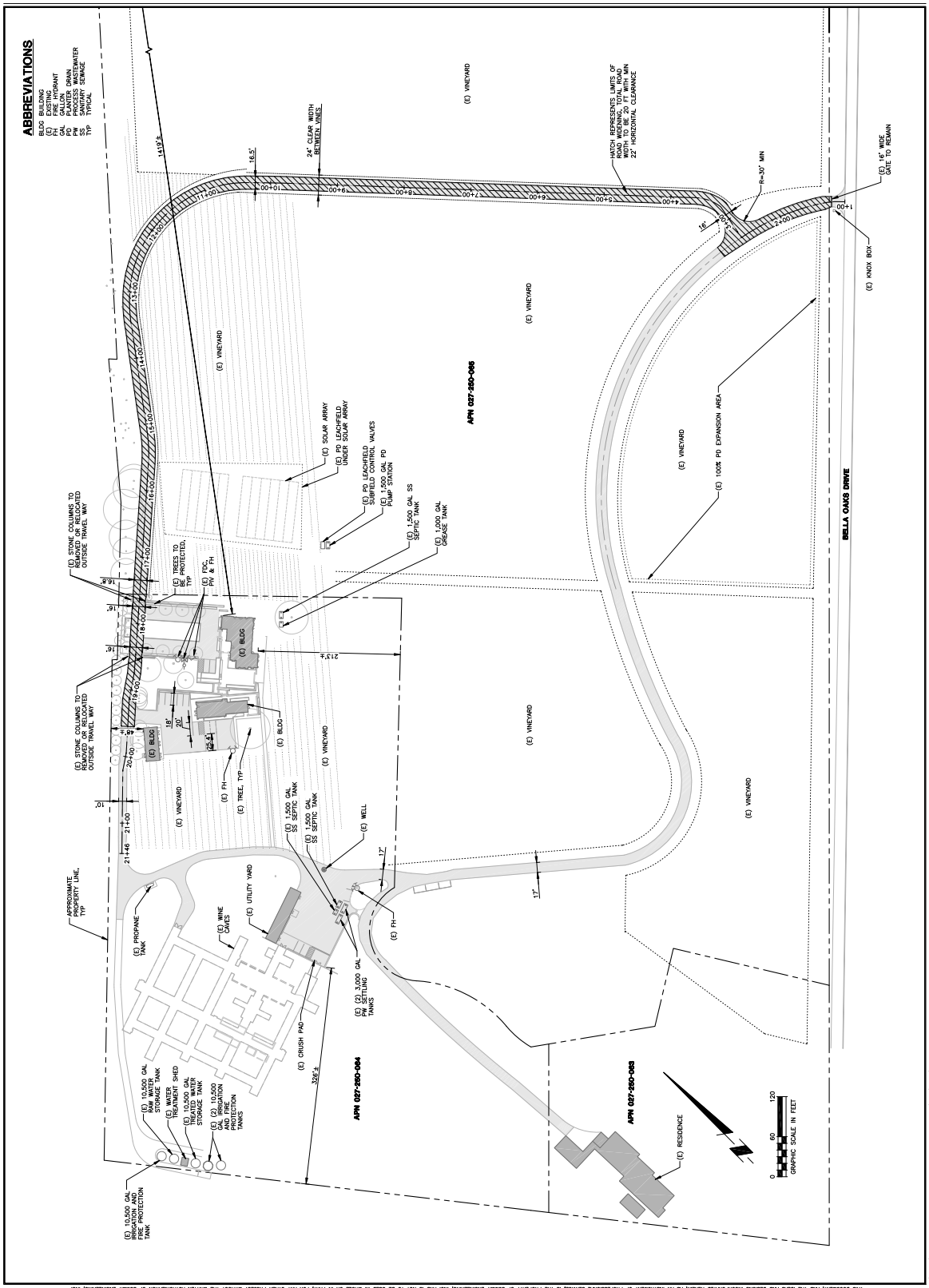
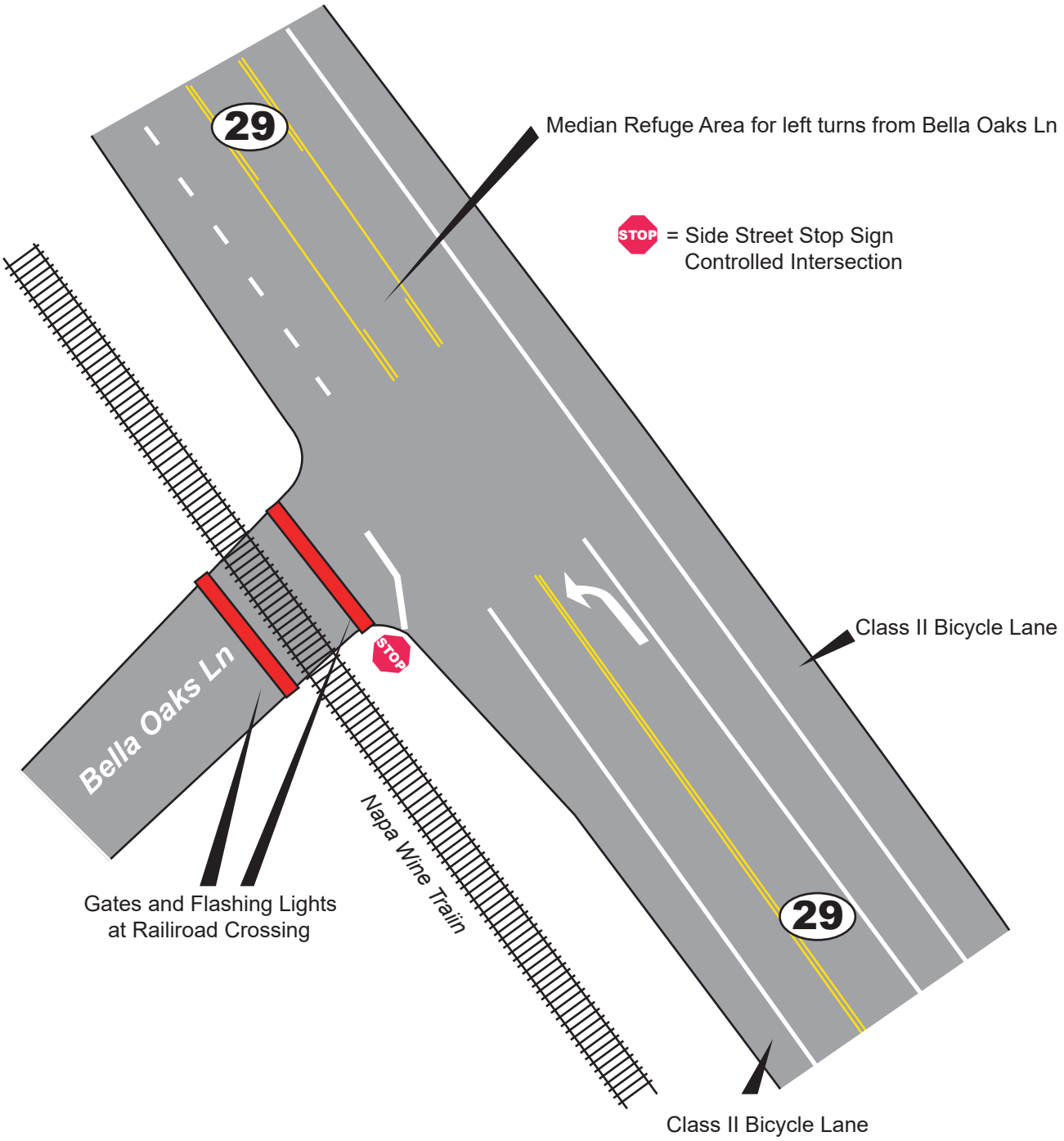


Figure 3

Site Plan

CRANE TRANSPORTATION GROUP



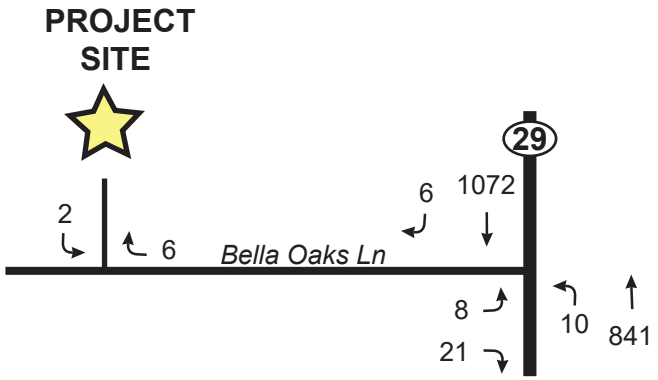
Staglin Family Vineyard Traffic Study

CRANE TRANSPORTATION GROUP

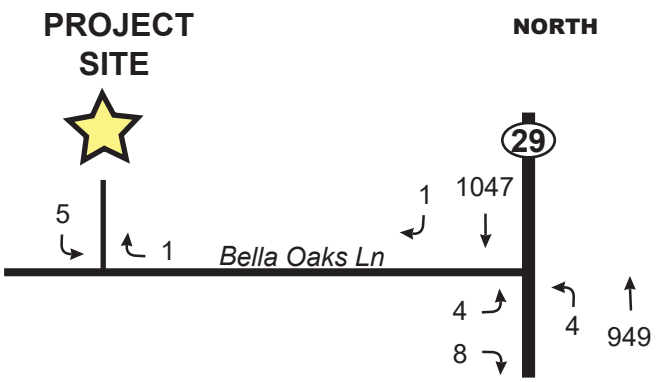
Figure 4
Existing Lane Geometrics and Intersection Control
SR29/Bella Oaks Lane

Not To Scale

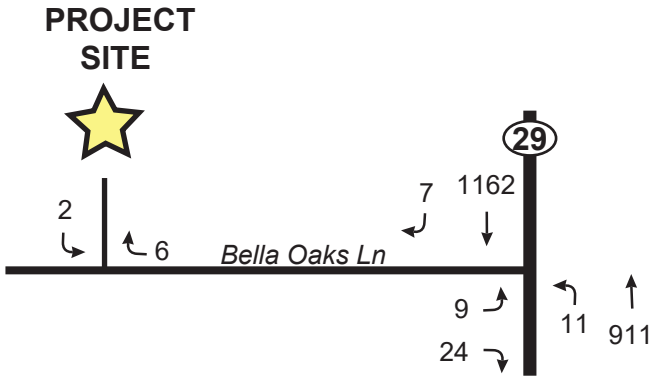
NORTH



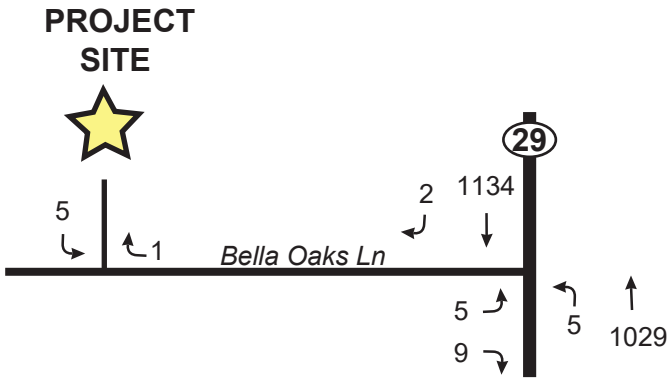
2019 (Existing) Harvest Friday without Project
(3:00-4:00 PM)



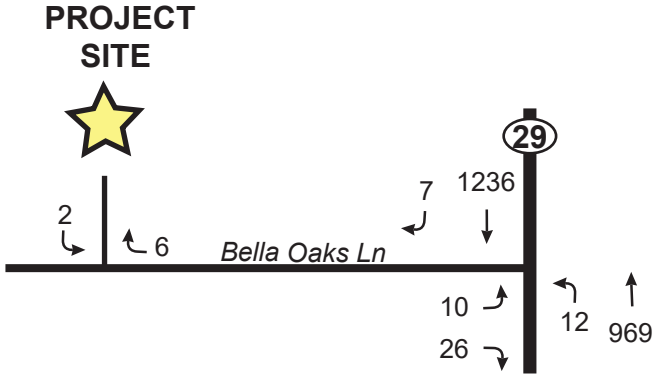
2019 (Existing) Harvest Saturday without Project
(2:30-3:30 PM)



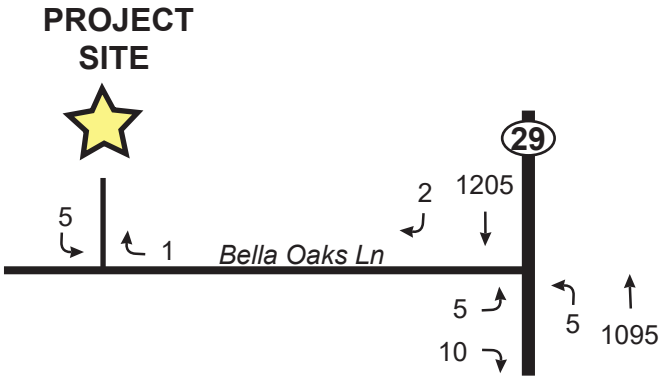
Year 2025 Harvest Friday without Project



Year 2025 Harvest Saturday without Project



2030 (Cumulative) Harvest Friday without Project



2030 (Cumulative) Harvest Saturday without Project

Staglin Family Vineyard Traffic Study

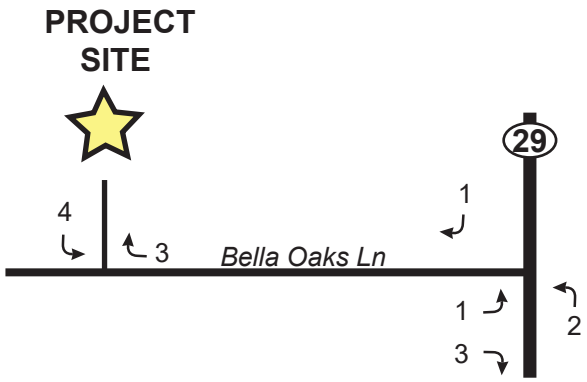
CRANE TRANSPORTATION GROUP

Figure 5

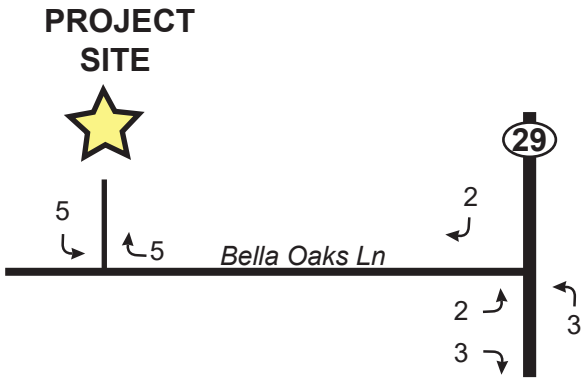
2019 (Existing), 2025 and 2030 (Cumulative) Harvest Friday and Saturday Peak Hour Volumes without Project

Not To Scale

NORTH



Harvest Friday PM Peak Hour
Project Increment

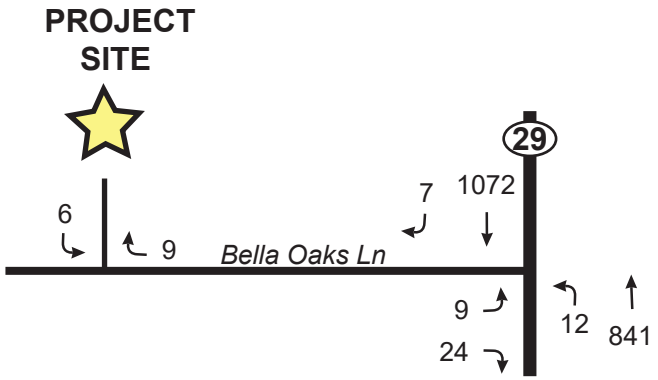


Harvest Saturday PM Peak Hour
Project Increment

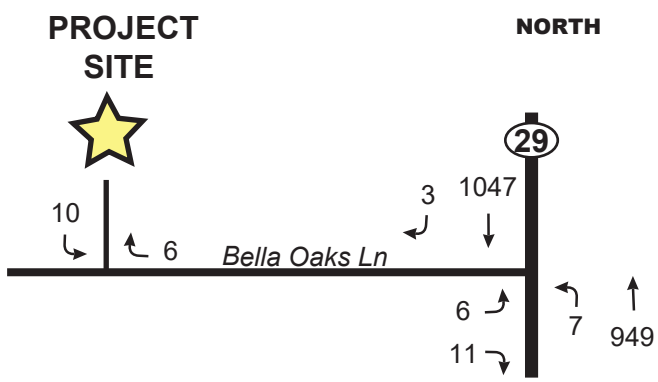
Figure 6

2019 (Existing), 2025 and 2030 (Cumulative)
Harvest Friday and Saturday PM Project Increment

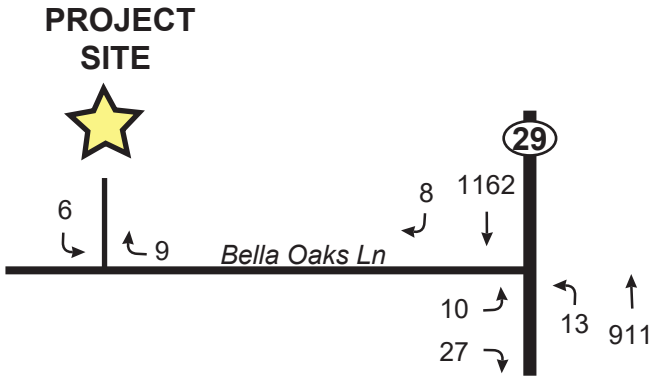
CRANE TRANSPORTATION GROUP



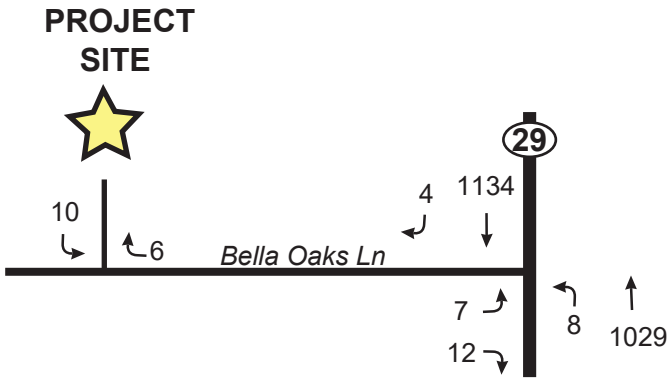
2019 (Existing) Harvest Friday with Project
(3:00-4:00 PM)



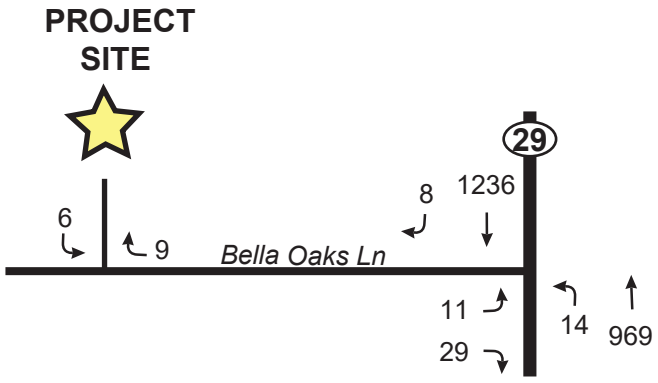
2019 (Existing) Harvest Saturday with Project
(2:30-3:30 PM)



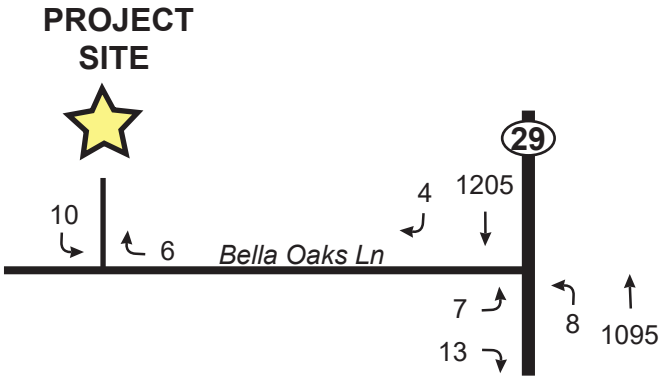
Year 2025 Harvest Friday with Project



Year 2025 Harvest Saturday with Project



2030 (Cumulative) Harvest Friday with Project



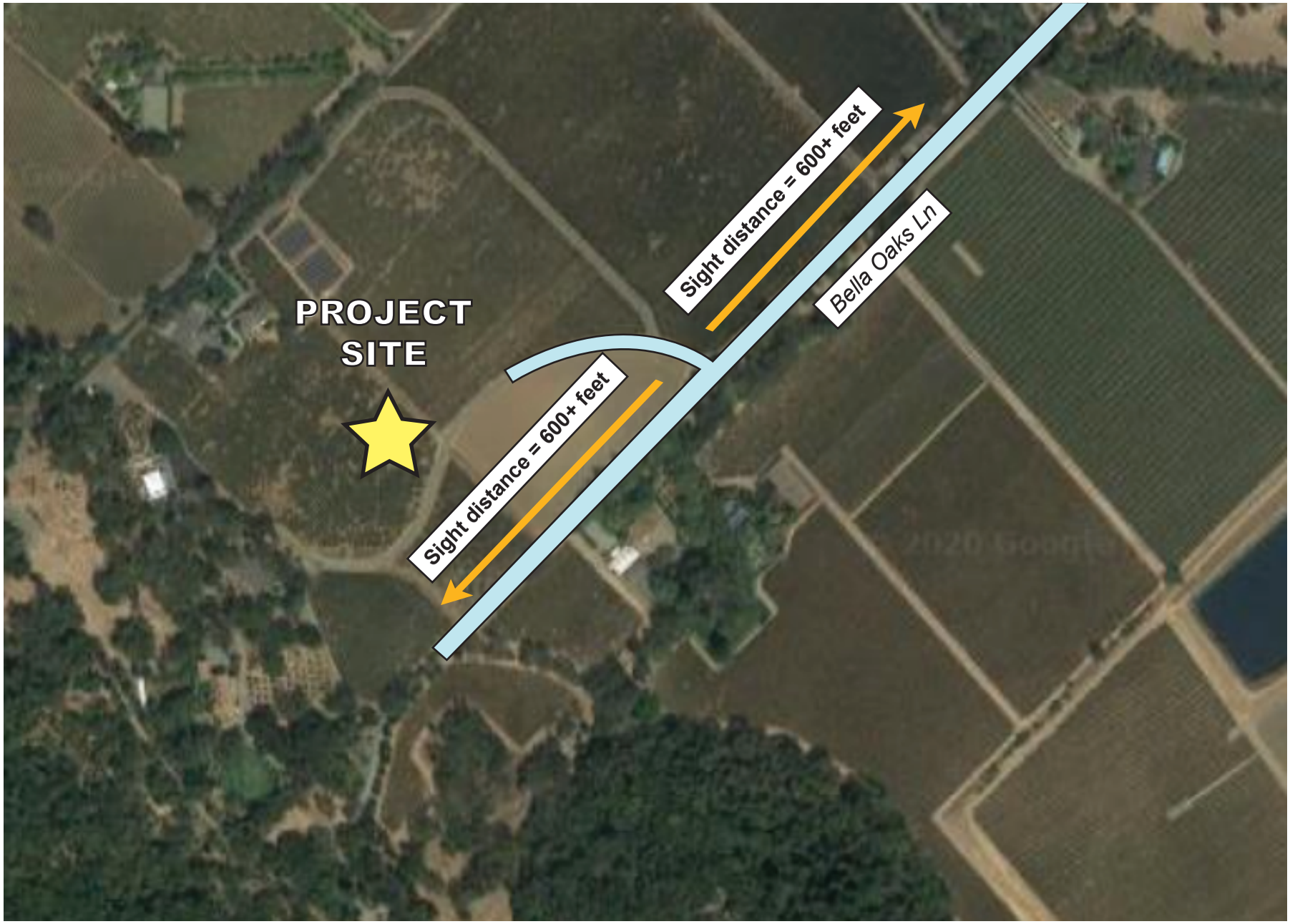
2030 (Cumulative) Harvest Saturday with Project

Staglin Family Vineyard Traffic Study

Figure 7

2019 (Existing), 2025 and 2030 (Cumulative) Harvest Friday and Saturday PM Peak Hour Volumes with Project

CRANE TRANSPORTATION GROUP



Staglin Family Vineyard Traffic Study

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Figure 8

Sight Distance from Project Driveway

Staglin Family Vineyard Traffic Study

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Figure 9
Sight Distance for Vehicles Turning from Bella Oaks Lane to SR 29

TABLES

TABLE 1

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	10.0 to 15.0
C	Average traffic delays	15.0 to 25.0
D	Long traffic delays	25.0 to 35.0
E	Very long traffic delays	35.0 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: Year 2017 6th Edition Highway Capacity Manual (Transportation Research Board)

Table 2

INTERSECTION LEVEL OF SERVICE

YEAR 2019 HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Bella Oaks Ln	C-24.4[(1)]	C-24.9	C-22.2	C-22.8
Project Driveway/Bella Oaks Ln	A-8.7 (2)	A-8.8	A-8.6	A-8.6

YEAR 2025 HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Bella Oaks Ln	D-28.2[(1)]	D-28.8	D-25.0	D-25.8
Project Driveway/Bella Oaks Ln	A-8.8 (2)	A-8.8	A-8.6	A-8.7

YEAR 2030 (CUMULATIVE) HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Bella Oaks Ln	D-32.5[(1)]	D-33.3	D-27.2	D-28.4
Project Driveway/Bella Oaks Ln	A-8.8 (2)	A-8.8	A-8.6	A-8.7

[(1)] Unsignalized level of service – control delay in seconds: Bella Oaks Ln. stop sign controlled approach to SR29-128.
(2) Unsignalized level of service – control delay in seconds: Project Driveway approach to Bella Oaks Ln.

6th Edition Highway Capacity Manual (HCM) Analysis Methodology for unsignalized intersections (2017)
Source: Crane Transportation Group

Table 3

ARTERIAL LEVEL OF SERVICE
YEAR 2019 HARVEST

LOCATION	FRIDAY PM PEAK HOUR					SATURDAY PM PEAK HOUR				
	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Volume due to Project	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Volume due to Project
	NB	SB	NB	SB		NB	SB	NB	SB	NB SB
SR29 north of Bella Oaks Ln	D-.53	E-.67	D-.53	E-.68	0.1%	E-.60	E-.66	E-.60	E-.66	0.2%
SR29 south of Bella Oaks Ln	D-.53	E .68	D-.53	E .69	0.3%	E-.60	E-.66	E-.60	E-.66	0.3%

YEAR 2025 HARVEST

LOCATION	FRIDAY PM PEAK HOUR					SATURDAY PM PEAK HOUR				
	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Volume due to Project	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Volume due to Project
	NB	SB	NB	SB		NB	SB	NB	SB	NB SB
SR29 north of Bella Oaks Ln	E-.58	E-.73	E-.58	E-.73	0.1%	E-.65	E-.71	E-.65	E-.71	0.2%
SR29 south of Bella Oaks Ln	E-.58(1)	E-.74	E-.58	E-.74	0.2%	E-.65	E-72	E-.65	E-.72	0.3%

YEAR 2030 (CUMULATIVE) HARVEST

LOCATION	FRIDAY PM PEAK HOUR					SATURDAY PM PEAK HOUR				
	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Increment of Growth 2019-30	W/O PROJECT		WITH PROJECT		% Increase in 2-Way Increment of Growth 2019-30
	NB	SB	NB	SB		NB	SB	NB	SB	
SR29 north of Bella Oaks Ln	E-.61	E-.78	E-.61	E-.78	0.7%	E-.69	E-.76	E-.69	E-.76	1.3%
SR29 south of Bella Oaks Ln	E-.61	E-.79	E-.62	E-.79	1.7%	E-.69	E-.76	E-.69	E-.76	2.0%

(1) Level of service – demand/capacity

Highway Capacity Manual, 6th Edition (2017) analysis methodology.

Compiled by: Crane Transportation Group

Table 4

RURAL SIGNAL WARRANT EVALUATION

SR29/Bella Oaks Lane

Do Volumes meet Caltrans Rural Warrant #3 Volume Criteria?

EXISTING

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
No	No	No	No

YEAR 2024

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
No	No	No	No

YEAR 2030 (CUMULATIVE)

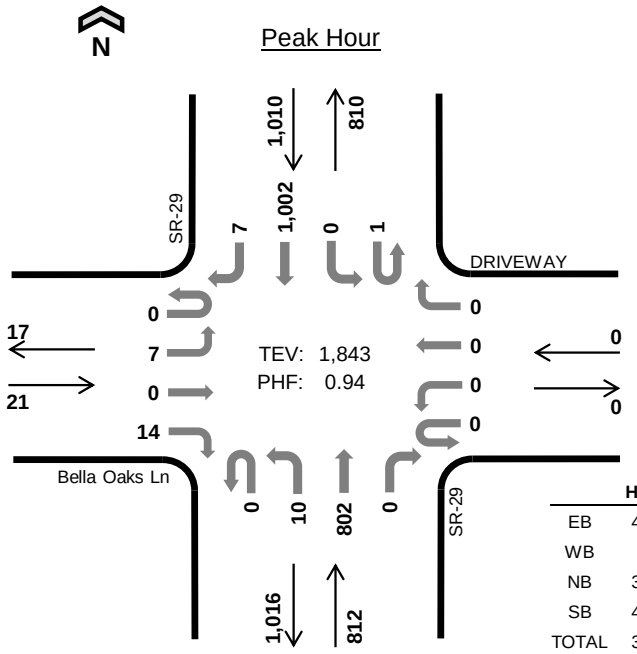
FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
No	No	No	No

Compiled by: Crane Transportation Group

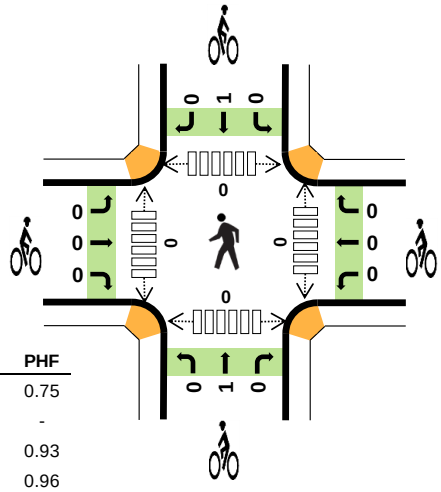
APPENDIX A

SR-29
Bella Oaks Ln

Date: 10-18-2019
Count Period: 3:00 PM to 6:00 PM
Peak Hour: 3:00 PM to 4:00 PM



	HV %:	PHF
EB	4.8%	0.75
WB	-	-
NB	3.2%	0.93
SB	4.0%	0.96
TOTAL	3.6%	0.94



Three-Hour Count Summaries

Interval Start		Bella Oaks Ln Eastbound				DRIVEWAY Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM		0	3	0	4	0	0	0	0	0	0	206	0	0	0	255	2	470	0
3:15 PM		0	2	0	4	0	0	0	0	0	2	216	0	0	0	263	1	488	0
3:30 PM		0	1	0	1	0	0	0	0	0	3	182	0	1	0	247	2	437	0
3:45 PM		0	1	0	5	0	0	0	0	0	5	198	0	0	0	237	2	448	1,843
Peak Hour	All	0	7	0	14	0	0	0	0	0	10	802	0	1	0	1,002	7	1,843	0
	HV	0	1	0	0	0	0	0	0	0	1	25	0	0	0	39	1	67	0
	HV%	-	14%	-	0%	-	-	-	-	-	10%	3%	-	0%	-	4%	14%	4%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:00 PM	0	0	5	12	*17*	0	0	1	0	*1*	0	0	0	0	*0*
3:15 PM	0	0	11	11	*22*	0	0	0	0	*0*	0	0	0	0	*0*
3:30 PM	0	0	6	7	*13*	0	0	0	0	*0*	0	0	0	0	*0*
3:45 PM	1	0	4	10	*15*	0	0	0	1	*1*	0	0	0	0	*0*
Peak Hour	1	0	26	40	*67*	0	0	1	1	*2*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Bella Oaks Ln (Eastbound)				DRIVEWAY (Westbound)				SR-29 (Northbound)				SR-29 (Southbound)				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM	**0**	**3**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**206**	**0**	**0**	**0**	**255**	**2**	**470**	0
3:15 PM	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**216**	**0**	**0**	**0**	**263**	**1**	**488**	0
3:30 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**182**	**0**	**1**	**0**	**247**	**2**	**437**	0
3:45 PM	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**5**	**198**	**0**	**0**	**0**	**237**	**2**	**448**	**1,843**
4:00 PM	0	1	0	1	0	0	0	0	0	0	190	0	0	0	248	0	440	1,813
4:15 PM	0	7	0	5	0	0	0	0	0	0	195	0	0	0	250	1	458	1,783
4:30 PM	0	3	0	5	0	0	0	0	0	0	197	0	0	0	199	2	406	1,752
4:45 PM	0	0	0	2	0	0	0	0	0	0	160	0	0	0	272	1	435	1,739
5:00 PM	0	1	0	3	0	0	0	0	0	1	138	0	0	0	190	2	335	1,634
5:15 PM	0	1	0	6	0	0	0	0	0	0	150	0	0	0	246	2	405	1,581
5:30 PM	0	4	0	6	0	0	0	0	0	2	201	0	0	0	221	0	434	1,609
5:45 PM	0	0	0	3	0	0	0	0	0	2	160	0	0	0	246	3	414	1,588
Count Total	0	24	0	45	0	0	0	0	0	15	2,193	0	1	0	2,874	18	5,170	0
Peak Hour All	**0**	**7**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**10**	**802**	**0**	**1**	**0**	**1,002**	**7**	**1,843**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**25**	**0**	**0**	**0**	**39**	**1**	**67**	**0**
Peak Hour HV%	**-**	**14%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**10%**	**3%**	**-**	**0%**	**-**	**4%**	**14%**	**4%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:00 PM	**0**	**0**	**5**	**12**	***17***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
3:15 PM	**0**	**0**	**11**	**11**	***22***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
3:30 PM	**0**	**0**	**6**	**7**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
3:45 PM	**1**	**0**	**4**	**10**	***15***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***
4:00 PM	0	0	11	6	*17*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	4	8	*12*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	2	12	*14*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	0	5	9	*15*	0	0	0	1	*1*	0	0	0	0	*0*
5:00 PM	0	0	6	3	*9*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	0	2	8	*10*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	4	5	*9*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	0	3	6	*10*	0	0	0	1	*1*	0	0	0	0	*0*
Count Total	3	0	63	97	*163*	0	0	1	3	*4*	0	0	0	0	*0*
Peak Hour	**1**	**0**	**26**	**40**	***67***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Bella Oaks Ln				DRIVEWAY				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**12**	**0**	**17**	0
3:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**10**	**1**	**22**	0
3:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**7**	**0**	**13**	0
3:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**10**	**0**	**15**	**67**
4:00 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	6	0	17	67
4:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	12	57
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	10	2	14	58
4:45 PM	0	0	0	1	0	0	0	0	0	0	5	0	0	0	8	1	15	58
5:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	50
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	8	0	10	48
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	9	43
5:45 PM	0	0	0	1	0	0	0	0	0	0	3	0	0	0	5	1	10	38
Count Total	0	1	0	2	0	0	0	0	0	1	62	0	0	0	92	5	163	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**25**	**0**	**0**	**0**	**39**	**1**	**67**	**0**

Three-Hour Count Summaries - Bikes

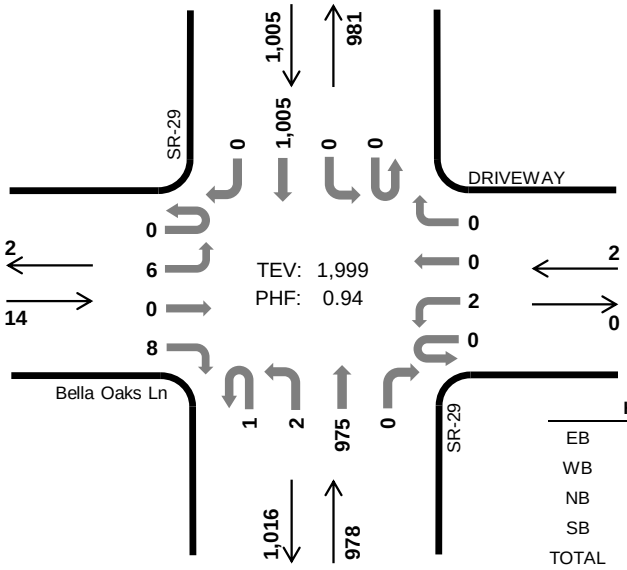
Interval Start	Bella Oaks Ln			DRIVEWAY			SR-29			SR-29			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
3:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
3:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
3:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Count Total	0	0	0	0	0	0	0	1	0	0	3	0	4	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

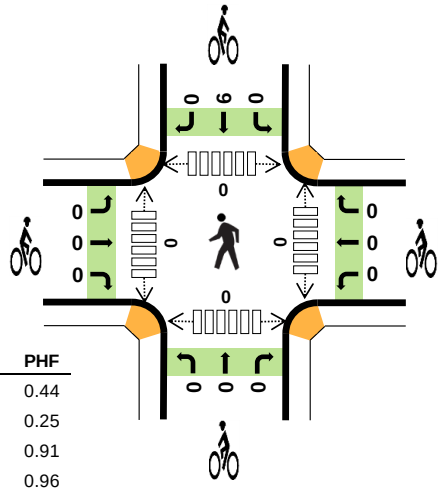
SR-29
Bella Oaks Ln

Peak Hour

Date: 10-19-2019
Count Period: 1:00 PM to 6:00 PM
Peak Hour: 2:15 PM to 3:15 PM



	HV %:	PHF
EB	0.0%	0.44
WB	0.0%	0.25
NB	1.1%	0.91
SB	1.0%	0.96
TOTAL	1.1%	0.94



Five-Hour Count Summaries

Interval Start		Bella Oaks Ln Eastbound				DRIVEWAY Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:15 PM		0	1	0	0	0	0	0	0	0	1	265	0	0	0	225	0	492	0
2:30 PM		0	0	0	1	0	2	0	0	0	1	268	0	0	0	262	0	534	0
2:45 PM		0	1	0	3	0	0	0	0	1	0	231	0	0	0	262	0	498	0
3:00 PM		0	4	0	4	0	0	0	0	0	0	211	0	0	0	256	0	475	1,999
Peak Hour	All	0	6	0	8	0	2	0	0	1	2	975	0	0	0	1,005	0	1,999	0
	HV	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	0
	HV%	-	0%	-	0%	-	0%	-	-	0%	0%	1%	-	-	-	1%	-	1%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:15 PM	0	0	1	5	*6*	0	0	0	2	*2*	0	0	0	0	*0*
2:30 PM	0	0	3	3	*6*	0	0	0	2	*2*	0	0	0	0	*0*
2:45 PM	0	0	5	0	*5*	0	0	0	2	*2*	0	0	0	0	*0*
3:00 PM	0	0	2	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	0	0	11	10	*21*	0	0	0	6	*6*	0	0	0	0	*0*

Five-Hour Count Summaries

Interval Start	Bella Oaks Ln				DRIVEWAY				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
1:00 PM	0	1	0	3	0	0	0	0	2	3	256	0	0	0	184	0	449	0
1:15 PM	0	0	0	3	0	0	0	0	0	0	244	0	0	0	192	1	440	0
1:30 PM	0	2	0	3	0	0	0	0	1	2	251	0	0	0	244	3	506	0
1:45 PM	0	1	0	4	0	1	0	0	3	2	242	0	0	0	238	3	494	1,889
2:00 PM	0	0	0	6	0	0	0	0	0	1	241	0	0	0	215	0	463	1,903
2:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**265**	**0**	**0**	**0**	**225**	**0**	**492**	1,955
2:30 PM	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**1**	**268**	**0**	**0**	**0**	**262**	**0**	**534**	1,983
2:45 PM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**231**	**0**	**0**	**0**	**262**	**0**	**498**	1,987
3:00 PM	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**211**	**0**	**0**	**0**	**256**	**0**	**475**	**1,999**
3:15 PM	0	0	0	4	0	0	0	0	0	0	222	0	0	0	239	2	467	1,974
3:30 PM	0	1	0	3	0	0	0	0	0	1	200	0	0	0	231	3	439	1,879
3:45 PM	0	0	0	3	0	0	0	0	0	2	204	0	0	0	268	1	478	1,859
4:00 PM	0	2	0	10	0	0	0	0	0	2	186	0	0	0	227	2	429	1,813
4:15 PM	0	0	0	3	0	0	0	0	0	1	190	0	0	0	245	1	440	1,786
4:30 PM	0	0	0	2	0	0	0	0	0	0	216	0	0	0	238	2	458	1,805
4:45 PM	0	1	0	1	0	0	0	0	0	3	206	0	0	0	244	0	455	1,782
5:00 PM	0	0	0	1	0	0	0	0	0	0	174	0	0	0	223	0	398	1,751
5:15 PM	0	0	0	2	0	0	0	0	0	0	123	0	0	0	231	0	356	1,667
5:30 PM	0	0	0	1	0	0	0	0	0	0	153	0	0	0	235	0	389	1,598
5:45 PM	0	0	0	0	0	0	0	0	0	0	162	0	0	0	220	0	382	1,525
Count Total	0	14	0	57	0	3	0	0	7	19	4,245	0	0	0	4,679	18	9,042	0
Peak Hour All	**0**	**6**	**0**	**8**	**0**	**2**	**0**	**0**	**1**	**2**	**975**	**0**	**0**	**0**	**1,005**	**0**	**1,999**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**10**	**0**	**21**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**-**	**0%**	**0%**	**1%**	**-**	**-**	**-**	**1%**	**-**	**1%**	**0**

Note: Five-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
1:00 PM	0	0	5	4	*9*	0	0	0	0	*0*	0	0	0	0	*0*
1:15 PM	0	0	8	2	*10*	0	0	0	0	*0*	0	0	0	0	*0*
1:30 PM	0	0	2	7	*9*	0	0	0	4	*4*	0	0	0	0	*0*
1:45 PM	0	0	3	4	*7*	0	0	0	2	*2*	0	0	0	0	*0*
2:00 PM	0	0	5	3	*8*	0	0	1	0	*1*	0	0	0	0	*0*
2:15 PM	**0**	**0**	**1**	**5**	***6***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
2:30 PM	**0**	**0**	**3**	**3**	***6***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
2:45 PM	**0**	**0**	**5**	**0**	***5***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
3:00 PM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
3:15 PM	0	0	3	2	*5*	0	0	0	1	*1*	0	0	0	0	*0*
3:30 PM	0	0	3	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
3:45 PM	0	0	3	4	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:00 PM	0	0	4	3	*7*	0	0	0	5	*5*	0	0	0	0	*0*
4:15 PM	1	0	4	3	*8*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	4	3	*7*	0	0	1	2	*3*	0	0	0	0	*0*
4:45 PM	1	0	6	6	*13*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	0	0	2	6	*8*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	1	4	*5*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	3	5	*8*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	0	67	68	*137*	0	0	2	20	*22*	0	0	0	0	*0*
Peak Hour	**0**	**0**	**11**	**10**	***21***	**0**	**0**	**0**	**6**	***6***	**0**	**0**	**0**	**0**	***0***

Five-Hour Count Summaries - Heavy Vehicles

Interval Start	Bella Oaks Ln				DRIVEWAY				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
1:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	9	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	35
2:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8	34
2:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**6**	30
2:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**6**	27
2:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**5**	25
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	**21**
3:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	20
3:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	19
3:45 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	4	0	7	21
4:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	24
4:15 PM	0	0	0	1	0	0	0	0	0	0	4	0	0	0	3	0	8	27
4:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	29
4:45 PM	0	0	0	1	0	0	0	0	0	1	5	0	0	0	6	0	13	35
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	8	36
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5	26
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	8	21
Count Total	0	0	0	2	0	0	0	0	0	2	65	0	0	0	68	0	137	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**10**	**0**	**21**	**0**

Five-Hour Count Summaries - Bikes

Interval Start	Bella Oaks Ln			DRIVEWAY			SR-29			SR-29			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	4	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	6
2:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	7
2:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	9
2:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	7
2:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	7
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
3:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	5	6
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	8
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	2	0	0	20	0	22	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Location: Staglin Winery Dwy, N/O Bella Oaks Ln
Date Range: 10/18/2019 - 10/24/2019
Site Code: 01

	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday			Mid-Week Average		
	10/18/2019			10/19/2019			10/20/2019			10/21/2019			10/22/2019			10/23/2019			10/24/2019					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 AM	0	0	0	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 AM	0	0	0	**4**	2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 AM	2	0	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	**12**	2	**14**	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	7	2	9	3	**5**	**8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	5	5	10	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	5	3	8	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	2	4	6	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	2	**9**	11	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	**4**	10	14	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	1	1	2	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	2	9	11	**1**	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	1	6	7	0	**16**	**16**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	3	17	**20**	0	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	1	**19**	**20**	0	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	1	4	5	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	0	0	0	0	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	1	9	10	**1**	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	0	1	1	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	49	101	150	12	59	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	33%	67%	-	17%	83%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	06:00	11:00	06:00	04:00	07:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	12	9	14	4	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	12:00	17:00	16:00	14:00	15:00	15:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	4	19	20	1	16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Intersection: SR-29 / Bella Oaks Ln
Date: Sat, Nov 23, 2019
Count Period: 12:00 PM to 12:00 AM

Twelve-Hour Count Summaries

Interval Start	Bella Oaks Ln				n/a				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	0	1	0	1	0	0	0	0	0	0	254	0	0	1	137	0	394	0
12:15 PM	0	0	0	0	0	1	0	0	0	3	201	0	0	0	153	1	359	0
12:30 PM	0	3	0	1	0	0	0	0	0	0	259	0	0	0	152	0	415	0
12:45 PM	0	0	0	2	0	0	0	0	0	1	259	0	0	0	171	2	435	1,603
1:00 PM	0	1	0	0	0	0	0	1	0	0	242	0	0	0	160	2	406	1,615
1:15 PM	0	2	0	1	0	0	0	0	0	0	236	0	0	0	185	2	426	1,682
1:30 PM	0	0	0	3	0	0	0	0	0	0	232	0	0	0	178	1	414	1,681
1:45 PM	0	0	0	1	0	0	0	0	0	0	253	0	0	0	181	0	435	1,681
2:00 PM	0	0	0	2	0	0	0	0	0	3	222	0	0	0	163	0	390	1,665
2:15 PM	0	0	0	3	0	0	0	0	0	2	208	0	0	0	167	0	380	1,619
2:30 PM	0	0	0	0	0	0	0	0	0	0	214	0	0	0	220	0	434	1,639
2:45 PM	0	0	0	2	0	0	0	0	0	3	225	0	0	0	233	0	463	1,667
3:00 PM	0	1	0	0	0	0	0	0	0	0	217	0	0	0	218	0	436	1,713
3:15 PM	0	1	0	1	0	0	0	0	0	0	168	0	0	0	248	1	419	1,752
3:30 PM	0	0	0	4	0	0	0	0	0	0	191	0	0	0	247	0	442	1,760
3:45 PM	0	0	0	2	0	0	0	0	0	1	182	0	0	0	252	1	438	1,735
4:00 PM	0	1	0	6	0	0	0	0	0	2	159	0	0	0	272	1	441	1,740
4:15 PM	0	0	0	1	0	0	0	0	0	1	144	0	0	0	247	0	393	1,714
4:30 PM	0	0	0	0	0	0	0	0	0	0	181	0	0	0	259	0	440	1,712
4:45 PM	0	0	0	0	0	0	0	0	0	0	157	0	0	0	268	1	426	1,700
5:00 PM	0	0	0	0	0	0	0	0	0	0	120	0	0	0	203	0	323	1,582
5:15 PM	0	0	0	0	0	0	0	0	0	0	138	0	0	0	219	0	357	1,546
5:30 PM	0	0	0	1	0	0	0	0	0	0	125	0	0	0	226	0	352	1,458
5:45 PM	0	1	0	1	0	0	0	0	0	0	149	0	0	0	229	0	380	1,412

Intersection: SR-29 / Bella Oaks Ln
Date: Fri, Nov 22, 2019
Count Period: 12:00 PM to 12:00 AM

Twelve-Hour Count Summaries

Interval Start	Bella Oaks Ln				n/a				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	0	1	0	2	0	0	0	0	0	0	197	0	0	0	165	2	367	0
12:15 PM	0	3	0	2	0	0	0	0	0	2	227	0	0	0	158	1	393	0
12:30 PM	0	3	0	3	0	0	0	0	0	5	201	0	0	0	174	3	389	0
12:45 PM	0	1	0	2	0	0	0	0	0	4	178	0	0	0	173	1	359	1,508
1:00 PM	0	2	0	0	0	0	0	0	0	2	158	0	0	0	208	0	370	1,511
1:15 PM	0	1	0	3	0	0	0	0	0	0	197	0	0	0	186	3	390	1,508
1:30 PM	0	3	0	2	0	0	0	0	0	0	186	0	0	0	200	2	393	1,512
1:45 PM	0	1	0	1	0	0	0	0	0	2	173	0	0	0	235	2	414	1,567
2:00 PM	0	0	0	3	0	0	0	0	0	2	177	0	0	0	231	1	414	1,611
2:15 PM	0	1	0	0	0	0	0	1	0	1	168	0	0	1	195	2	369	1,590
2:30 PM	0	0	0	1	0	1	0	0	0	2	207	0	0	0	234	0	445	1,642
2:45 PM	0	0	0	3	0	0	0	0	0	4	172	0	0	0	228	2	409	1,637
3:00 PM	0	2	0	2	0	0	0	0	0	3	216	0	0	0	256	0	479	1,702
3:15 PM	0	3	0	11	0	0	0	0	0	1	180	0	0	0	220	0	415	1,748
3:30 PM	0	2	0	8	0	0	0	0	0	1	197	0	0	0	289	1	498	1,801
3:45 PM	0	0	0	2	0	0	0	0	0	0	154	0	1	0	227	1	385	1,777
4:00 PM	0	0	0	4	0	0	0	0	0	0	141	0	0	0	229	0	374	1,672
4:15 PM	0	0	0	0	0	0	0	0	0	1	157	0	0	0	205	0	363	1,620
4:30 PM	0	1	0	2	0	0	0	0	0	1	160	0	0	0	250	0	414	1,536
4:45 PM	0	2	0	5	0	0	0	0	0	2	138	0	0	0	212	0	359	1,510
5:00 PM	0	2	0	1	0	0	0	0	0	0	153	0	0	0	194	0	350	1,486
5:15 PM	0	2	0	0	0	0	0	0	0	1	167	0	0	0	227	0	397	1,520
5:30 PM	0	2	0	3	0	0	0	0	0	2	135	0	0	0	251	0	393	1,499
5:45 PM	0	0	0	3	0	0	0	0	0	1	160	0	0	0	265	1	430	1,570

Location: Staglin Winery Dwy N/O Bella Oaks Ln
Date Range: 11/15/2019 - 11/21/2019
Site Code: 01

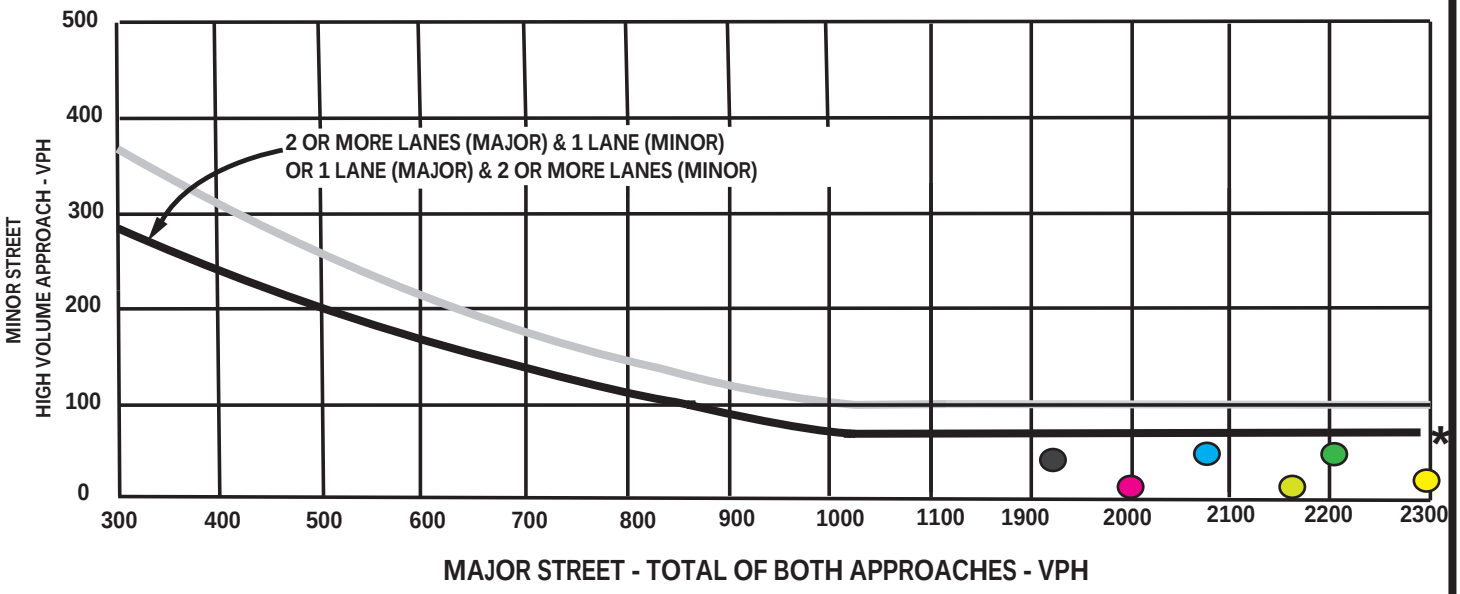
	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday			Mid-Week Average		
	11/15/2019			11/16/2019			11/17/2019			11/18/2019			11/19/2019			11/20/2019			11/21/2019					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 AM	0	1	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	**4**	**7**	**11**	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	1	3	4	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	2	1	3	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	1	4	5	0	**3**	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	2	**7**	9	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	0	3	3	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	2	5	7	**3**	2	**5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	**5**	8	**13**	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	2	5	7	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	1	3	4	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	0	**9**	9	0	**4**	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	0	5	5	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	1	1	2	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	0	1	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	22	63	85	8	19	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	26%	74%	-	30%	70%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	07:00	07:00	07:00	-	10:00	10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	4	7	11	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	14:00	17:00	14:00	13:00	17:00	13:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	5	9	13	3	4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

APPENDIX B

PEAK HOUR VOLUME WARRANT #3
(Rural Area)
Bella Oaks Lane/SR29



= Existing (2019) Friday with Project
= Existing (2019) Saturday with Project
= 2025 Friday with Project
= 2025 Saturday with Project
= 2030 Friday with Project
= 2030 Saturday with Project

*** 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: Year 2014 Manual on Uniform Traffic Control Devices, Federal Highway Administration

Staglin Family Vineyard Traffic Study

APPENDIX C

Note that the Arterial Worksheets (Two-Lane Highway Report) included in this appendix are labeled Bella Oaks Winery, but they address the Staglin Family Vineyard project on Bella Oaks Lane.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	10	6	2	0
Future Vol, veh/h	0	27	10	6	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	34	13	7	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	51	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1609	-	-	-	963	1068
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	994	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1609	-	-	-	963	1068
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	994	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1609	-	-	-	963
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	21	10	841	1072	6
Future Vol, veh/h	8	21	10	841	1072	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	9	22	11	895	1140	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2060	1143	1146	0	-	0
Stage 1	1143	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	58	237	606	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	57	237	606	-	-	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	380	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	606	-	216	-	-
HCM Lane V/C Ratio	0.018	-	0.143	-	-
HCM Control Delay (s)	11	-	24.4	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	4	1	5	0
Future Vol, veh/h	0	9	4	1	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	11	5	1	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	6	0	-	0	17	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1628	-	-	-	1006	1083
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1017	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1628	-	-	-	1006	1083
Mov Cap-2 Maneuver	-	-	-	-	1006	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1628	-	-	-	1006
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	4	949	1047	1
Future Vol, veh/h	4	8	4	949	1047	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	4	9	4	1010	1114	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2133	1115	1115	0	-	0
Stage 1	1115	-	-	-	-	-
Stage 2	1018	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	55	255	634	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	55	255	634	-	-	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	634	-	222	-	-
HCM Lane V/C Ratio	0.007	-	0.058	-	-
HCM Control Delay (s)	10.7	-	22.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	31	12	6	2	0
Future Vol, veh/h	0	31	12	6	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	39	15	7	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	22	0	-	0	58	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1607	-	-	-	954	1065
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1607	-	-	-	954	1065
Mov Cap-2 Maneuver	-	-	-	-	954	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	989	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1607	-	-	-	954
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	24	11	911	1162	7
Future Vol, veh/h	9	24	11	911	1162	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	10	26	12	969	1236	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2233	1240	1243	0	-	0
Stage 1	1240	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	45	208	557	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	44	208	557	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	259	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.2	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	557	-	190	-	-
HCM Lane V/C Ratio	0.021	-	0.185	-	-
HCM Control Delay (s)	11.6	-	28.2	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	6	1	5	0
Future Vol, veh/h	0	9	6	1	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	11	8	1	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	9	0	-	0	20	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1624	-	-	-	1002	1079
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1017	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1624	-	-	-	1002	1079
Mov Cap-2 Maneuver	-	-	-	-	1002	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1624	-	-	-	1002
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	9	5	1029	1134	2
Future Vol, veh/h	5	9	5	1029	1134	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	5	10	5	1095	1206	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2312	1207	1208	0	-	0
Stage 1	1207	-	-	-	-	-
Stage 2	1105	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	42	226	585	-	-	-
Stage 1	286	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	42	226	585	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	283	-	-	-	-	-
Stage 2	320	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	585	-	195	-	-
HCM Lane V/C Ratio	0.009	-	0.076	-	-
HCM Control Delay (s)	11.2	-	25	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	34	13	6	2	0
Future Vol, veh/h	0	34	13	6	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	43	16	7	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	23	0	-	0	63	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1605	-	-	-	948	1064
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1605	-	-	-	948	1064
Mov Cap-2 Maneuver	-	-	-	-	948	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1605	-	-	-	948
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	29	12	969	1236	9
Future Vol, veh/h	10	29	12	969	1236	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	11	31	13	1031	1315	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2377	1320	1325	0	-	0
Stage 1	1320	-	-	-	-	-
Stage 2	1057	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	36	186	518	-	-	-
Stage 1	242	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	35	186	518	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	236	-	-	-	-	-
Stage 2	326	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	518	-	172	-	-
HCM Lane V/C Ratio	0.025	-	0.241	-	-
HCM Control Delay (s)	12.1	-	32.5	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	6	1	5	0
Future Vol, veh/h	0	10	6	1	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	13	8	1	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	9	0	-	0	22	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	13	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1624	-	-	-	1000	1079
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1624	-	-	-	1000	1079
Mov Cap-2 Maneuver	-	-	-	-	1000	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1624	-	-	-	1000
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	5	1095	1205	2
Future Vol, veh/h	5	10	5	1095	1205	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	5	11	5	1165	1282	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2458	1283	1284	0	-	0
Stage 1	1283	-	-	-	-	-
Stage 2	1175	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	34	204	547	-	-	-
Stage 1	263	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	204	547	-	-	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	261	-	-	-	-	-
Stage 2	296	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.2	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	547	-	178	-	-
HCM Lane V/C Ratio	0.01	-	0.09	-	-
HCM Control Delay (s)	11.6	-	27.2	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	10	9	6	0
Future Vol, veh/h	0	27	10	9	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	34	13	10	8	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	23	0	-	0	52	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1605	-	-	-	962	1066
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	994	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1605	-	-	-	962	1066
Mov Cap-2 Maneuver	-	-	-	-	962	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	994	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1605	-	-	-	962
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	24	12	841	1072	7
Future Vol, veh/h	9	24	12	841	1072	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	10	26	13	895	1140	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2065	1144	1147	0	-	0
Stage 1	1144	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	58	236	605	-	-	-
Stage 1	295	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	57	236	605	-	-	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	289	-	-	-	-	-
Stage 2	378	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	605	-	216	-	-
HCM Lane V/C Ratio	0.021	-	0.163	-	-
HCM Control Delay (s)	11.1	-	24.9	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	7	6	6	10	0
Future Vol, veh/h	0	7	6	6	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	9	8	7	13	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	21	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1616	-	-	-	1001	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1616	-	-	-	1001	1074
Mov Cap-2 Maneuver	-	-	-	-	1001	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1019	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1616	-	-	-	1001
HCM Lane V/C Ratio	-	-	-	-	0.012
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	11	7	949	1047	3
Future Vol, veh/h	6	11	7	949	1047	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	6	12	7	1010	1114	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2140	1116	1117	0	-	0
Stage 1	1116	-	-	-	-	-
Stage 2	1024	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	54	255	633	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	53	255	633	-	-	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	633	-	220	-	-
HCM Lane V/C Ratio	0.012	-	0.082	-	-
HCM Control Delay (s)	10.8	-	22.8	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	31	12	9	6	0
Future Vol, veh/h	0	31	12	9	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	39	15	10	8	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	25	0	-	0	59	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1603	-	-	-	953	1064
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	953	1064
Mov Cap-2 Maneuver	-	-	-	-	953	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	989	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	953
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	27	13	911	1162	8
Future Vol, veh/h	10	27	13	911	1162	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	11	29	14	969	1236	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2238	1241	1245	0	-	0
Stage 1	1241	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	45	207	556	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	44	207	556	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	348	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.8	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	556	-	190	-	-
HCM Lane V/C Ratio	0.025	-	0.207	-	-
HCM Control Delay (s)	11.6	-	28.8	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	6	6	10	0
Future Vol, veh/h	0	9	6	6	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	11	8	7	13	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	23	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1616	-	-	-	998	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1017	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1616	-	-	-	998	1074
Mov Cap-2 Maneuver	-	-	-	-	998	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1616	-	-	-	998
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	12	8	1029	1134	4
Future Vol, veh/h	7	12	8	1029	1134	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	7	13	9	1095	1206	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2321	1208	1210	0	-	0
Stage 1	1208	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	42	225	584	-	-	-
Stage 1	286	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	41	225	584	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	317	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.8	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	584	-	193	-	-
HCM Lane V/C Ratio	0.015	-	0.105	-	-
HCM Control Delay (s)	11.3	-	25.8	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	34	13	9	6	0
Future Vol, veh/h	0	34	13	9	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	43	16	10	8	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	26	0	-	0	64	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1601	-	-	-	947	1062
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1601	-	-	-	947	1062
Mov Cap-2 Maneuver	-	-	-	-	947	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1601	-	-	-	947
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	32	14	969	1236	10
Future Vol, veh/h	11	32	14	969	1236	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	3	3	3	3
Mvmt Flow	12	34	15	1031	1315	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2382	1321	1326	0	-	0
Stage 1	1321	-	-	-	-	-
Stage 2	1061	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.13	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.227	-	-	-
Pot Cap-1 Maneuver	36	186	518	-	-	-
Stage 1	242	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	35	186	518	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	235	-	-	-	-	-
Stage 2	324	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.3	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	518	-	172	-	-
HCM Lane V/C Ratio	0.029	-	0.266	-	-
HCM Control Delay (s)	12.2	-	33.3	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	6	6	10	0
Future Vol, veh/h	0	10	6	6	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	80	92	80	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	13	8	7	13	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	25	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	13	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1616	-	-	-	996	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1616	-	-	-	996	1074
Mov Cap-2 Maneuver	-	-	-	-	996	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1616	-	-	-	996
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	13	8	1095	1205	4
Future Vol, veh/h	7	13	8	1095	1205	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	7	14	9	1165	1282	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2467	1284	1286	0	-	0
Stage 1	1284	-	-	-	-	-
Stage 2	1183	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	34	203	546	-	-	-
Stage 1	262	-	-	-	-	-
Stage 2	294	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	33	203	546	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	294	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.4	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	546	-	175	-	-
HCM Lane V/C Ratio	0.016	-	0.122	-	-
HCM Control Delay (s)	11.7	-	28.4	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2019 without Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	905	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	12.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.2

Vehicle Results

Average Speed, mi/h	51.2	Percent Followers, %	71.2
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	12.6
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	905	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.36	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2019 without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1163	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.68

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	17.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.8

Vehicle Results

Average Speed, mi/h	50.8	Percent Followers, %	77.7
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	17.8
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1163	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	Existing w-o Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1014	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	74.2
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.7
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1014	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.96	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	Existing without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1122	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.66

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	16.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.9

Vehicle Results

Average Speed, mi/h	50.9	Percent Followers, %	76.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	16.9
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1122	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.01	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 without Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	981	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.3
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.1
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	981	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.40	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1262	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.74

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	19.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.7

Vehicle Results

Average Speed, mi/h	50.7	Percent Followers, %	79.7
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	19.8
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1262	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	4.62
Bicycle LOS	D		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 without Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1100	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.65

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	16.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	76.3
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	16.5
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1100	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.00	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1216	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.72

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	18.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.8

Vehicle Results

Average Speed, mi/h	50.8	Percent Followers, %	78.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	18.9
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1216	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.05	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 w-o Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1044	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.61

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	15.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	74.9
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	15.3
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1044	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.43	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1343	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.79

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	21.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.6

Vehicle Results

Average Speed, mi/h	50.6	Percent Followers, %	81.2
Segment Travel Time, minutes	1.19	Followers Density, followers/mi/ln	21.6
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1343	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.56	Bicycle Effective Speed Factor	4.62
Bicycle LOS	D		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 without Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1293	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.76

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	20.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.7

Vehicle Results

Average Speed, mi/h	50.7	Percent Followers, %	80.3
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	20.5
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 without Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.69

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	17.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.9

Vehicle Results

Average Speed, mi/h	50.9	Percent Followers, %	77.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	17.9
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2019 with Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	907	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	12.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.2

Vehicle Results

Average Speed, mi/h	51.2	Percent Followers, %	71.3
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	12.6
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	907	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.36	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2019 with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1166	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.69

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	17.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.8

Vehicle Results

Average Speed, mi/h	50.8	Percent Followers, %	77.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	17.8
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1166	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-2021
Agency	CTG	Analysis Year	Existing with Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery SR29 north of BOL	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1016	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	74.2
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.8
Vehicle LOS	D		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-21
Agency	CTG	Analysis Year	Existing with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1126	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.66

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	17.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.9

Vehicle Results

Average Speed, mi/h	50.9	Percent Followers, %	76.9
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	17.0
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 with Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	983	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.4
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.1
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	983	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.40	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2025 with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1265	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.74

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	19.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.7

Vehicle Results

Average Speed, mi/h	50.7	Percent Followers, %	79.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	19.9
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1265	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	4.62
Bicycle LOS	D		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-21
Agency	CTG	Analysis Year	2025 without Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1102	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.65

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	16.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	76.3
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	16.5
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-21
Agency	CTG	Analysis Year	2025 with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1217	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.72

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	18.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.8

Vehicle Results

Average Speed, mi/h	50.8	Percent Followers, %	78.8
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	18.9
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 with Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1046	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.62

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	15.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	75.0
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	15.4
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1046	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.43	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1/16/2020
Agency	CTG	Analysis Year	2030 with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Friday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1346	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.79

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50866	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34037	PF Power Coefficient	0.74580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	21.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.6

Vehicle Results

Average Speed, mi/h	50.6	Percent Followers, %	81.2
Segment Travel Time, minutes	1.19	Followers Density, followers/mi/ln	21.6
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	1346	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.56	Bicycle Effective Speed Factor	4.62
Bicycle LOS	D		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-21
Agency	CTG	Analysis Year	2030 with Project NB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1173	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.69

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	18.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.8

Vehicle Results

Average Speed, mi/h	50.8	Percent Followers, %	77.9
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	18.0
Vehicle LOS	E		

HCS7 Two-Lane Highway Report

Project Information

Analyst	DRR	Date	1-6-21
Agency	CTG	Analysis Year	2030 with Project SB
Jurisdiction	Napa Co	Time Period Analyzed	Saturday PM Peak Hour
Project Description	Bella Oaks Winery	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1296	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	1.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.76

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.5
Speed Slope Coefficient	3.51227	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34015	PF Power Coefficient	0.74570
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	20.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	50.7

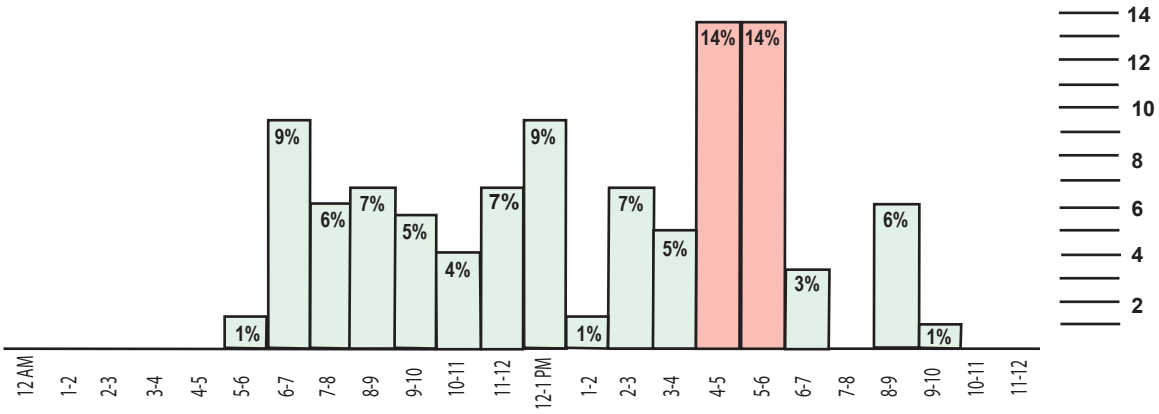
Vehicle Results

Average Speed, mi/h	50.7	Percent Followers, %	80.3
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	20.5
Vehicle LOS	E		

APPENDIX D

STAGLIN FAMILY VINEYARD DRIVEWAY
Friday Hourly Percent of Total Trips

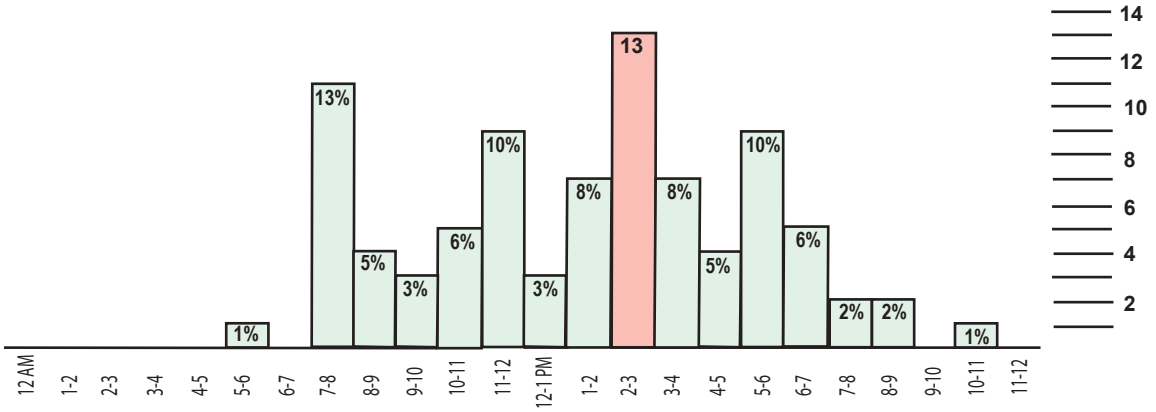
Friday, October 18, 2019



Friday, October 18, 2019
Total In/Out - 148 Vehicles

STAGLIN FAMILY VINEYARD DRIVEWAY
Friday Hourly Percent of Total Trips

Friday, November 15, 2019

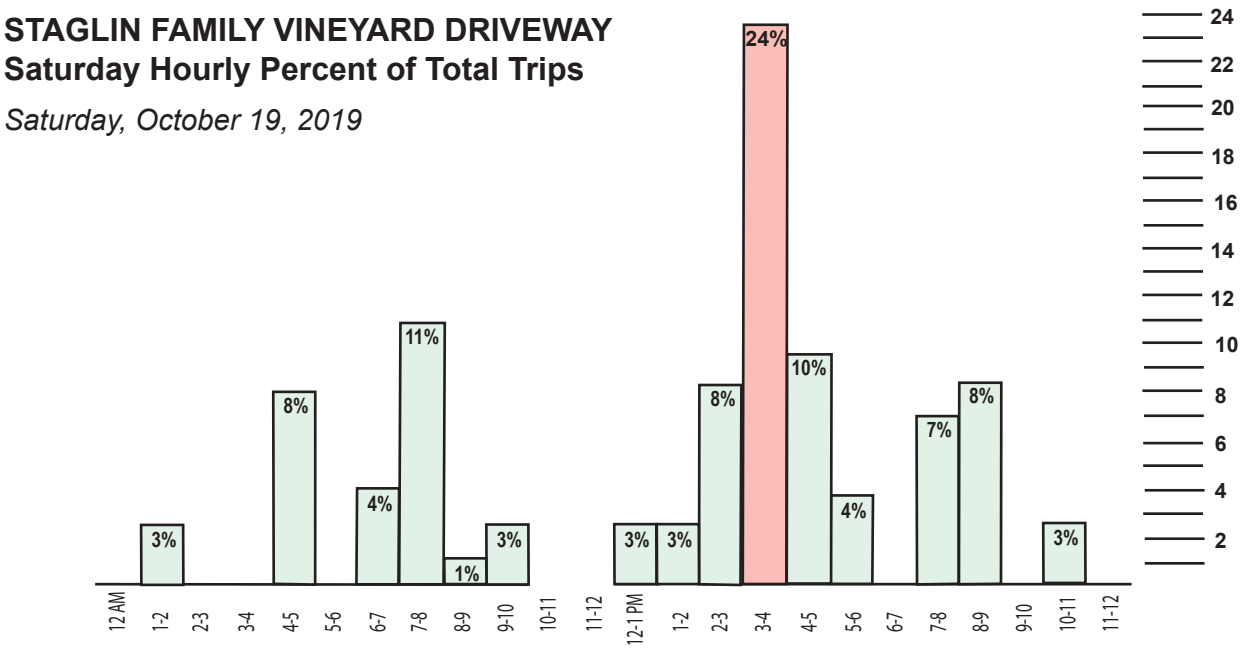


Friday, November 15, 2019
Total In/Out - 86 Vehicles

Staglin Family Vineyard Traffic Study

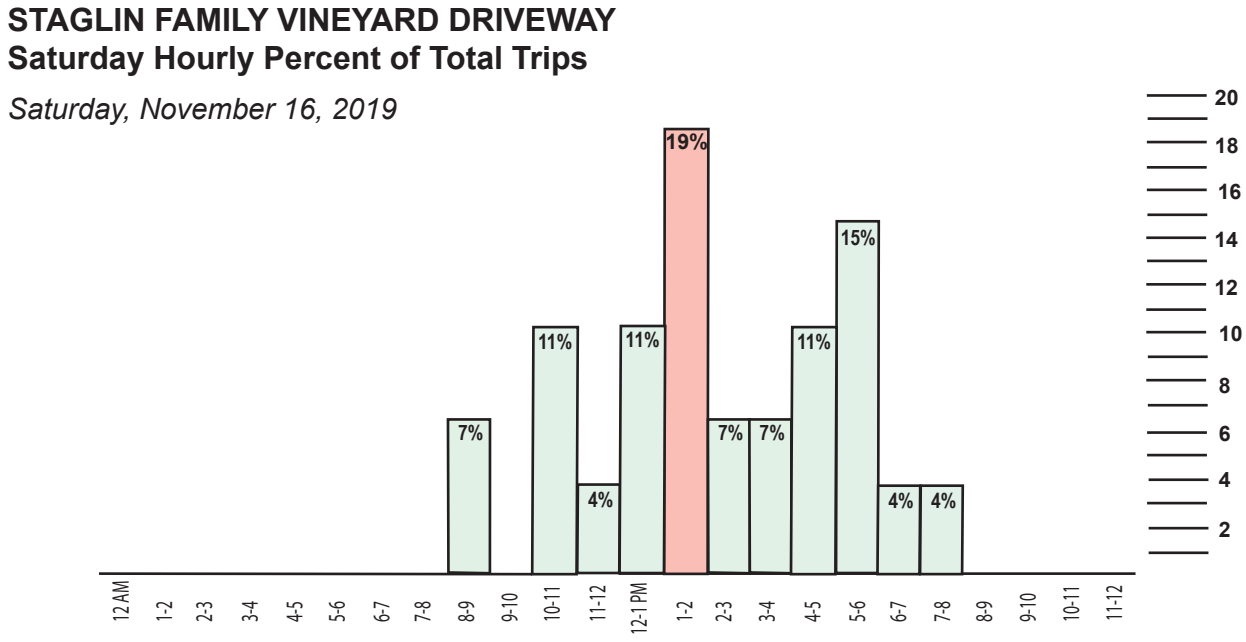
Figure A-1

Friday Traffic Percentages
Staglin Family Vineyard (by Hour) - October 18 and November 15, 2019



Saturday, October 19, 2019

Total In/Out - 71 Vehicles



Saturday, November 16, 2019

Total In/Out - 27 Vehicles

Staglin Family Vineyard Traffic Study

Figure A-2

Saturday Traffic Percentages
Staglin Family Vineyard (by Hour) - October 19 and November 16, 2019

APPENDIX E

Existing Conditions Winery Traffic Information / Trip Generation

Determine Winery Daily Trips. Complete Sections A through I below to determine your winery project's estimated baseline daily, peak hour trips, and annual trips.

Section A. Maximum Daily Weekday Traffic (Friday, non-harvest season)

1.	Total number of FT employees[1]: 8 x 3.05 one-way trips per employee	= 24.4	daily trips
2.	Total number of PT employees[1]: 0 x 1.90 one-way trips per employee	= 0	daily trips
3.	Maximum weekday visitors[2]: 10 /2.6 visitors per vehicle x 2 one-way trips	= 7.7	daily trips
4.	Gallons of production: 36,000 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 0.6	daily trips
5.	**TOTAL**	**= 32.7 (33)**	**daily trips**

Section B. Maximum Daily Weekday Traffic (Friday, harvest season)

6.	Total number of FT employees[1]: 8 x 3.05 one-way trips per employee	= 24.4	daily trips
7.	Total number of PT employees[1]: 0 x 1.90 one-way trips per employee	= 0	daily trips
8.	Maximum weekday visitors[2]: 10 /2.6 visitors per vehicle x 2 one-way trips	= 7.7	daily trips
9.	Gallons of production: 36,000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 0.6	daily trips
10.	Avg. annual tons of grape on-haul: 69 / 144 truck trips x 2 one-way trips	= 1.0	daily trips
11.	**TOTAL**	**= 33.7 (34)**	**daily trips**

Section C. Maximum Daily Weekend Traffic (Saturday, non-harvest season)

12.	Total number of FT Sat. employees[1]: 5 x 3.05 one-way trips per employee	= 15.3	daily trips
13.	Total number of PT Sat. employees[1]: 0 x 1.90 one-way trips per employee	= 0	daily trips
14.	Maximum Saturday visitors[2]: 0 /2.8 visitors per vehicle x 2 one-way trips	= 0	daily trips
15.	Gallons of production: 69 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 0.6	daily trips
16.	**TOTAL**	**= 16.9 (17)**	**daily trips**

Section D. Maximum Daily Weekend Traffic (Saturday, harvest season)

17.	Total number of FT Sat. employees[1]: 5 x 3.05 one-way trips per employee	= 15.3	daily trips
18.	Total number of PT Sat. employees[1]: 0 x 1.90 one-way trips per employee	= 0	daily trips
19.	Maximum Saturday visitors[2]: 0 /2.8 visitors per vehicle x 2 one-way trips	= 0	daily trips
20.	Gallons of production: 36,000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 0.6	daily trips
21.	Avg. annual tons of grape on-haul: 69 / 144 truck trips x 2 one-way trips	= 1	daily trips
22.	**TOTAL**	**= 16.9 (17)**	**daily trips**

[1] Full-Time and part-time employees that staff the largest of any event that is proposed to occur two or more times in a month, on average.

[2] The number of weekday visitors shall include guests of the largest of any event that is proposed to occur two or more times in a month, on average.

[3] Assumes 1.47 materials and supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year

Existing Conditions Winery Traffic Information / Trip Generation (continued)

Section E. PM Peak Hour Trip Generation (Friday, non-harvest season)
(Sum of daily trips from Sec. A, lines 3 and 4) x 0.38 + (No. of FTE) + (line 2 / 2) = 12 PM peak trips

Section F. PM Peak Hour Trip Generation (Friday, harvest season)
(Sum of daily trips, Sec. B, lines 8, 9, 10) x 0.38 + (No. of FTE) + (line 7 / 2) = 12 PM peak trips

Section G. PM Peak Hour Trip Generation (Saturday, non-harvest season)
(Sum of daily trips from Sec. C, line 14 and 15) x 0.57 + (No. of FTE) + (line 13 / 2) = 1 PM peak trips

Section H. PM Peak Hour Trip Generation (Saturday, harvest season)
(Sum of daily trips Sec. D, lines 19, 20, and 21) x 0.57 + (No. of FTE) + (line 18 / 2) = 6 PM peak trips

Section I. Maximum Annual Trips
(Sec. A, line 5 x 206) + (Sec. B, line 11 x 55) + (Sec. C, line 16 x 82) + (Sec. D, line 22 x 22) = 9124 Annual trips

Proposed Project Winery Traffic Information / Trip Generation

Determine Winery Daily Trips. Complete Sections J through R below to determine your winery project's estimated future daily, peak hour trips, and annual trips.

Section J. Maximum Daily Weekday Traffic (Friday, non-harvest season)

1.	Total number of FT employees[1]: 11 x 3.05 one-way trips per employee	= 33.6	daily trips
2.	Total number of PT employees[1]: 5 x 1.90 one-way trips per employee	= 9.5	daily trips
3.	Maximum weekday visitors[2]: 44 /2.6 visitors per vehicle x 2 one-way trips	= 33.8	daily trips
4.	Gallons of production: 36000 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 0.6	daily trips
5.	**TOTAL**	= 77.5 (78)	**daily trips**

Section K. Maximum Daily Weekday Traffic (Friday, harvest season)

6.	Total number of FT employees[1]: 11 x 3.05 one-way trips per employee	= 33.6	daily trips
7.	Total number of PT employees[1]: 5 x 1.90 one-way trips per employee	= 9.5	daily trips
8.	Maximum weekday visitors[2]: 44 /2.6 visitors per vehicle x 2 one-way trips	= 33.8	daily trips
9.	Gallons of production: 36000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 0.6	daily trips
10.	Avg. annual tons of grape on-haul: 69 / 144 truck trips x 2 one-way trips	= 1.0	daily trips
11.	**TOTAL**	= 78.5 (79)	**daily trips**

Section L. Maximum Daily Weekend Traffic (Saturday, non-harvest season)

12.	Total number of FT Sat. employees[1]: 3 x 3.05 one-way trips per employee	= 9.15	daily trips
13.	Total number of PT Sat. employees[1]: 0 x 1.90 one-way trips per employee	= 0	daily trips
14.	Maximum Saturday visitors[2]: 44 /2.8 visitors per vehicle x 2 one-way trips	= 31.4	daily trips
15.	Gallons of production: 36000 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 0.6	daily trips
16.	**TOTAL**	= 41	**daily trips**

Section M. Maximum Daily Weekend Traffic (Saturday, harvest season)

17.	Total number of FT Sat. employees[1]: 6 x 3.05 one-way trips per employee	= 18.3	daily trips
18.	Total number of PT Sat. employees[1]: 3 x 1.90 one-way trips per employee	= 5.7	daily trips
19.	Maximum Saturday visitors[2]: 44 /2.8 visitors per vehicle x 2 one-way trips	= 31.4	daily trips
20.	Gallons of production: 36000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 0.6	daily trips
21.	Avg. annual tons of grape on-haul: 69 / 144 truck trips x 2 one-way trips	= 1.0	daily trips
22.	**TOTAL**	= 57	**daily trips**

[1] Full-Time and part-time employees that staff the largest of any event that is proposed to occur two or more times in a month, on average.

[2] The number of weekday visitors shall include guests of the largest of any event that is proposed to occur two or more times in a month, on average.

[3] Assumes 1.47 materials and supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year

Proposed Project Winery Traffic Information / Trip Generation (continued)

Determine Winery Peak Hour Trips**. If the number of daily trips on either Section K, line 11, or Section M, line 21, is greater than 20, or Public Works Director determines that other circumstances such as access safety or other potential network impacts warrant further analysis, then the potential transportation impacts of your project must be evaluated in a traffic impact study (TIS) prepared in accordance with* **Napa County Public Works TIS Guidelines.** ***Follow the direction outlined in **Traffic Impact Study Analysis*, below. If the number of daily trips on either Section K, line 11, or Section M, line 22, is equal to or less than 20, complete Sections N through R below to determine your project's estimated peak hour trips and annual trips. In lieu of completing Sections N through R, you may opt to prepare a project-specific traffic impact analysis if you anticipate the number of peak hour trips from your proposal is different from that estimated here.***

Section N. PM Peak Hour Trip Generation (Friday, non-harvest season)
(Sum of daily trips from Sec. J, lines 3 and 4) x 0.38 + (No. of FTE) + (line 2 / 2) = 29 PM peak trips

Section O. PM Peak Hour Trip Generation (Friday, harvest season)
(Sum of daily trips from Sec. K, lines 8, 9, 10) x 0.38 + (No. of FTE) + (line 7 / 2) = 30 PM peak trips

Section P. PM Peak Hour Trip Generation (Saturday, non-harvest season)
(Sum of daily trips from Sec. L, line 14 and 15) x 0.57 + (No. of FTE) + (line 13/ 2) = 21 PM peak trips

Section Q. PM Peak Hour Trip Generation (Saturday, harvest season)
(Sum of daily trips, Sec. M, lines 19, 20, and 21) x 0.57 + (No. of FTE) + (line 18 / 2) = 28 PM peak trips

Section R. Maximum Annual Trips
(Sec. J, line 5 x 206) + (Sec. K, line 11 x 55) + (Sec. L, line 16 x 82) + (Sec. M, line 22 x 22) = 24783 Annual trips

Traffic Impact Study Analysis**. If the number of daily trips on either Section K, line 11, or Section M, line 22, is greater than 20, then the potential transportation impacts of your project must be evaluated in a traffic impact study (TIS) prepared in accordance with* **Napa County Public Works TIS Guidelines.** ***Existing trip counts on the transportation network should be collected during the harvest season (August 16 – October 31). If collected outside of the harvest season, during the months of November through February, counts shall be adjusted upward by 15 percent to estimate harvest season network volumes. If collected during the weeks between March 1 and August 15, counts shall be adjusted upward by seven percent.

For peak hour analysis in the TIS, the County will allow any one of the following methodologies:

a) Use the peak hour factors in Sections E through I, above, to estimate the peak hour trips and annual trips generated by the project. To determine the potential peak hour impacts of the project, apply the harvest season estimated peak hour project trips (Sections F and H for the existing condition, and Sections O and Q for the proposed project) to roadway volumes during the hour between 3:00 p.m. and 4:00 p.m. on Fridays and Saturdays; or

b) For New Wineries use peak hour trip counts as projected using the Institute for Transportation Engineers' (ITE) peak hour factors for winery land uses from the most current version of ITE **Trip Generation.** ***To determine the potential peak hour impacts of the project, apply the estimated peak hour project trips from ITE to roadway volumes during the hour between 4:00 p.m. and 5:00 p.m. on a Friday and 1:45 p.m. and 2:45 p.m. on a Saturday; or***

c) Conduct a site-specific analysis informed by actual trip counts at the driveway of the project (for winery use permit modifications) or at the driveway of a project with comparable operating characteristics to that proposed (for new winery use permits). To determine the potential peak hour impacts of the project, apply the site-specific peak hour of generator to the peak hour of the network on a Friday and the peak hour of the roadway on a Saturday, based on the assembled trip count data.

For Average Daily Traffic (ADT) analysis in the TIS, the County will utilize one of the following methodologies:

a) Average of the Maximum Daily Weekday Traffic and the Maximum Daily Weekend Traffic during the harvest season, as given in the Winery Traffic Information / Trip Generation worksheet.

b) A site specific analysis which at a minimum 24-hour vehicle counts shall be collected during a continuous week period (7-days) for which traffic count data is collected for each day of the week. Existing trip counts should be collected during the harvest season (August 16 – October 31). If collected outside of the harvest season, during the months of November through February, counts shall be adjusted upward by 15 percent to estimate harvest season network volumes. If collected during the weeks between March 1 and August 15, counts shall be adjusted upward by seven percent. Projected daily trip counts shall be based on total number of full-time employee, part-time employees, daily visitors, gallons of production, grape on-haul and the factors identified in the Proposed Winery Traffic Information and Trip Generation worksheet, respectively.

c) For land uses other than wineries, the ADT shall be determined using the most current version of ITE Trip Generation.