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Traffic Impact Study

Materra Winery
Use Permit Major Modification Application No. P20-00184-MOD
Planning Commission Hearing, June 2, 2021

FINAL TRAFFIC IMPACT REPORT

MATERRA WINERY
USE PERMIT MODIFICATION 2020

4326 Big Ranch Road, Napa, CA 94558
APN: 036-160-003-000
Project No. P20-00184

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I. INTRODUCTION

This report has been prepared at the request of the Materra Winery to determine whether expanded production, employees and visitors at the Winery as detailed in their 2020 use permit modification application will result in any significant circulation impacts to the local roadway network. The project site is located on the east side of Big Ranch Road just south of the Big Ranch Road/Oak Knoll Avenue (South) intersection. (See **Figure 1 Regional Map**, **Figure 2 Site Specific Air Photo** and **Figure 3 Site Plan.**) The scope of analysis includes evaluation of Oak Knoll Avenue and Big Ranch Road as well as the Oak Knoll Avenue intersections with SR 29, Silverado Trail and Big Ranch Road and the Big Ranch Road/Project Main Driveway intersection for harvest 2019, 2025 and Cumulative (Year 2030) horizons. The scope of service for this traffic study was developed for and approved by both the Napa County Public Works Department and the Planning, Building & Environmental Services Department.

II. EXECUTIVE SUMMARY OF PROJECT IMPACTS AND RECOMMENDED IMPROVEMENTS

A. IMPACTS

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

PM PEAK HOUR TRIPS	
HARVEST FRIDAY	**HARVEST SATURDAY**
9	6

2. SIGNIFICANCE OF PROJECT IMPACTS

a. INTERSECTION LEVEL OF SERVICE
Less than significant.
(Oak Knoll Avenue at SR 29, Silverado Trail, Big Ranch Road [South] & Big Ranch Road [North] + Big Ranch Road/Project Main Driveway)

b. ARTERIAL LEVEL OF SERVICE
Less than significant.
(Oak Knoll Avenue & Big Ranch Road)

c. NEED FOR LEFT TURN LANE ON BIG RANCH ROAD AT THE PROJECT MAIN DRIVEWAY INTERSECTION
Significant - A left turn lane is warranted with Existing + project traffic.

d. SIGHT LINE ADEQUACY AT BIG RANCH ROAD/PROJECT MAIN DRIVEWAY INTERSECTION

Less than significant **-** Sight lines meet Caltrans stopping sight distance criteria.

e. MARKETING EVENTS

Less than significant **-** There are no changes in the marketing event program. During days with midsize events occurring 2 or more times per month the number of visitors by appointment will be reduced by the number of guests at the marketing event.

f. PEDESTRIAN, BICYCLE AND TRANSIT IMPACTS

Less than significant **-** No pedestrians are anticipated as there are no pedestrian paths along Big Ranch Road or Oak Knoll Avenue. No significant transit ridership by employees is anticipated as the closest service is along SR 29. Bicycle racks will be provided for all employees or guests biking to the site.

g. PARKING & INTERNAL CIRCULATION

Less than significant **-** Parking space layout and internal roadway design meet County and CAL FIRE Standards. A total of 25 parking spaces will be provided.

h. TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN AND VEHICLE MILES TRAVELED (VMT) REDUCTION

Less than significant **-** A TDM coordinator will be appointed to develop programs to provide incentives for employees to carpool, bicycle or take transit to work. In addition, shuttle bus service will be provided at all large marketing events (with 100 or more guests). A TDM plan is attached.

B. RECOMMENDED IMPROVEMENTS

A left turn lane should be provided on the southbound Big Ranch Road approach to the Materra Winery Main Driveway.

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

A. "WITHOUT PROJECT" OPERATING CONDITIONS

1. INTERSECTION LEVEL OF SERVICE

a. OAK KNOLL AVENUE/SR 29 - Signal

- **Friday & Saturday PM Peak Hours**
  Existing, Year 2025 & Cumulative (2030) – Acceptable

b. **OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)** - Stop sign controlled approach
   - **Friday & Saturday PM Peak Hours**
     Existing - Acceptable
   - **Friday PM Peak Hour**
     Year 2025 & Cumulative (2030) - **Unacceptable**
   - **Saturday PM Peak Hour**
     Year 2025 & Cumulative (2030) - Acceptable

c. **OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH)** - Stop sign controlled approach
   - **Friday & Saturday PM Peak Hours**
     Existing, Year 2025 & Cumulative (2030) - Acceptable

d. **OAK KNOLL AVENUE/SILVERADO TRAIL** - Stop sign controlled Oak Knoll Avenue approach
   - **Friday PM Peak Hour**
     Existing, Year 2025 & Cumulative (2030) - **Unacceptable**
   - **Saturday PM Peak Hour**
     Existing, Year 2025 & Cumulative (2030) - Acceptable

e. **BIG RANCH ROAD/PROJECT MAIN DRIVEWAY** - Main Driveway Approach
   - **Friday & Saturday PM Peak Hours**
     Existing, Year 2025 & Cumulative (2030) - Acceptable

2. **ARTERIAL LEVEL OF SERVICE**

a. **OAK KNOLL AVENUE EAST & WEST OF BIG RANCH ROAD**
   - **Friday & Saturday PM Peak Hours**
     Existing, Year 2025 & Cumulative (2030) - Acceptable

b. **BIG RANCH ROAD SOUTH OF PROJECT SITE**
   - **Friday & Saturday PM Peak Hours**
     Existing, Year 2025 & Cumulative (2030) – Acceptable

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

a. **OAK KNOLL AVENUE/SILVERADO TRAIL**
   - **Friday & Saturday PM Peak Hours**
     Existing, Year 2025 & Cumulative (2030)

b. **OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)**
   - **Friday PM Peak Hour**
     Existing, Year 2025 & Cumulative (2030)
   - **Saturday PM Peak Hour**
     Year 2025 & Cumulative (2030)

4. LEFT TURN LANE VOLUME WARRANT ON SOUTHBOUND BIG RANCH ROAD APPROACH TO PROJECT MAIN DRIVEWAY

Daily volumes at this intersection meet County Warrant Criteria for provision of a left turn lane.

B. PROJECT IMPACTS

1. OFF-SITE

a. INTERSECTION LEVEL OF SERVICE IMPACTS

Less than significant

Friday & Saturday PM Peak Hours

1) Oak Knoll Avenue/SR 29

- **Existing, Year 2025 & Cumulative (2030) -** Project traffic would not increase volumes at this intersection to unacceptable signalized operation. Operation would remain LOS B or C.

2) Oak Knoll Avenue/Big Ranch Road (South)

- **Existing, Year 2025 & Cumulative (2030) -** Operation would be an acceptable LOS B with the addition of project traffic during the Saturday PM peak hour. During the Friday PM peak hour operation would be an acceptable LOS D for Existing conditions, and an **unacceptable** LOS E or F for the Year 2025 and Cumulative (Year 2030) horizons. However, project traffic would not increase delay by 5 seconds or more on the stop sign controlled Oak Knoll Avenue approach during either horizon.

3) Oak Knoll Avenue/Big Ranch Road (North)

- **Existing, Year 2025 & Cumulative (2030) -** Operation would be an acceptable LOS B or C with the addition of project traffic during both the Friday and Saturday PM peak hours.

4) Oak Knoll Avenue/Silverado Trail

- **Existing, Year 2025 & Cumulative (2030) -** Operation would remain an **unacceptable** LOS E or F during the Friday PM peak hour with the addition of project traffic. However, project traffic would not increase delay by 5 seconds or more on the stop sign controlled Oak Knoll Avenue approach to Silverado Trail. Operation would be an acceptable LOS C or D during the Saturday PM peak hour.

5) Big Ranch Road/Project Main Driveway

- **Existing, Year 2025 & Cumulative (2030) -** Operation would be an acceptable LOS A or B with the addition of project traffic during both the Friday and Saturday PM peak hours.

b. ARTERIAL LEVEL OF SERVICE IMPACTS
Less than significant
Friday & Saturday PM Peak Hours

1) Oak Knoll Avenue West of Big Ranch Road

- **Existing, Year 2025 & Cumulative (2030) -** Project traffic would not increase volumes to unacceptable levels. Operation would remain LOS A or B.

2) Oak Knoll Avenue East of Big Ranch Road

- **Existing, Year 2025 & Cumulative (2030) -** Project traffic would not increase volumes to unacceptable levels. Operation would remain LOS A or C.

3) Big Ranch Road South of the Project

- **Existing, Year 2025 & Cumulative (2030) -** Project traffic would not increase volumes to unacceptable levels. Operation would remain an acceptable LOS A or C.

c. NEED FOR A LEFT TURN LANE ON SOUTHBOUND BIG RANCH ROAD APPROACH TO PROJECT MAIN DRIVEWAY
Significant **-** Existing + project daily volumes at this intersection would meet current County Warrant Criteria for provision of a left turn lane on the southbound Big Ranch Road intersection approach.

d. SIGHT LINE ADEQUACY AT BIG RANCH ROAD/PROJECT MAIN DRIVEWAY INTERSECTION
Less than significant **-** Sight lines meet Caltrans stopping sight distance criteria.

e. MARKETING EVENTS
Less than significant **-** There will be no change in marketing events. On days with events occurring 2 or more times per month, daily visitation by appointment will be lowered an amount equal to attendance at the marketing event.

f. PEDESTRIAN, BICYCLE AND TRANSIT IMPACTS
Less than significant **-** No pedestrians are anticipated as there are no pedestrian paths along Oak Knoll Avenue or Big Ranch Road. No significant transit ridership by employees is anticipated as the closest service is along SR 29. Bicycle racks will be provided for all employees or guests biking to the site.

g. ON-SITE PARKING & INTERNAL CIRCULATION
Less than significant **-** A total of 25 parking spaces will be provided. This is an increase of one space compared to Existing conditions. Visitation is scheduled throughout the day such that 14 spaces for visitors will be adequate. Internal circulation and parking layouts have been designed to meet all County and CAL FIRE criteria.

h. TDM PROGRAM AND VMT REDUCTION

Less than significant **-** A TDM coordinator will be appointed to develop programs to provide financial incentives for employees to carpool, bicycle to work or take transit. In addition, shuttle bus service will be provided at all large marketing events (with 100 or more guests). A TDM plan is attached.

C. RECOMMENDED IMPROVEMENTS

A left turn lane should be provided on the southbound Big Ranch Road approach to the Materra Winery Main Driveway.

D. CONCLUSIONS & RECOMMENDATIONS

- The project will result in no significant off-site circulation system operational impacts to Oak Knoll Avenue or Big Ranch Road or to the Oak Knoll Avenue intersections with SR 29, Silverado Trail and Big Ranch Road, or to the Big Ranch Road/Project Main Driveway intersection.

- A left turn lane is now warranted on the southbound Big Ranch Road approach to the Project Main Driveway even without the addition of project traffic.

- Sight lines at the Project Main Driveway connection to Big Ranch Road are acceptable and meet Caltrans stopping sight distance criteria.

- No pedestrians and minimal or no transit users are expected at the Winery. However, bicycle racks will be provided for any bike riders accessing the Winery via the Class II bike lanes along Silverado Trail or the Class I "Vine Trail" along the west side of SR 29.

- Internal circulation is designed to meet County and CAL FIRE criteria. In addition, 25 parking spaces will be provided for guests and employees.

- No new marketing events are being proposed and on days with medium size marketing events occurring 2 times or more per month, daily visitation by appointment will be reduced by the same amount as the number of guests at the marketing event.

- A TDM coordinator will be appointed to institute measures to reduce daily and peak hour employee traffic as well as increase limousine and shuttle bus service for large marketing events. The attached TDM Plan will be adopted.

- A left turn lane should be provided on the southbound Big Ranch Road approach to the Materra Winery Main Driveway.

IV. PROJECT LOCATION & DESCRIPTION

The Materra Winery is located on the east side of Big Ranch Road just south of the Oak Knoll Avenue/ Big Ranch Road (South) intersection. The proposed use permit modification will have the following characteristics:

- An increase in yearly production from 110,000 to 150,000 gallons.
- Tons of grapes on haul will increase from 330 to 510.
- Additional bottling on site.
- Non-harvest Friday and Saturday maximum employee totals will be increased from 3 full time and 3 part time to 12 full time and 2 part time.
- Harvest Friday and Saturday maximum employee totals will be increased from 3 full time and 7 part time to 12 full time and 5 part time.
- Maximum daily visitation will increase from 18 to 34 guests.
- Tours and tasting will remain 7 days/week, 10:00 AM - 4:30 PM.
- No new marketing events are proposed.
- A total of 25 parking spaces will be provided.
- Internal circulation and parking layout will meet County and CAL FIRE design criteria.

V. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

1. INTERSECTIONS

The following locations have been evaluated.

a. **OAK KNOLL AVENUE/SR 29**
(Signalized)
b. **OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)** (The Oak Knoll Avenue eastbound approach is stop sign controlled)
c. **OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH)** (The Oak Knoll Avenue westbound approach is stop sign controlled)
d. **OAK KNOLL AVENUE/SILVERADO TRAIL** (The Oak Knoll Avenue eastbound approach is stop sign controlled)
e. **BIG RANCH ROAD/PROJECT MAIN DRIVEWAY INTERSECTION** (The driveway approach is currently not stop sign controlled)

Figure 4 presents a schematic of approach lane geometrics and control at each analysis intersection.

2. ARTERIAL ROADWAY SEGMENTS

The following locations have been evaluated.

a. OAK KNOLL AVENUE JUST EAST AND WEST OF BIG RANCH ROAD
b. BIG RANCH ROAD SOUTH OF MATERRA WINERY

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 regard to the peak traffic days of the week, the Napa County Travel Behavioral **Study 1** (*Fehr & Peers, December 8, 2014*) 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 2:00 to 6:00 PM as well as Saturday Noon to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) for two Fridays and two Saturdays in October 2020 at all 5 study intersections. Based upon harvest 2019 counts at Silverado Trail/Oak Knoll Avenue and the new counts, the peak traffic hours for the system were determined to be 3:15 to 4:15 PM on Friday and 4:45 to 5:45 PM on Saturday. It should be noted, however, that there were many hours on both days that had similar volumes. Based upon direction from County Public Works, results from the two Friday counts were averaged and the results shown in **Appendix A Figure A-1** , while the two Saturday counts were also averaged with the results shown in **Appendix A Figure A-2**. Peak hour counts from each count day are also presented in **Appendix A**.

Comparison of fall 2019 and 2020 PM peak period counts along SR 29 in the project vicinity using Caltrans SR 29 PeMS count station data showed that 2020 Friday PM peak hour volumes were somewhat lower (about 2.5% northbound and 10% southbound), while Saturday PM peak hour volumes were significantly lower (about 5% northbound and 20% southbound) than fall 2019 volumes. Likewise, comparison of fall 2019 counts (from the Signorello Winery Traffic Impact Study by Crane Transportation Group) and the 2020 counts at the Silverado Trail/Oak Knoll Avenue intersection showed that the 2020

Friday PM peak hour volumes passing through the intersection were also somewhat lower (15%), while the 2020 Saturday PM peak hour volumes were significantly lower (35%) than the fall 2019 volumes. While the 2020 counts were lower, it was determined that traffic flow distribution patterns along Oak Knoll Avenue between the SR 29 and Silverado Trail intersections looked reasonable during both the Friday and Saturday PM peak hours. Adjustments were then made to the system of 2020 counts to reflect he higher volumes that would have been present during harvest 2019. **Figures 5** and **6** present 2019 harvest Friday and Saturday PM peak hour volumes.

Daily (24-hour) directional volume classification counts and speed surveys were also conducted for two Fridays and two Saturdays in October 2020 along Big Ranch Road at the project site and on the Project Main Driveway. See **Appendix A**.

C. ROADWAYS

Roadway descriptions are based upon the designation that SR 29, Silverado Trail and Big Ranch Road run in general north-south directions through the project area, while Oak Knoll Avenue and the Project Driveway run in an east-west direction. The project site is along the east side of Big Ranch Road just south of the Oak Knoll Avenue/Big Ranch Road (South) intersection. **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 has a signalized connection to Oak Knoll Avenue. In the vicinity of the intersection it is an expressway and has two well-paved 12-foot travel lanes and 8-foot wide paved shoulders in each direction. The posted speed limit is 50 miles per hour and the roadway is level and straight. Left turn lanes are provided on the north and southbound intersection approaches.

Silverado Trail in the project vicinity has two well-paved 12-foot travel lanes and wide paved shoulders that are utilized as Class II bicycle lanes. A left turn lane is provided on the northbound Silverado Trail approach to Oak Knoll Avenue. The posted speed limit is 55 miles per hour at Oak Knoll Avenue.

Oak Knoll Avenue is a two-lane rural collector roadway extending westerly from Silverado Trail to the west of SR 29. It is stop sign controlled on its eastbound approach to Silverado Trail and is signal controlled at SR 29. Oak Knoll Avenue also has offset “Tee” intersections with Big Ranch Road. At the north Tee Oak Knoll Avenue extends easterly to Silverado Trail, and at the south Tee it extends westerly to SR 29. Oak Knoll Avenue is stop sign controlled on both approaches to Big Ranch Road. There is no posted speed limit along Oak Knoll Avenue, although speed advisory signs are posted on the approaches to two curves: 20 miles per hour on the approaches to the narrow Napa River bridge near Silverado Trail and 40 miles per hour on the approaches to a curve west of Big Ranch Road. The Napa Wine Train has an at-grade crossing of Oak Knoll Avenue just west of SR 29. Its crossing is protected by gates and flashing lights. There are no pedestrian walkways or bicycle lanes along Oak Knoll Avenue in the project vicinity.

Big Ranch Road is a two-lane rural collector roadway extending northerly from Trancas Street in the City of Napa to just north of Oak Knoll Avenue. The posted speed limit in the project vicinity is 50 miles per hour. Big Ranch Road is level and straight near the project site. Left turn lanes are not provided on the approaches to either Oak Knoll Avenue intersection or on the approach to the Materra Winery Main Driveway. There are no pedestrian walkways or bicycle lanes along Big Ranch Road in the project vicinity.

D. INTERSECTION LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

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

***Signalized Intersections*.** For signalized intersections, the *Year 2017 6th Edition Highway Capacity Manual* (Transportation Research Board, National Research Council) methodology was utilized. With this methodology, operations are defined by the level of service and average control delay per vehicle (measured in seconds) for the entire intersection. For a signalized intersection, control delay is the portion of the total delay attributed to traffic signal operation. This includes delay associated with deceleration, acceleration, stopping, and moving up in the queue. **Table 1** summarizes the relationship between delay and LOS for signalized intersections.

***Unsignalized Intersections*.** For unsignalized (all-way stop-controlled and side-street stop- controlled) intersections, the *Year 2017 6th Edition Highway Capacity Manual* (Transportation Research Board, National Research Council) methodology for unsignalized intersections was utilized. For side-street stop-controlled intersections, operations are defined by the level of service and average control delay per vehicle (measured in seconds), with delay reported for the stop sign controlled approaches or turn movements. For all-way stop-controlled intersections, operations are defined by the average control delay for the entire intersection (measured in seconds per vehicle). The delay at an unsignalized intersection incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections while **Appendix B** presents level of service worksheets.

2. MINIMUM ACCEPTABLE OPERATION

Napa County's current minimum acceptable operating standard is level of service D (LOS D) for signalized or all-way stop overall intersection operation, as well as for side street stop sign controlled approaches at two-way stop unsignalized intersections.

E. ARTERIAL LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

The *2017 Highway Capacity Manual 6th Edition* arterial analysis methodology has been utilized for analysis of Oak Knoll Avenue and Big Ranch Road. Analysis results are presented as a level of service and demand capacity ratio. Input includes directional volumes, road and shoulder widths, percent trucks and RV's, terrain characteristics, percent available passing distance, etc.

2. MINIMUM ACCEPTABLE OPERATION

Napa County's current minimum acceptable operating standard for arterials 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, Rev 5 (2014 CaMUTCD Rev 5 - March 2020)*. It provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the *2014 CaMUTCD Rev 5 – March 2020*, 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. MINIMUM 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 % warrant is applied. The regular and 70 % warrants are typically referred to as the urban and rural peak hour warrants. Rural warrant criteria have been used for evaluation of the Oak Knoll Avenue intersections with Silverado Trail and Big Ranch Road. Please see **Appendix C** for the signal warrant charts.

G. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study *(Napa County Public Works Department, January 2020).*

H. ACCIDENT HISTORY

Accident records from January 2015 through mid-2020 were obtained from the California Highway Patrol for Oak Knoll Avenue between and including the SR 29 and Silverado Trail intersections as well as for Big Ranch Road from Oak Knoll Avenue to the Napa City limit. Locations of all accidents over this time span are presented in **Figure 7**, while attached year by year accident details are presented in **Appendix D**. As shown, there has only been one reported accident along Big Ranch Road adjacent to the Materra Winery Main Driveway in the last 5.5 years. This involved a driver on Big Ranch Road making a U-turn movement and being hit by another vehicle. The location with the greatest accident history, the Oak Knoll Avenue/SR 29 intersection, had 35 accidents over this 5.5-year span, while the Oak Knoll Avenue/Silverado Trail intersection had 28 accidents.

I. EXISTING PEDESTRIAN AND BICYCLE FACILITIES NEAR THE PROJECT

There are no pedestrian walkways along Oak Knoll Avenue between SR 29 and Silverado Trail, nor along Big Ranch Road within Napa County. Likewise, there are no Class 1 to 4 bicycle facilities along Oak Knoll Avenue or Big Ranch Road and none are planned by the project. Class II signed and striped bicycle lanes are, however, provided along Silverado Trail while the Class I "Vine Trail" bicycle-pedestrian path runs along the west side of SR 29. See **Figure 8**.

J. TRANSIT SERVICE

The Vine provides transit service along SR 29. Route 10 travels between the City of Napa and Calistoga on approximate hourly headways 7 days per week. Route 10X also travels along SR 29 6 times per day during commute periods on weekdays only. Stops are limited. See **Figure 8**.

K. LEFT TURN WARRANT FOR BIG RANCH ROAD AT THE PROJECT MAIN DRIVEWAY

Daily volumes on Big Ranch Road and the Project Main Driveway currently meet County warrant criteria for provision of a left turn lane on the southbound Big Ranch Road intersection approach.
See **Appendix E** for the County Warrant chart.

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 (Rounded)
SR 29 (south of Oak Knoll Avenue)	PM Peak Hour = 15%
Silverado Trail (south of Oak Knoll Avenue)	PM Peak Hour = 13%
Oak Knoll Avenue (east of SR 29)	PM Peak Hour = 21%
Oak Knoll Avenue (west of Silverado Trail)	PM Peak Hour = 9%
Big Ranch Road	PM Peak Hour = 12%

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 (Rounded)
SR 29 (south of Oak Knoll Avenue)	PM Peak Hour = 8%
Silverado Trail (south of Oak Knoll Avenue)	PM Peak Hour = 7%
Oak Knoll Avenue (east of SR 29)	PM Peak Hour = 12%
Oak Knoll Avenue (west of Silverado Trail)	PM Peak Hour = 5%
Big Ranch Road	PM Peak Hour = 6%

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.

Based upon input from County Planning, traffic from other approved but not constructed developments was also included in near-term horizon growth. They are:

- **Boyd Winery** – To be located along Big Ranch Road about a mile south of Oak Knoll Avenue. Characteristics: 30,000 gallon production / 6 full time & 4 part time harvest employees / 15 visitors per day.
- **H & L Winery** – Relocating the access driveway from Oak Knoll Avenue to Big Ranch Road.

Appendix F presents expected PM peak hour trip generation from each project.

Resultant Year 2025 harvest "Without Project" Friday and Saturday PM peak hour volumes are presented in **Figures 9** and **10**, while Cumulative (Year 2030) harvest "Without Project" Friday and Saturday PM peak hour volumes are presented in **Figures 11** and **12**.

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 3 & APPENDIX B FOR CAPACITY WORKSHEETS

a. OAK KNOLL AVENUE/SR 29

- **Friday & Saturday PM Peak Hours**
  Acceptable signalized operation: LOS B.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)

- **Friday & Saturday PM Peak Hours**
  Acceptable Oak Knoll Avenue stop sign controlled eastbound approach: LOS D and B, respectively.

c. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH)

- **Friday & Saturday PM Peak Hours**
  Acceptable Oak Knoll Avenue stop sign controlled westbound approach: LOS C and B, respectively.

d. OAK KNOLL AVENUE/SILVERADO TRAIL

- **Friday PM Peak Hours**
  Unacceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS E.
- **Saturday PM Peak Hour**
  Acceptable Oak Knoll Avenue stop sign controlled eastbound approach: LOS C.

e. BIG RANCH ROAD/PROJECT MAIN DRIVEWAY

- **Friday & Saturday PM Peak Hours**
  Acceptable driveway westbound approach: LOS A.

2. EXISTING ARTERIAL SEGMENT LEVEL OF SERVICE – SEE TABLE 4

a. OAK KNOLL AVENUE WEST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS B
  Westbound - LOS A
- **Saturday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS A

b. OAK KNOLL AVENUE EAST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS C
- **Saturday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS B

c. BIG RANCH ROAD JUST SOUTH OF MATERRA WINERY

- **Friday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS C
- **Saturday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS B

3. EXISTING SIGNAL WARRANT EVALUATION – SEE TABLE 5 & APPENDIX C

a. OAK KNOLL AVENUE/SILVERADO TRAIL INTERSECTION

- **Friday & Saturday PM Peak Hours**
  Volumes **exceed** peak hour signal Warrant #3 rural criteria.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH) INTERSECTION

- **Friday PM Peak Hour**
  Volumes **exceed** peak hour signal Warrant #3 rural criteria.
- **Saturday PM Peak Hour**
  Volumes do not exceed peak hour signal Warrant #3 rural criteria.

c. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH) INTERSECTION

- **Friday & Saturday PM Peak Hours**
  Volumes do not exceed peak hour signal Warrant #3 rural criteria.

B. YEAR 2025 HARVEST (WITHOUT PROJECT) OPERATING CONDITIONS

1. 2025 INTERSECTION LEVEL OF SERVICE – SEE TABLE 3 & APPENDIX B FOR CAPACITY WORKSHEETS

a. OAK KNOLL AVENUE/SR 29

- **Friday & Saturday PM Peak Hours**
  Acceptable signalized operation: LOS B.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)

- **Friday PM Peak Hour**
  Unacceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS E.
- **Saturday PM Peak Hour**
  Acceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS B.

c. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH)

- **Friday & Saturday PM Peak Hours**
  Acceptable Oak Knoll Ave stop sign controlled westbound approach: LOS B or C.

d. OAK KNOLL AVENUE/SILVERADO TRAIL

- **Friday PM Peak Hour**
  Unacceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS F.
- **Saturday PM Peak Hour**
  Acceptable Oak Knoll Avenue stop sign controlled eastbound approach: LOS D.

e. BIG RANCH ROAD/PROJECT MAIN DRIVEWAY

- **Friday & Saturday PM Peak Hours**
  Acceptable driveway westbound approach: LOS A or B.

2. 2025 ARTERIAL SEGMENT LEVEL OF SERVICE – SEE TABLE 4

a. OAK KNOLL AVENUE WEST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS B
  Westbound - LOS B
- **Saturday PM Peak Hour**
  Eastbound - LOS B
  Westbound - LOS B

b. OAK KNOLL AVENUE EAST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS C
- **Saturday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS B

c. BIG RANCH ROAD JUST SOUTH OF MATERRA WINERY

- **Friday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS C
- **Saturday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS B

3. 2025 SIGNAL WARRANT EVALUATION – SEE TABLE 5

a. OAK KNOLL AVENUE/SILVERADO TRAIL & OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH) INTERSECTIONS

- **Friday & Saturday PM Peak Hours**
  Volumes would **exceed** peak hour signal Warrant #3 rural criteria.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH) INTERSECTION

- **Friday & Saturday PM Peak Hours**
  Volumes would not exceed peak hour signal Warrant #3 rural criteria.

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

1. 2030 INTERSECTION LEVEL OF SERVICE – SEE TABLE 3

a. OAK KNOLL AVENUE/SR 29

- **Friday & Saturday PM Peak Hours**
  Acceptable signalized operation: LOS C.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH)

- **Friday PM Peak Hour**
  Unacceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS F.
- **Saturday PM Peak Hour**
  Acceptable Oak Knoll Avenue stop sign controlled eastbound approach: LOS B.

c. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH)

- **Friday & Saturday PM Peak Hours**
  Acceptable Oak Knoll Ave stop sign controlled westbound approach: LOS B or C.

d. OAK KNOLL AVENUE/SILVERADO TRAIL

- **Friday PM Peak Hour**
  Unacceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS F.
- **Saturday PM Peak Hour**
  Acceptable Oak Knoll Ave stop sign controlled eastbound approach: LOS D.

e. BIG RANCH ROAD/PROJECT MAIN DRIVEWAY

- **Friday & Saturday PM Peak Hours**
  Acceptable driveway southbound approach: LOS A or B.

2. 2030 ARTERIAL SEGMENT LEVEL OF SERVICE – SEE TABLE 4

a. OAK KNOLL AVENUE WEST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS B
  Westbound - LOS B
- **Saturday PM Peak Hour**
  Eastbound - LOS B
  Westbound - LOS B

b. OAK KNOLL AVENUE EAST OF BIG RANCH ROAD

- **Friday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS C
- **Saturday PM Peak Hour**
  Eastbound - LOS A
  Westbound - LOS B

c. BIG RANCH ROAD JUST SOUTH OF MATERRA WINERY

- **Friday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS C
- **Saturday PM Peak Hour**
  Northbound - LOS A
  Southbound - LOS B

3. 2030 SIGNAL WARRANT EVALUATION – SEE TABLE 5

a. OAK KNOLL AVENUE/SILVERADO TRAIL & OAK KNOLL AVENUE/BIG RANCH ROAD (SOUTH) INTERSECTIONS

- **Friday & Saturday PM Peak Hours**
  Volumes would **exceed** peak hour signal Warrant #3 rural criteria.

b. OAK KNOLL AVENUE/BIG RANCH ROAD (NORTH) INTERSECTION

- **Friday & Saturday PM Peak Hours**
  Volumes would not exceed peak hour signal Warrant #3 rural 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

1. ARTERIAL SEGMENTS

A project would cause a significant impact requiring mitigation if:

a. 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

b. 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 criteria, the following equation should be used if the arterial operates at LOS E or F without the project:

Project Contribution % = Project Trips ÷ Existing Volumes

2. SIGNALIZED INTERSECTIONS

A project would cause a significant impact requiring mitigation if:

a. 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

b. 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. *(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.)*

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 the 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 LOS F will be considered acceptable and the one percent threshold would not apply. Analysis of signalized intersection LOS should sill be presented for informational purposes, and there should still be an evaluation of effects on safety and local access, per *Policy CIR-18*.

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

a. 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 informational purposes, or

b. 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

1. ARTERIAL SEGMENTS, SIGNALIZED INTERSECTIONS AND UNSIGNALIZED INTERSECTIONS

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

a. 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

b. 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.

c. 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)

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 (for Winery use permit modifications). As detailed from Public Works, a site-specific analysis was performed by first conducting actual daily trip counts at the driveway of the project on two Fridays and two Saturdays. Next, the increment of net new daily traffic due to the use permit modification proposed project was determined using trip rates from the Use Permit Winery Traffic Information/Trip Generation sheets. Based upon the two Friday and two Saturday 24-hour Winery driveway counts, the hour on each day that had the highest combined inbound + outbound traffic was determined along with the percent of total traffic occurring during those hours in relation to the daily counts. These percentages were applied 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, it was assumed that the Winery's peak hourly traffic would occur at the same time as the ambient peak traffic time on

the adjacent roadway system. Harvest 2019 surveys of the Materra Driveway showed that on a Friday afternoon the peak traffic hour had 21% of daily traffic (the highest of two Friday surveys) while on a Saturday afternoon the peak traffic hour had 15% of daily traffic (the highest of two Saturday surveys).

2. PROJECT PM PEAK HOUR VOLUMES

Table 6 shows that the proposed use permit modification 2020 would be expected to generate 5 new outbound and 4 new inbound trips during a harvest Friday PM peak hour (3:15 - 4:15), with 3 new outbound and 3 new inbound trips during a harvest Saturday PM peak hour (4:45 - 5:45). Winery Traffic Information/Trip Generation sheets are presented in **Appendix G**, as are the hourly 2-way traffic volume percentages on the Winery's Main Driveway for two Fridays and two Saturdays. It should be noted that all project harvest Friday and Saturday PM peak hour trip generation will be due to the one new full time employee, as no change in visitation is being requested and any increase in grape truck deliveries would occur earlier in the day.

B. TRIP DISTRIBUTION

Project traffic was distributed to Big Ranch Road, Oak Knoll Avenue, SR 29 and Silverado Trail in a pattern reflective of Existing PM peak hour distribution patterns at the Project Main Driveway intersection and at the Oak Knoll Avenue intersections with Big Ranch Road, SR 29 and Silverado Trail.

	PERCENT PROJECT TRIP DISTRIBUTION	
	Friday PM Peak Hour	**Saturday PM Peak Hour**
SR 29	45%	35%
Silverado Trail	35%	35%
Big Ranch Road (south of Winery)	20%	30%

The harvest Friday and Saturday project traffic increment expected during the times of ambient peak traffic flows are presented in **Figures 13** and **14**. Friday and Saturday "With Project" PM peak hour harvest volumes for Year 2019 are presented in **Figures 15** and **16**; "With Project" PM peak hour harvest volumes for Year 2025 conditions are presented in **Figures 17** and **18**, and "With Project" PM peak hour harvest volumes for Cumulative (Year 2030) conditions are presented in **Figures 19** and **20.**

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 Oak Knoll Avenue or Big Ranch Road, at the Oak Knoll Avenue intersections with SR 29, Silverado Trail or Big Ranch Road, nor at the Big Ranch Road/Project Main Driveway intersection during either the Friday or Saturday PM peak traffic hours. ***Less than significant.***

b. 2019 INTERSECTION LEVEL OF SERVICE IMPACTS – SEE TABLE 3

1) Oak Knoll Avenue/SR 29

- **Friday & Saturday PM Peak Hours**
  Signalized operation would remain an acceptable LOS B with the addition of project traffic. ***Less than significant.***

2) Oak Knoll Avenue/Big Ranch Road (South)

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an acceptable LOS D on Friday and LOS B on Saturday with the addition of project traffic. ***Less than significant.***

3) Oak Knoll Avenue/Big Ranch Road (North)

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an acceptable LOS C on Friday and LOS B on Saturday with the addition of project traffic. ***Less than significant.***

4) Oak Knoll Avenue/Silverado Trail

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an unacceptable LOS E during the Friday PM peak hour with the addition of project traffic. However, the addition of project traffic to the eastbound Oak Knoll Avenue approach would increase delay less than the 5-second significance limit (0.6 seconds on Friday). During the Saturday PM peak hour operation would remain an acceptable LOS C. ***Less than significant.***

5) Big Ranch Road/Project Main Driveway

- **Friday & Saturday PM Peak Hours**
  Operation of the Project Main Driveway approach to Big Ranch Road would be an acceptable LOS A or B with the addition of project traffic. ***Less than significant.***

c. 2019 ARTERIAL SEGMENT LEVEL OF SERVICE IMPACTS – SEE TABLE 4

1) Oak Knoll Avenue West of Big Ranch Road

- **Friday PM Peak Hour**
  Operation would remain an acceptable LOS B eastbound and LOS A westbound with the addition of project traffic. ***Less than significant.***
- **Saturday PM Peak Hour**
  Operation would remain an acceptable LOS A eastbound and LOS A westbound with the addition of project traffic. ***Less than significant.***

2) **Oak Knoll Avenue East of Big Ranch Road**
   - **Friday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS C westbound with the addition of project traffic. ***Less than significant.***
   - **Saturday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***

3) **Big Ranch Road South of Materra Winery**
   - **Friday & Saturday PM Peak Hours**
     Operation would remain an acceptable LOS A northbound and LOS B or C southbound with the addition of project traffic. ***Less than significant.***

d. 2019 SIGNAL WARRANT EVALUATION – SEE TABLE 5

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

1) **Oak Knoll Avenue/Silverado Trail**
   - **Friday & Saturday PM Peak Hours**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.

2) **Oak Knoll Avenue/Big Ranch Road (South)**
   - **Friday PM Peak Hour**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.
   - **Saturday PM Peak Hour**
     Volumes would not be exceeding peak hour signal Warrant #3 rural criteria with or without project traffic.

3) **Oak Knoll Avenue/Big Ranch Road (North)**
   - **Friday & Saturday PM Peak Hours**
     Volumes would not be exceeding peak hour signal Warrant #3 rural criteria with or without project traffic.

2. YEAR 2025 HARVEST + PROJECT CONDITIONS

a. SUMMARY

Project traffic would not result in any significant level of service impacts along Oak Knoll Avenue or Big Ranch Road, at the Oak Knoll Avenue intersections with SR 29, Silverado Trail or Big Ranch Road, nor at the Big Ranch Road/Project Main Driveway intersection during either the Friday or Saturday PM peak traffic hours. ***Less than significant.***

b. 2025 INTERSECTION LEVEL OF SERVICE IMPACTS – SEE TABLE 3

1) Oak Knoll Avenue/SR 29

- **Friday & Saturday PM Peak Hours**
  Signalized operation would remain an acceptable LOS B with the addition of project traffic. ***Less than significant.***

2) Oak Knoll Avenue/Big Ranch Road (South)

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an **unacceptable** LOS E during the Friday PM peak hour with the addition of project traffic. However, the addition of project traffic to the eastbound Oak Knoll Avenue approach would increase delay less than the 5 second significance limit (1.2 seconds). During the Saturday PM peak hour operation would remain an acceptable LOS B. ***Less than significant.***

3) Oak Knoll Avenue/Big Ranch Road (North)

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an acceptable LOS C on Friday and LOS B on Saturday with the addition of project traffic. ***Less than significant.***

4) Oak Knoll Avenue/Silverado Trail

- **Friday & Saturday PM Peak Hours**
  Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an unacceptable LOS F during the Friday PM peak hour with the addition of project traffic. However, the addition of project traffic to the eastbound Oak Knoll Avenue approach would increase delay less than the 5 second significance limit (1.2 seconds). During the Saturday PM peak hour operation would remain an acceptable LOS D. ***Less than significant.***

5) **Big Ranch Road/Project Main Driveway**
   - **Friday & Saturday PM Peak Hours**
     Operation of the Project Main Driveway approach to Big Ranch Road would be an acceptable LOS B with the addition of project traffic. ***Less than significant.***

c. 2025 ARTERIAL SEGMENT LEVEL OF SERVICE IMPACTS – SEE TABLE 4

1) **Oak Knoll Avenue West of Big Ranch Road**
   - **Friday PM Peak Hour**
     Operation would remain an acceptable LOS B eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***
   - **Saturday PM Peak Hour**
     Operation would remain an acceptable LOS B eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***

2) **Oak Knoll Avenue East of Big Ranch Road**
   - **Friday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS C westbound with the addition of project traffic. ***Less than significant.***
   - **Saturday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***

3) **Big Ranch Road South of Materra Winery**
   - **Friday & Saturday PM Peak Hours**
     Operation would remain and acceptable LOS A northbound and LOS B or C southbound with the addition of project traffic. ***Less than significant.***

d. 2025 SIGNAL WARRANT EVALUATION – SEE TABLE 5

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

1) **Oak Knoll Avenue/Silverado Trail**
   - **Friday & Saturday PM Peak Hours**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.

2) **Oak Knoll Avenue/Big Ranch Road (South)**
   - **Friday & Saturday PM Peak Hours**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.

3) **Oak Knoll Avenue/Big Ranch Road (North)**
   - **Friday & Saturday PM Peak Hours**
     Volumes would not be exceeding peak hour signal Warrant #3 rural 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 Oak Knoll Avenue or Big Ranch Road, at the Oak Knoll Avenue intersections with SR 29, Silverado Trail or Big Ranch Road, nor at the Big Ranch Road/Project Main Driveway intersection during either the Friday or Saturday PM peak traffic hours. ***Less than significant.***

b. 2030 INTERSECTION LEVEL OF SERVICE IMPACTS – SEE TABLE 3

1) **Oak Knoll Avenue/SR 29**
   - **Friday & Saturday PM Peak Hours**
     Signalized operation would remain an acceptable LOS C with the addition of project traffic. ***Less than significant.***

2) **Oak Knoll Avenue/Big Ranch Road (South)**
   - **Friday & Saturday PM Peak Hours**
     Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an **unacceptable** LOS F during the Friday PM peak hour with the addition of project traffic. However, the addition of project traffic to the eastbound Oak Knoll Avenue approach would increase delay less than the 5 second significance limit (2.0 seconds). During the Saturday PM peak hour operation would remain an acceptable LOS B. ***Less than significant.***

3) **Oak Knoll Avenue/Big Ranch Road (North)**
   - **Friday & Saturday PM Peak Hours**
     Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an acceptable LOS C on Friday and LOS B on Saturday with the addition of project traffic. ***Less than significant.***

4) **Oak Knoll Avenue/ Silverado Trail**
   - **Friday & Saturday PM Peak Hours**
     Operation of the stop sign controlled Oak Knoll Avenue intersection approach would remain an unacceptable LOS F with the addition of project traffic. However, the addition of project traffic to the eastbound Oak Knoll Avenue approach would increase delay less than the 5 second significance limit (1.8 seconds). During the Saturday PM peak hour operation would remain an acceptable LOS D. ***Less than significant.***

5) **Big Ranch Road/Project Main Driveway**
   - **Friday & Saturday PM Peak Hours**
     Operation of the Project Main Driveway approach to Big Ranch Road would be an acceptable LOS B with the addition of project traffic. ***Less than significant.***

c. 2030 ARTERIAL SEGMENT LEVEL OF SERVICE IMPACTS – SEE TABLE 4

1) **Oak Knoll Avenue West of Big Ranch Road**
   - **Friday PM Peak Hour**
     Operation would remain an acceptable LOS B eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***
   - **Saturday PM Peak Hour**
     Operation would remain an acceptable LOS B eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***

2) **Oak Knoll Avenue East of Big Ranch Road**
   - **Friday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS C westbound with the addition of project traffic. ***Less than significant.***
   - **Saturday PM Peak Hour**
     Operation would remain an acceptable LOS A eastbound and LOS B westbound with the addition of project traffic. ***Less than significant.***

3) **Big Ranch Road South of Materra Winery**
   - **Friday & Saturday PM Peak Hours**
     Operation would remain an acceptable LOS A northbound and LOS B or C southbound with the addition of project traffic. ***Less than significant.***

d. 2030 SIGNAL WARRANT EVALUATION – SEE TABLE 5

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

1) **Oak Knoll Avenue/Silverado Trail**
   - **Friday & Saturday PM Peak Hours**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.

2) **Oak Knoll Avenue/Big Ranch Road (South)**
   - **Friday & Saturday PM Peak Hours**
     Volumes would be **exceeding** peak hour signal Warrant #3 rural criteria with or without project traffic.

3) **Oak Knoll Avenue/Big Ranch Road (North)**
   - **Friday & Saturday PM Peak Hours**
     Volumes would not be exceeding peak hour signal Warrant #3 rural criteria with or without project traffic.

X. OTHER POTENTIAL PROJECT IMPACTS

A. SIGHT LINES AT BIG RANCH ROAD/PROJECT MAIN DRIVEWAY

Sight lines at the Big Ranch Road/Project Main Driveway intersection are currently acceptable to the north and south along Big Ranch Road.

- Sight line to the south along Big Ranch Road (to see northbound vehicles) 800+ feet
- Sight line to the north along Big Ranch Road (to see southbound vehicles) 500+ feet (through the Oak Knoll Avenue south and north intersections)

The *Caltrans Highway Design Manual (July 2018)* 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
40 mph	300 feet
45 mph	360 feet
50 mph	430 feet
55 mph	500 feet

The posted speed limit at the project entrance is 50 miles per hour, and a few northbound vehicles were observed traveling higher than the posted limit during two field surveys by Crane Transportation Group. Southbound drivers, however, were typically traveling more slowly as they were leaving the Oak Knoll Avenue South and North intersections (35 to 40 miles per hour). Based upon the 55 mile per hour criteria, resultant sight lines to the north and south along Big Ranch Road from the Project Main Driveway would be acceptable. ***Less than significant***.

B. LEFT TURN LANE AT BIG RANCH ROAD/PROJECT MAIN DRIVEWAY INTERSECTION

A left turn lane is now warranted on the southbound Big Ranch Road approach to the Project Main Driveway and the addition of project traffic will further increase volumes above left turn lane warrant criteria. The County left turn lane warrant chart is provided in **Appendix E**. ***Significant.***

C. MARKETING EVENTS

No new marketing events are proposed. In addition, for midsize events occurring two or more times per month daily visitation by appointment will be reduced by the level of attendance at the marketing event. ***Less than significant.***

D. PEDESTRIAN, BICYCLE AND TRANSIT IMPACTS

There are no pedestrian walkways along Oak Knoll Avenue or Big Ranch Road. No pedestrian traffic is expected, and no pedestrian facilities are proposed along the project's Big Ranch Road frontage. Bicycle racks will be provided for all guests using bicycles and accessing the area via the Class II bicycle lanes along Silverado Trail and the Class I "Vine Trail" bicycle-pedestrian path along the west side of SR 29. It should be noted, however that there are minimal to no paved shoulders along Oak Knoll Avenue between SR 29 and Silverado Trail, there are deep drainage ditches immediately adjacent to the roadway in most locations and this roadway in general would not be attractive to bicycle riders. Currently no employees or visitors use County-wide transit service along SR 29 to access the Winery, although as part of the project's proposed TDM plan, incentives will be provided to any employee taking transit. ***Less than significant.***

E. TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN & 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 took effect in July 2020). This will help reduce greenhouse gas emissions and vehicle congestion. Specific quantitative reduction guidelines have not yet been set for wineries in Napa County, but all are expected to develop ongoing programs that will provide incentives to reduce daily and commute period employee traffic as well as measures that will entice guests to use travel modes other than the automobile or to travel at times other than peak congestion periods. Towards this end, the Materra Winery will develop a Transportation Demand Management (TDM) plan that will help accomplish these goals.

The applicant will be appointing a TDM coordinator to carry out the proposed plan. See **Appendix H**. Measures will include providing incentives to establish carpools and riding bicycles to work. Bike racks will be provided for employees and guests. Incentives will also be provided for any employees riding transit. In addition, shuttle buses will be provided for all large events with 100 or more guests. ***Less than significant.***

F. ON-SITE PARKING & INTERNAL CIRCULATION

There will be a total of 25 on-site parking spaces with the proposed project (with one designated for ADA drivers). There will be 8 employee spaces south of the Winery, with 3 employee and 14 visitor spaces north of the Winery. Visitors to the Winery will be by appointment only. On a busy day, visitors

arrive in a staggered arrangement so that the 14 guest spaces will be more than adequate to accommodate demand. Occasionally, visitors will arrive in a higher-occupancy vehicle such as an SUV, minivan or smaller shuttle bus.

Most of the larger marketing events occur during off-peak hours when some employee parking spaces are available. When larger marketing events are held excess parking can also be accommodated along the Winery access road and along vineyard roads. The Winery utilizes valet parking for these events in addition to the services of small shuttle buses or vans for some groups of visitors. Shuttle buses bring visitors from their hotels or other areas where there are legally entitled parking areas. Internal circulation design (roadway & parking dimensions/parking spaces, turnaround areas and radii for emergency vehicle and large truck movements) will not change and has been provided to meet all County and CAL FIRE design criteria. ***Less than significant.***

G. YEARLY TRIP GENERATION

Based upon County formula the Materra Winery is currently generating 12,135 yearly trips, while with the use permit modification 2020 yearly trip generation would increase to 26,343 yearly trips for an increase of 14,208 yearly trips. See **Appendix G**.

XI. RECOMMENDED IMPROVEMENTS

A left turn lane should be provided on the southbound Big Ranch Road approach to the Materra Winery Main Driveway.

XII. CONCLUSIONS & RECOMMENDATIONS

- The project will result in no significant off-site circulation system operational impacts to Oak Knoll Avenue or Big Ranch Road or to the Oak Knoll Avenue intersections with SR 29, Silverado Trail and Big Ranch Road, or to the Big Ranch Road/Project Main Driveway intersection.

- A left turn lane is now warranted on the southbound Big Ranch Road approach to the Project Main Driveway even without the addition of project traffic.

- Sight lines at the Project Main Driveway connection to Big Ranch Road are acceptable and meet Caltrans stopping sight distance criteria.

- No pedestrians and minimal or no transit users are expected at the Winery. However, bicycle racks will be provided for any bike riders accessing the Winery via the Class II bike lanes along Silverado Trail or the Class I “Vine Trail” along the west side of SR 29.

- Internal circulation is designed to meet County and CAL FIRE criteria. In addition, 25 parking spaces will be provided for guests and employees.

- No new marketing events are being proposed and on days with medium size marketing events occurring 2 times or more per month, daily visitation by appointment will be reduced by the same amount as the number of guests at the marketing event.

- A TDM coordinator will be appointed to institute measures to reduce daily and peak hour employee traffic as well as increase limousine and shuttle bus service for large marketing events. The attached TDM Plan will be adopted.

- A left turn lane should be provided on the southbound Big Ranch Road approach to the Materra Winery Main Driveway.

Tables

TABLE 1

SIGNALIZED INTERSECTION LOS CRITERIA

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

Source: Year 2017 6th Edition Highway Capacity Manual (Transportation Research Board).

TABLE 2

UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Little or no delays	≤ 10.0
B	Short traffic delays	10.0 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 3

INTERSECTION LEVEL OF SERVICE

YEAR 2019 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:30-4:30 PM)		SATURDAY PM PEAK HOUR (4:45-5:45 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Oak Knoll Avenue	B-16.4 (1)	B-16.5	B-17.4	B-17.6
Oak Knoll Ave/Big Ranch Rd (South)	D-27.7 (2)	D-28.4	B-12.3	B-12.4
Oak Knoll Ave/Big Ranch Rd (North)	C-15.8 (3)	C-15.9	B-10.7	B-10.7
Oak Knoll Ave/Silverado Trail	E-48.6 (4)	E-49.2	C-22.4	C-22.6
Big Ranch Rd/Project Main Driveway	A-9.5 (5)	B-10.6	A-9.8	A-9.9

YEAR 2025 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:30-4:30 PM)		SATURDAY PM PEAK HOUR (4:45-5:45 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Oak Knoll Avenue	B-18.9 (1)	B-19.1	B-19.5	B-19.7
Oak Knoll Ave/Big Ranch Rd (South)	E-40.9 (2)	E-42.1	B-13.1	B-13.1
Oak Knoll Ave/Big Ranch Rd (North)	C-17.8 (3)	C-17.9	B-10.9	B-10.9
Oak Knoll Ave/Silverado Trail	F-77.8 (4)	F-79.0	D-25.9	D-26.2
Big Ranch Rd/Project Main Driveway	A-9.6 (5)	B-10.7	B-10.0	B-10.0

CUMULATIVE (YEAR 2030) HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:30-4:30 PM)		SATURDAY PM PEAK HOUR (4:45-5:45 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR29/Oak Knoll Avenue	C-22.4 (1)	C-22.7	C-21.7	C-21.7
Oak Knoll Ave/Big Ranch Rd (South)	F-56.7 (2)	F-58.7	B-13.9	B-14.0
Oak Knoll Ave/Big Ranch Rd (North)	C-19.7 (3)	C-19.8	B-11.2	B-11.2
Oak Knoll Ave/Silverado Trail	F-119.3 (4)	F-121.1	D-29.7	D-29.9
Big Ranch Rd/Project Main Driveway	A-9.6 (5)	B-10.8	B-10.1	B-10.2

(1) Signalized level of service – control delay in seconds
(2) Unsignalized level of service – control delay in seconds: Eastbound Oak Knoll Ave approach to Big Ranch Rd (south)
(3) Unsignalized level of service – control delay in seconds: Westbound Oak Knoll Ave approach to Big Ranch Rd (north)
(4) Unsignalized level of service – control delay in seconds: Eastbound Oak Knoll Ave approach to Silverado Trail
(5) Unsignalized level of service – control delay in seconds: Westbound Winery Driveway approach to Big Ranch Rd

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

TABLE 4

ARTERIAL LEVEL OF SERVICE

YEAR 2019 HARVEST

	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
	W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
LOCATION	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**
Oak Knoll Ave west of Big Ranch Road	B-.18[(1)]	A-.15	B-.18	A-.15	A-.14	A-.15	A-.14	A-.15
Oak Knoll Ave east of Big Ranch Road	A-.10[(1)]	C-.28	A-.10	C-.28	A-.05	B-.18	A-.05	B-.18
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Big Ranch Road south of Project	A-.13[(1)]	C-.35	A-.13	C-.35	A-.07	B-.20	A-.07	B-.20

YEAR 2025 HARVEST

	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
	W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
LOCATION	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**
Oak Knoll Ave west of Big Ranch Road	B-.20[(1)]	B-.17	B-.20	B-.17	B-.16	B-.16	B-.16	B-.16
Oak Knoll Ave east of Big Ranch Road	A-.11[(1)]	C-.30	A-.11	C-.30	A-.05	B-.19	A-.05	B-.19
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Big Ranch Road south of Project	A-.14[(1)]	C-.37	A-.14	C-.37	A-.08	B-.22	A-.08	B-.22

TABLE 4

ARTERIAL LEVEL OF SERVICE

CUMULATIVE (YEAR 2030) HARVEST

	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
	W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
LOCATION	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**
Oak Knoll Ave west of Big Ranch Road	B-.21[(1)]	B-.19	B-.21	B-.19	B-.18	B-.17	B-.18	B-.17
Oak Knoll Ave east of Big Ranch Road	A-.12[(1)]	C-.31	A-.12	C-.31	A-.06	B-.20	A-.06	B-.20
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Big Ranch Road south of Project	A-.14[(1)]	C-.38	A-.14	C-.38	A-.09	B-.23	A-.09	B-.23

[(1)] Level of service – demand/capacity
Highway Capacity Manual, 6th Edition (2017) analysis methodology

Source: Crane Transportation Group

TABLE 5 (a)

RURAL SIGNAL WARRANT EVALUATION

Oak Knoll Ave/Big Ranch Rd (South)

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
Yes	Yes	No	No

YEAR 2025

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
Yes	Yes	Yes	Yes

CUMULATIVE (YEAR 2030)

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
Yes	Yes	Yes	Yes

TABLE 5 (b)

RURAL SIGNAL WARRANT EVALUATION

Oak Knoll Ave/Big Ranch Rd (North)

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 2025

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

CUMULATIVE (YEAR 2030)

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

TABLE 5 (c)

RURAL SIGNAL WARRANT EVALUATION

Oak Knoll Ave/Silverado Trail

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
Yes	Yes	Yes	Yes

YEAR 2025

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
Yes	Yes	Yes	Yes

CUMULATIVE (YEAR 2030)

FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
WITHOUT PROJECT	WITH PROJECT	WITHOUT PROJECT	WITH PROJECT
Yes	Yes	Yes	Yes

Source: Crane Transportation Group

TABLE 6

PROJECT TRIP GENERATION

	Daily Trips			Maximum PM Hourly % of Daily 2-Way Traffic**	Resultant Project PM Peak Hour 2-Way Trip Generation
	Existing*	Existing* +Project	Increase Due to Project		
Friday	43	83	40	21%	9
Saturday	42	81	39	15%	6

* Napa County Winery Trip Generation Worksheets
** 2 Friday and 2 Saturday 24-hour Traffic Counts of the Winery driveway - Harvest 2020

Source: Crane Transportation Group

Figures

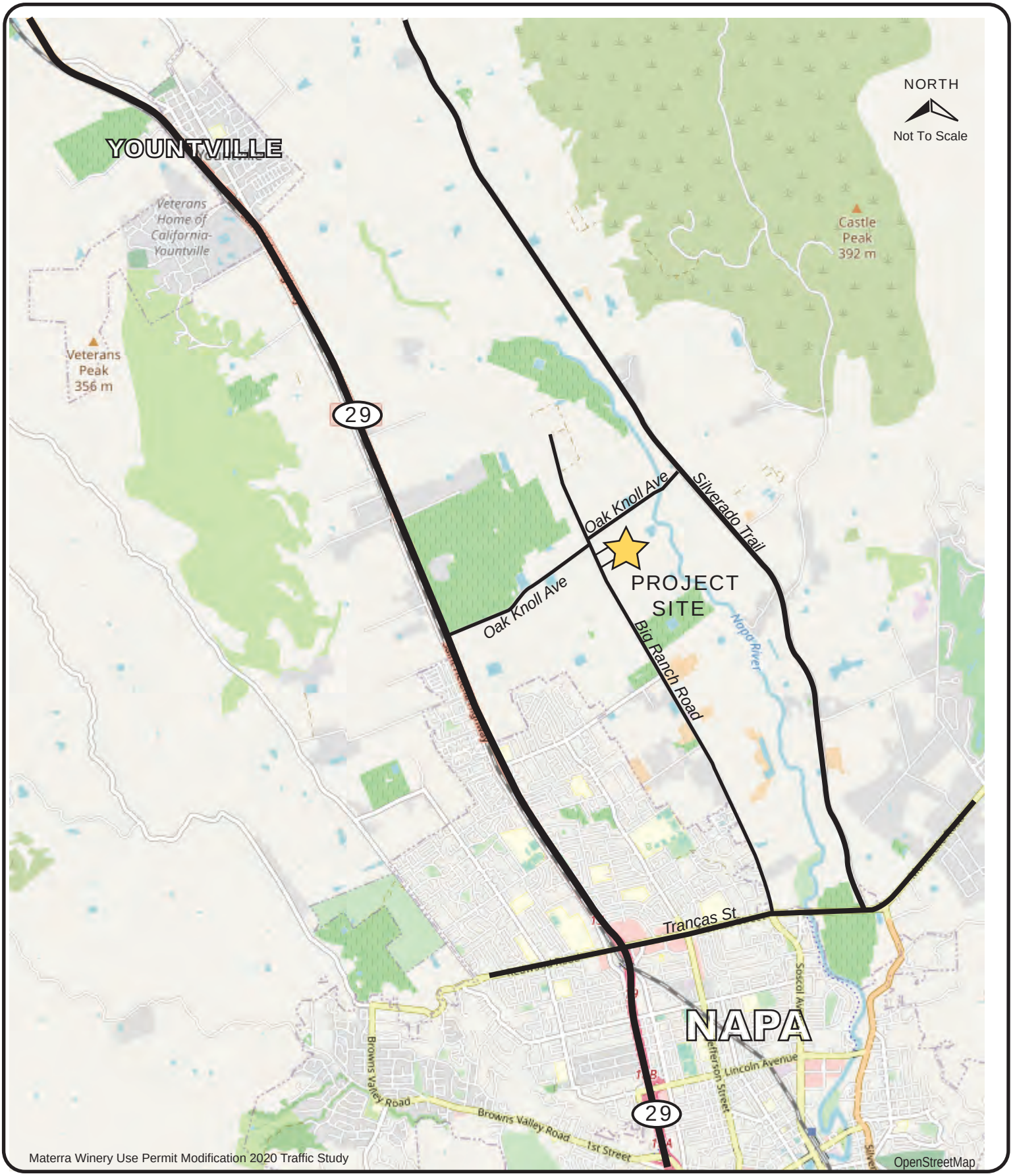


Figure 1

Area Map

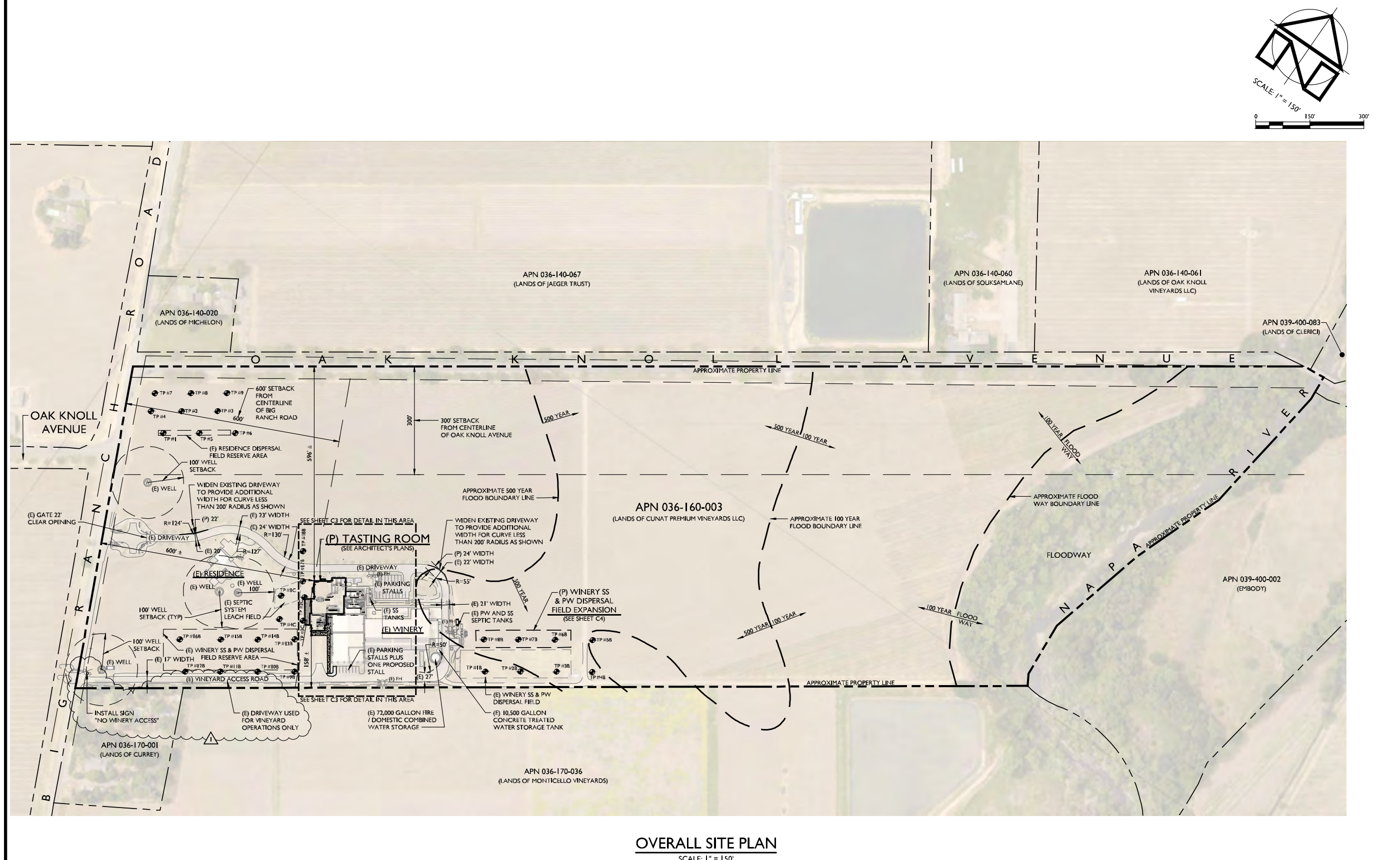
CRANE TRANSPORTATION GROUP

CRANE TRANSPORTATION GROUP

Figure 2
Site Specific Air Photo

MATERRA WINERY

USE PERMIT MODIFICATION CONCEPTUAL SITE IMPROVEMENT PLANS



OVERALL SITE PLAN
SCALE: 1" = 150'

LOCATION MAP
SCALE: 1" = 3,000'

PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
CUNAT PREMIUM VINEYARDS LLC
4326 BIG RANCH ROAD
NAPA CA 94558

SITE ADDRESS:
4324 BIG RANCH ROAD
NAPA CA 94558

ASSESSOR'S PARCEL NUMBER:
036-160-003

PARCEL SIZE:
50 ± ACRES

PROJECT SIZE:
0.9 ± ACRES

ZONING:
AGRICULTURAL PRESERVE (AP)

DOMESTIC WATER SOURCE:
PRIVATE WELL

FIRE PROTECTION WATER SOURCE:
STORAGE TANKS

WASTEWATER DISPOSAL:
ONSITE TREATMENT AND DISPERSAL

SHEET INDEX:

FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0510F, EFFECTIVE SEPTEMBER 29, 2010, ALL OR A PORTION OF THE PROJECT SITE IS LOCATED IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% CHANCE ANNUAL FLOOD (100 YEAR FLOOD). SEE FIRM FOR ADDITIONAL INFORMATION.

SURVEY NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS TAKEN FROM THE "MAP OF TOPOGRAPHY OF A PORTION OF THE LANDS OF CUNAT PREMIUM VINEYARDS LLC" PREPARED BY ALBION SURVEYS, INC., DATED NOVEMBER 8, 2019. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS WERE OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE, TAKEN APRIL TO JUNE 2018 AND MAY NOT REPRESENT CURRENT CONDITIONS.
3. CONTOUR INTERVAL: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET.
4. BENCHMARK: ASSUMED
5. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

TEST PIT NOTES:

1. TEST PITS #1 - #9 WERE EXCAVATED ON OCTOBER 23, 2007 AND WERE WITNESSED BY A REPRESENTATIVE OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION AND DELTA CONSULTING & ENGINEERING.
2. TEST PITS #1B - #18B WERE EXCAVATED BY MONTELLI CONSTRUCTION AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND A REPRESENTATIVE OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION. THE TEST PIT LOCATIONS ARE APPROXIMATE BASED ON FIELD MEASUREMENTS TO SITE FEATURES THAT WERE LOCATED ON THE TOPOGRAPHIC SURVEY.
3. TEST PITS #1C - #4C WERE EXCAVATED BY MADRIGAL VINEYARD MANAGEMENT ON JULY 21, 2015 AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND REBECCA SETLIFF OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION.

1-800-227-2600 CALL BEFORE YOU DIG USA UNDERGROUND SERVICE ALERT

APPLIED CIVIL ENGINEERING INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

MATERRA WINERY
USE PERMIT MODIFICATION CONCEPTUAL SITE IMPROVEMENT PLANS
OVERALL SITE PLAN

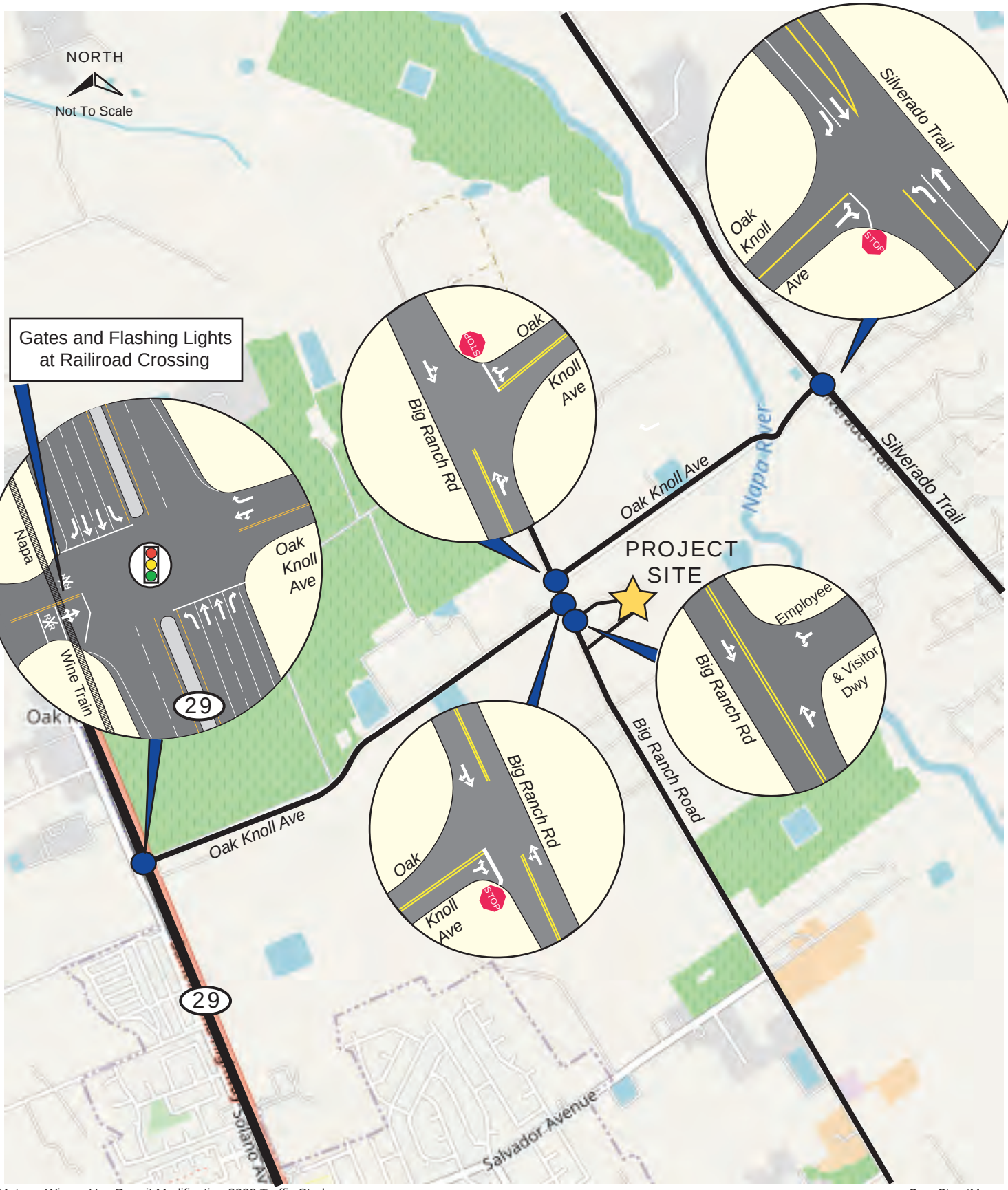
PREPARED UNDER THE DIRECTION OF:

DRAWN BY: BT DRAFTING
CHECKED BY: MRM
DATE: JUNE 19, 2020
REVISIONS: BY:
1 7/29/2020 BT PLAN CHECK COMMENTS

JOB NUMBER: 08-109
FILE: 08-109CONC-OSP.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C1 OF 6

CRANE TRANSPORTATION GROUP

Figure 3
Site Plan



Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 4

Existing Lane Geometrics and Intersection Control

CRANE TRANSPORTATION GROUP

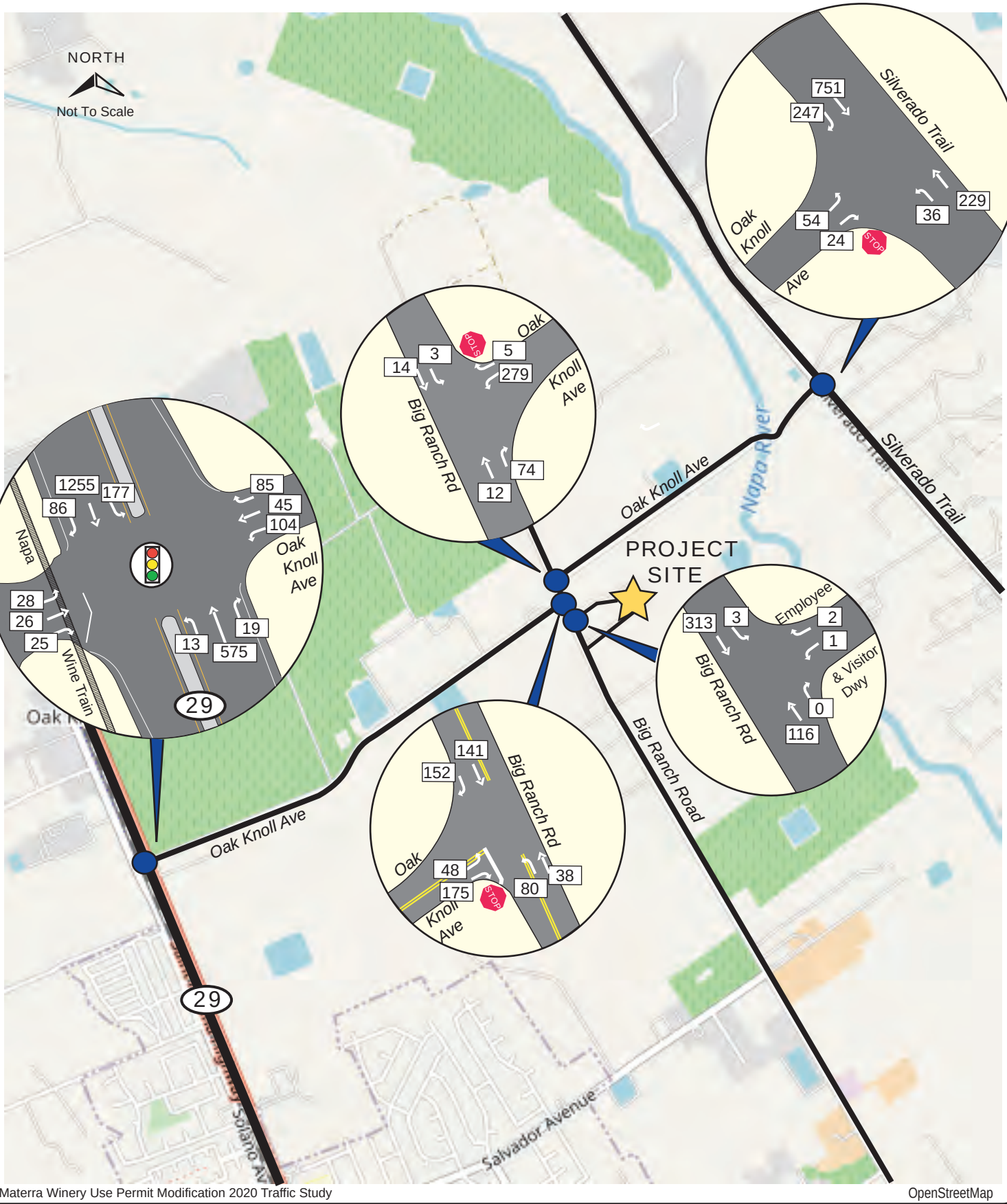
Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 5

Existing 2019 Harvest Friday (without Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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OpenStreetMap

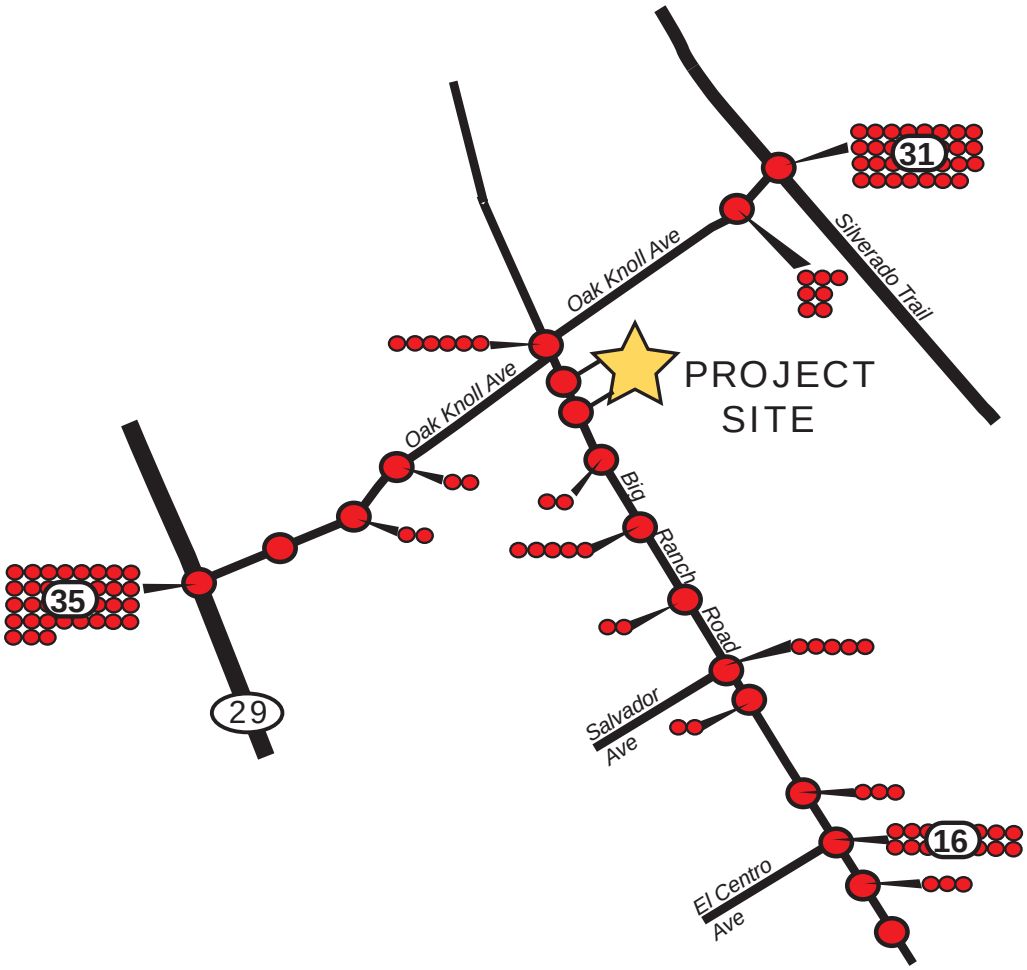
Figure 6

Existing 2019 Harvest Saturday (without Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP

NORTH

Not To Scale

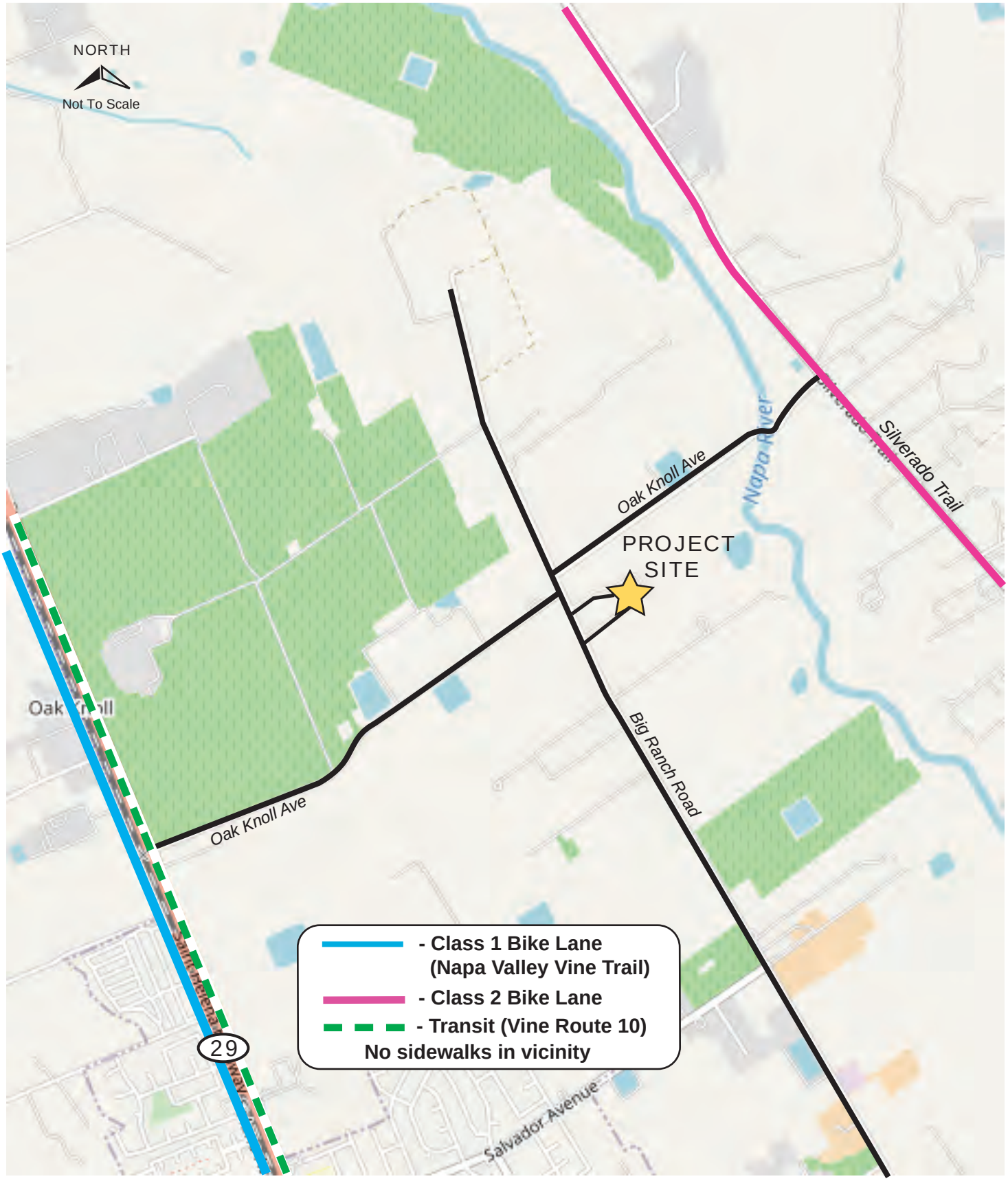


Materra Winery Use Permit Modification 2020 Traffic Study

CRANE TRANSPORTATION GROUP

Figure 7

Accidents in the Vicinity
of the Project Site
January 2015 to September 8, 2020



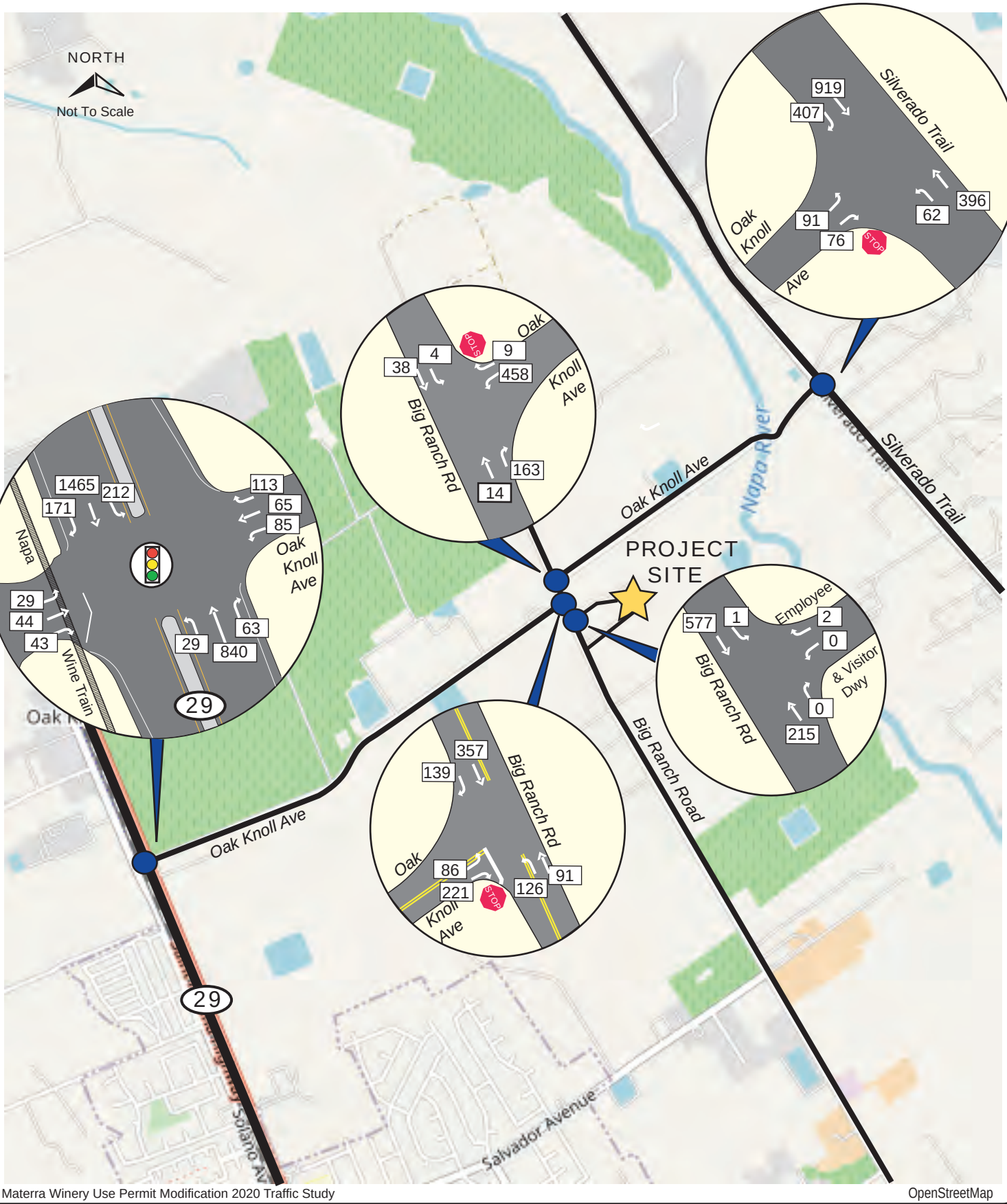
Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 8

Existing Bicycle, Transit and Pedestrian Facilities in Vicinty of Project Site

CRANE TRANSPORTATION GROUP



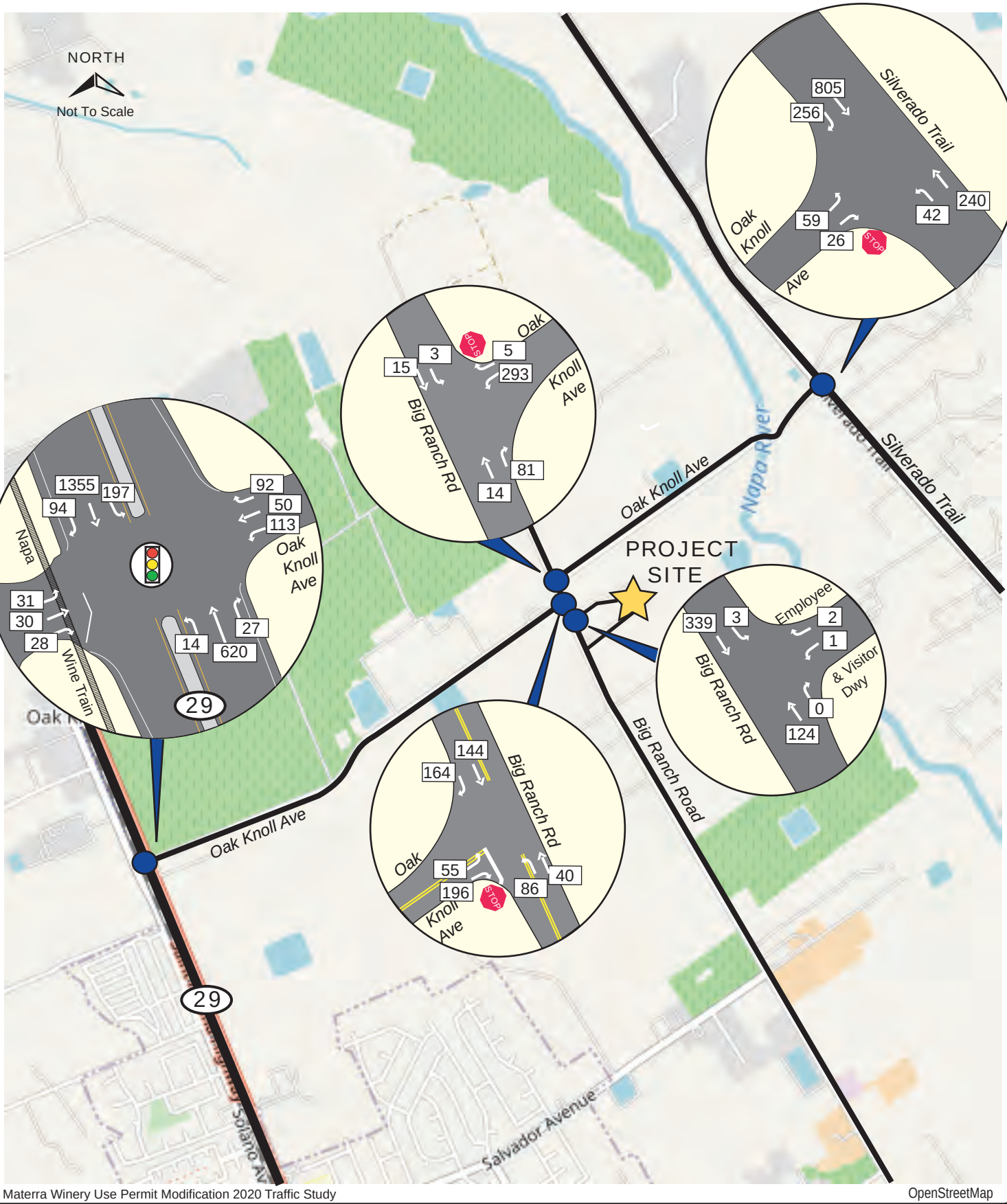
Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 9

Year 2025 Harvest Friday (without Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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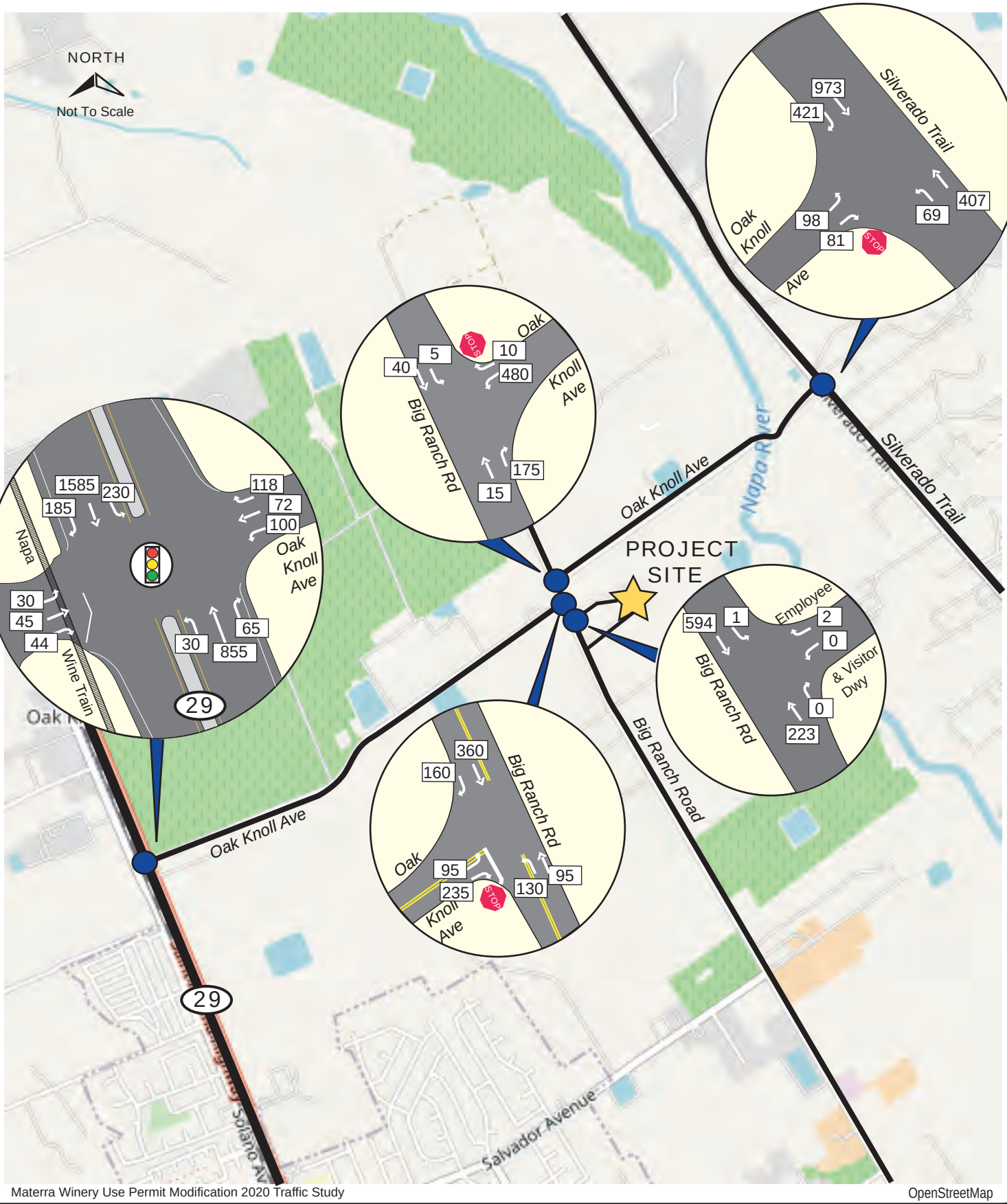
OpenStreetMap

Figure 10

Year 2025 Harvest Saturday (without Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



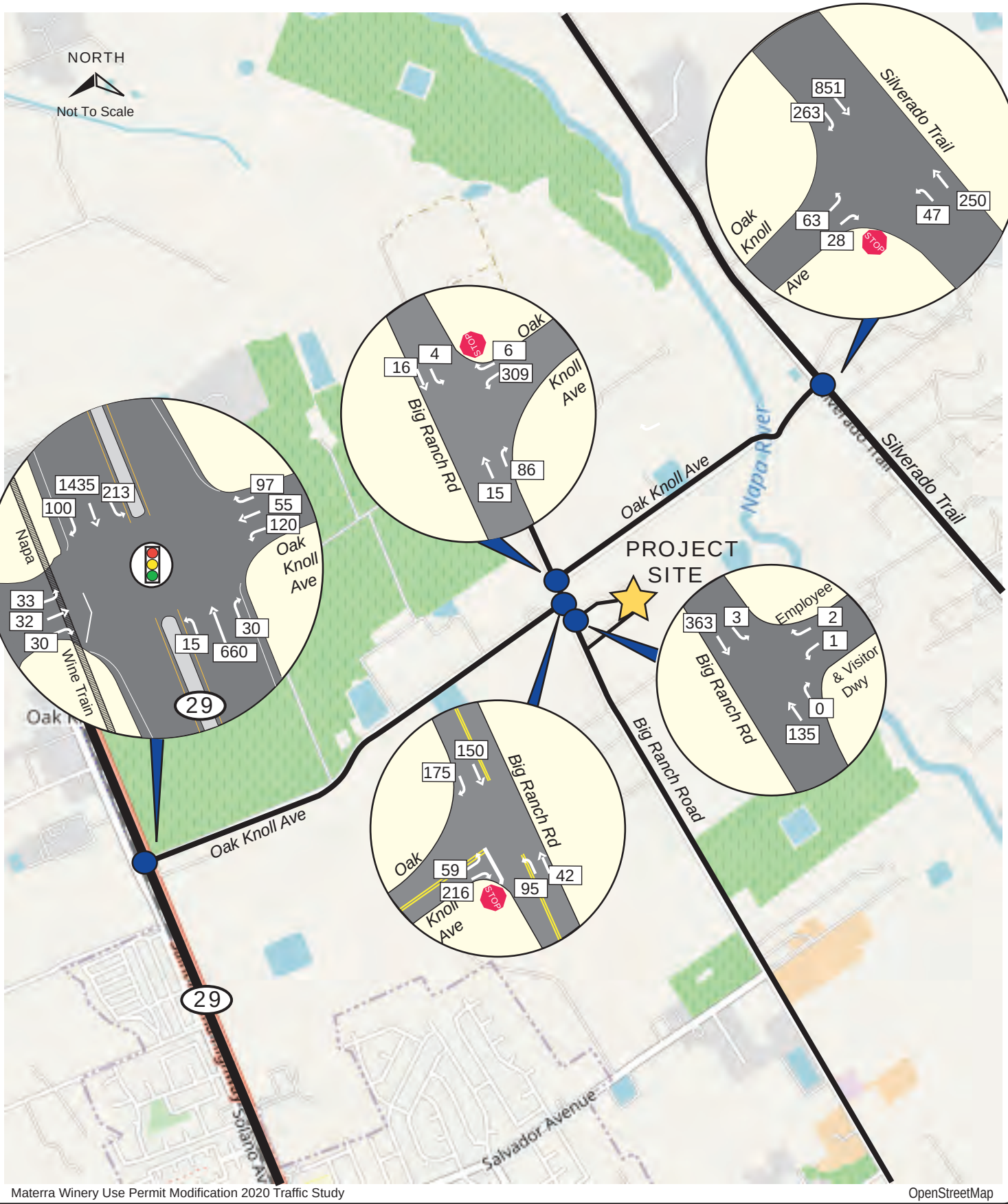
Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 11

Cumulative (Year 2030) Harvest Friday (without Project) PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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OpenStreetMap

Figure 12

Cumulative (Year 2030) Harvest Saturday (without Project) PM Peak Hour Volumes

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OpenStreetMap

Figure 13

Harvest Friday PM Peak Hour
Project Increment Volumes

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OpenStreetMap

Figure 14

Harvest Saturday PM Peak Hour
Project Increment Volumes

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OpenStreetMap

Figure 15

Existing 2019 Harvest Friday (with Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP

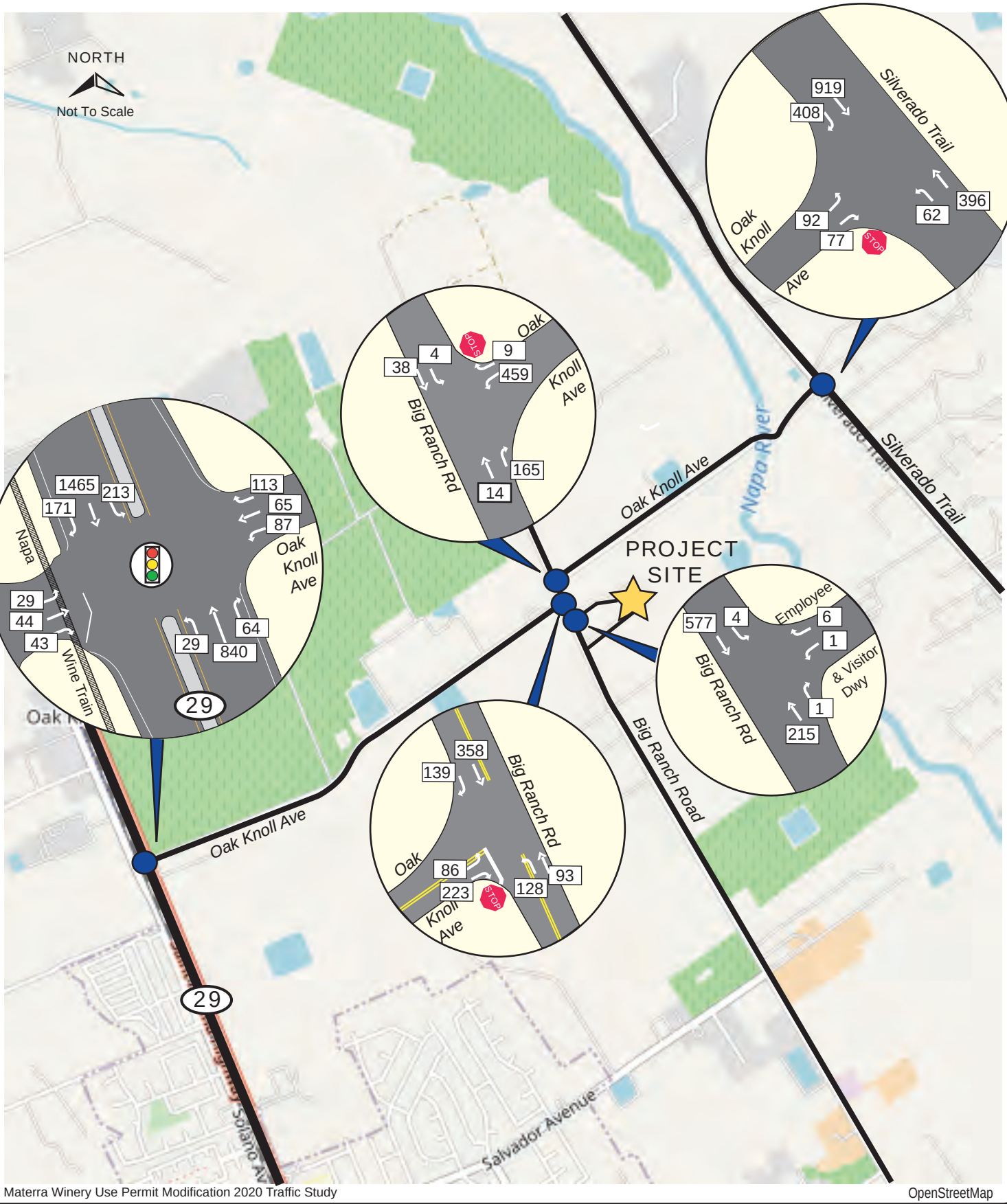
Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 16

Existing 2019 Harvest Saturday (with Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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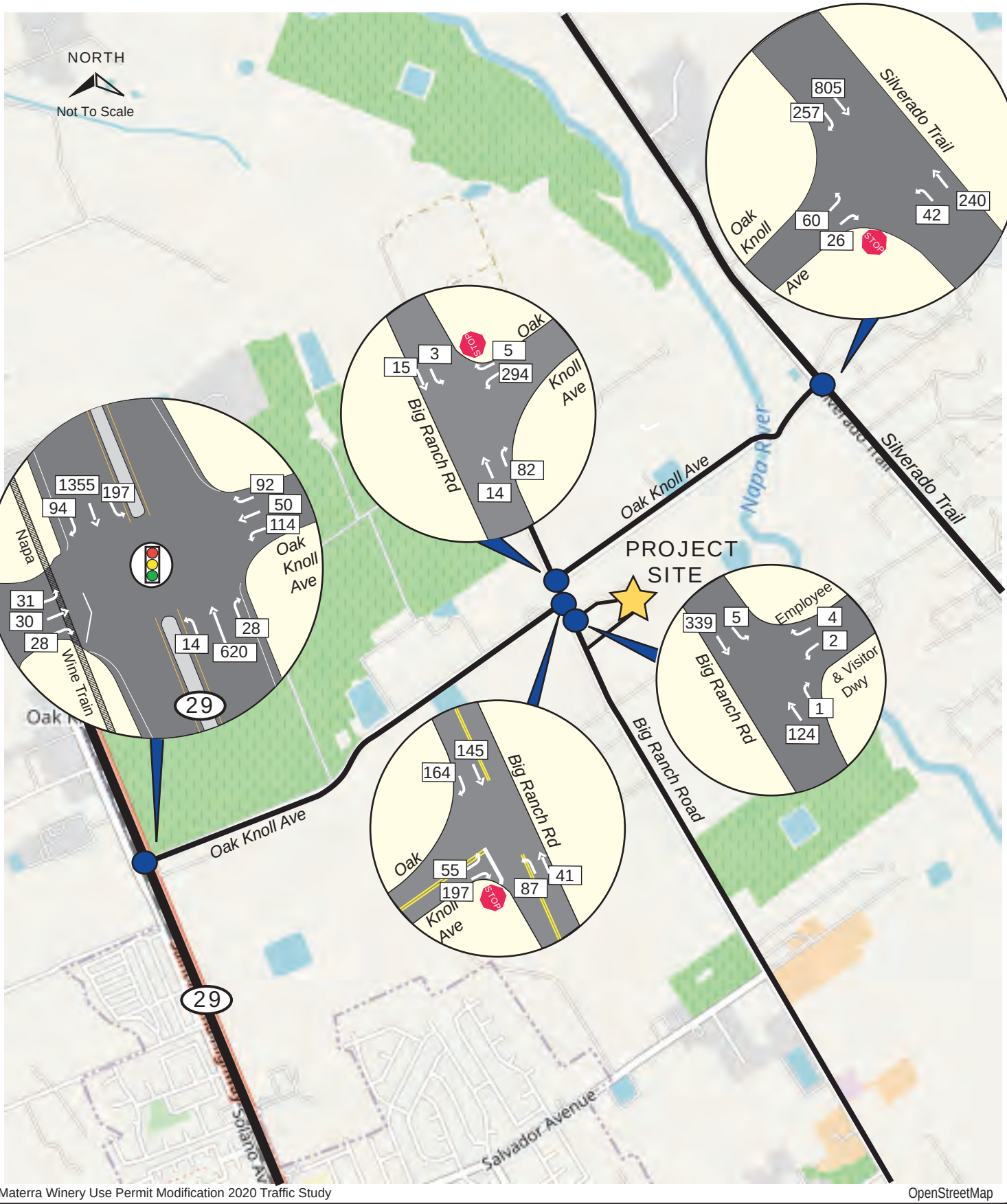
OpenStreetMap

Figure 17

Year 2025 Harvest Friday (with Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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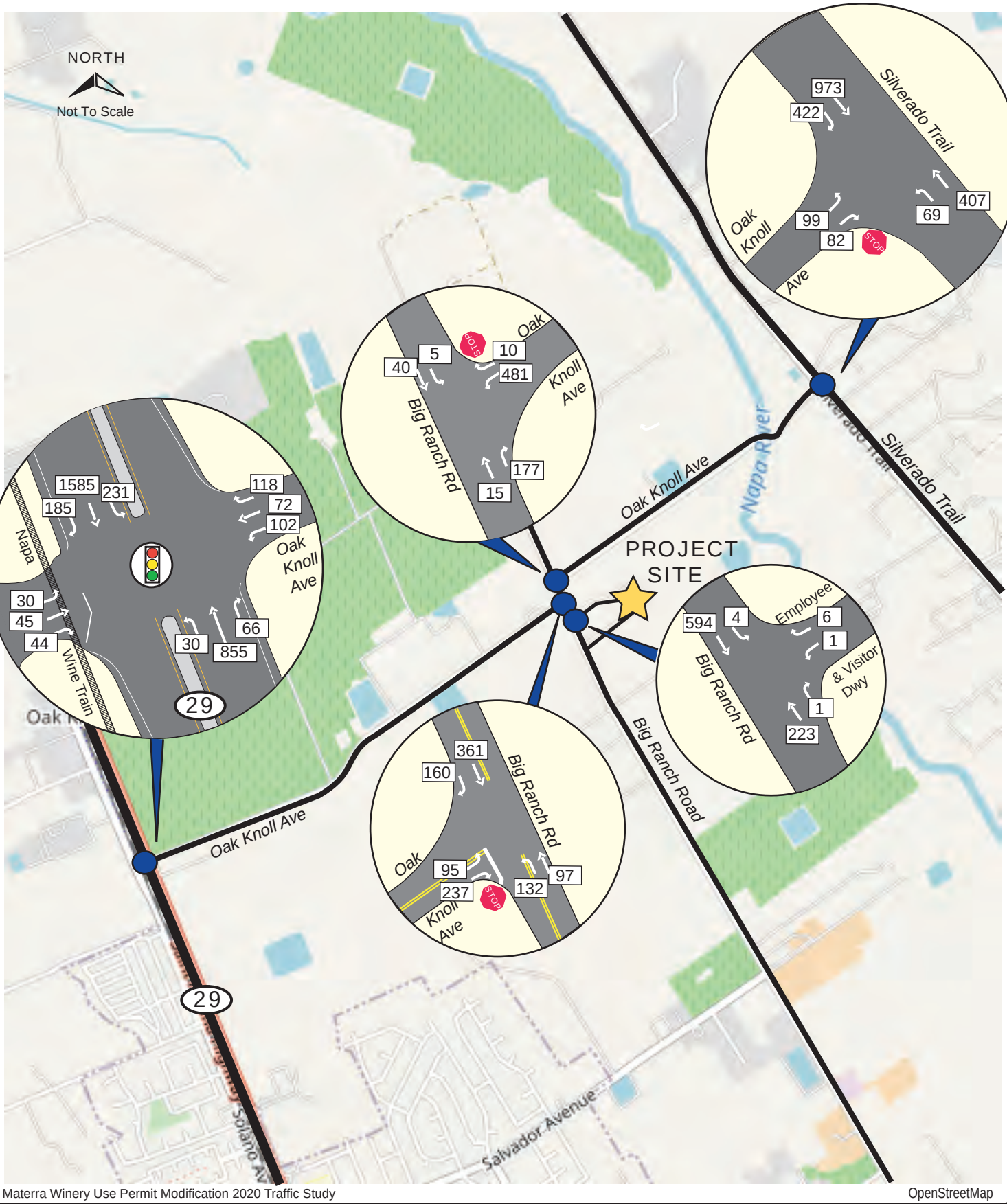
OpenStreetMap

Figure 18

Year 2025 Harvest Saturday (with Project)
PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP



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OpenStreetMap

Figure 19

Cumulative (Year 2030) Harvest Friday (with Project) PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP

Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure 20

Cumulative (Year 2030) Harvest Saturday (with Project) PM Peak Hour Volumes

CRANE TRANSPORTATION GROUP

Appendices

Appendix A

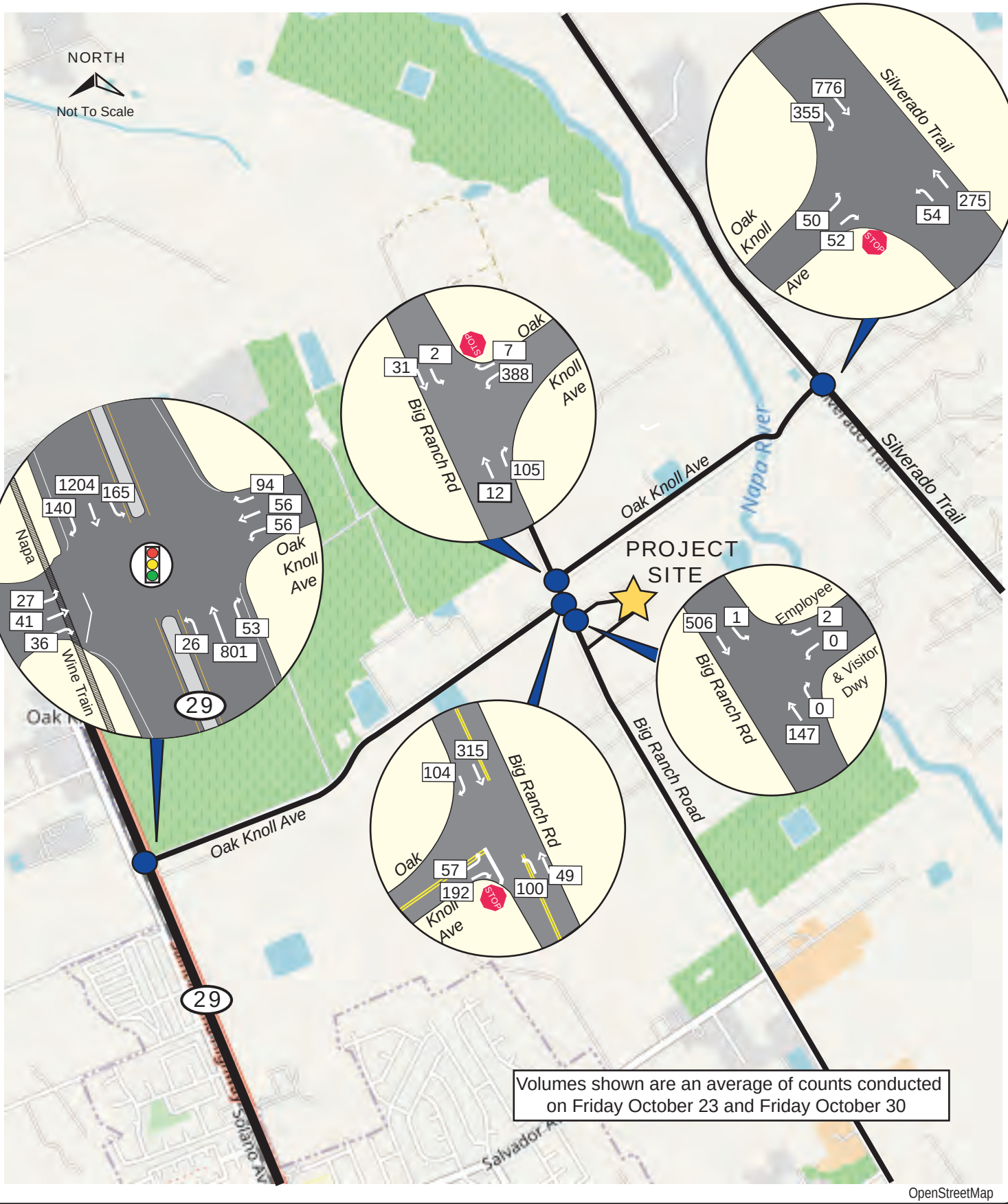
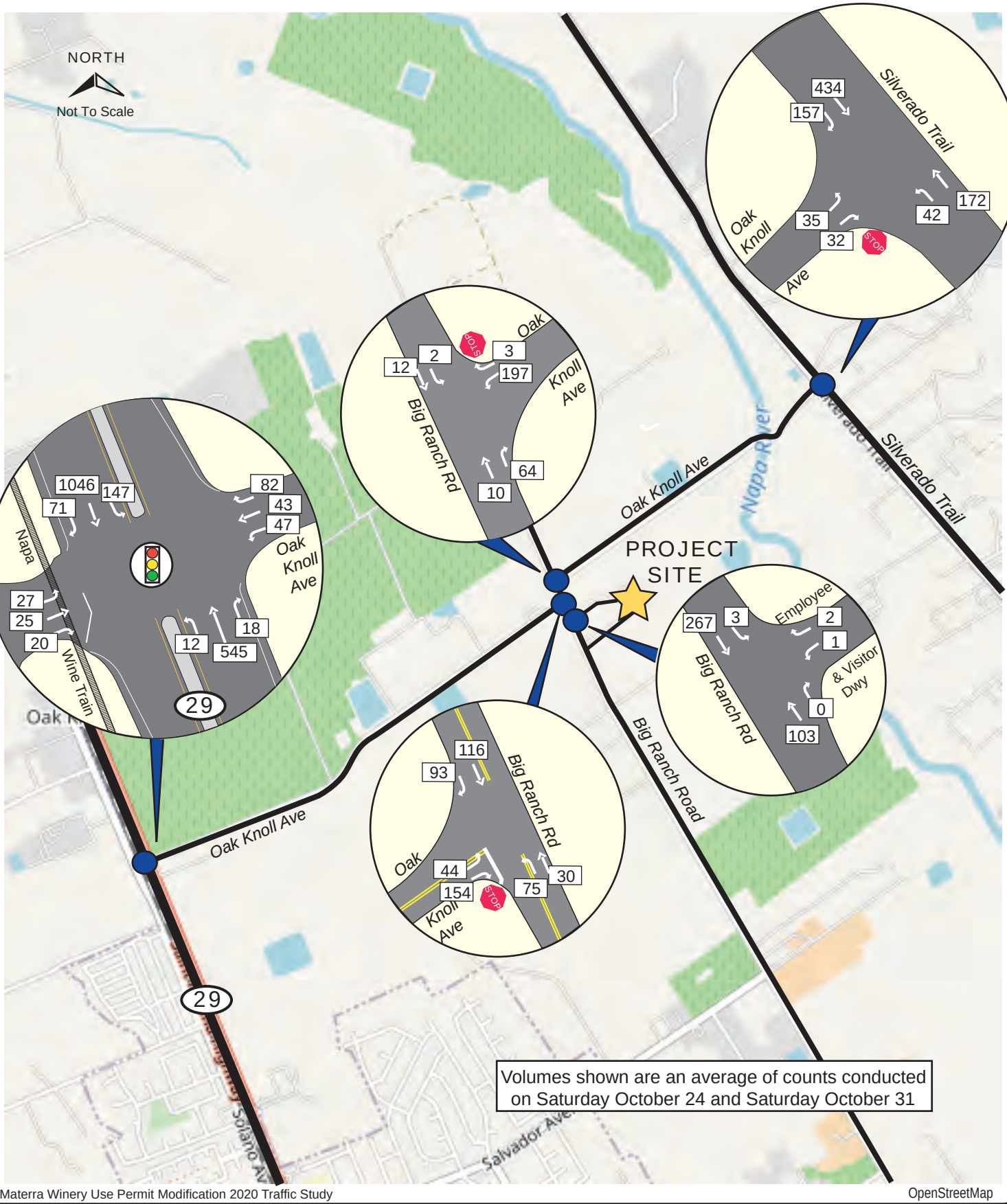


Figure A-1

2020 Harvest Friday Peak Hour Volumes
(3:30-4:30 PM)

CRANE TRANSPORTATION GROUP



Materra Winery Use Permit Modification 2020 Traffic Study

OpenStreetMap

Figure A-2

2020 Harvest Saturday Peak Hour Volumes
(4:45-5:45 PM)

CRANE TRANSPORTATION GROUP

Location: Mattery Winery N Driveway E-O Big Ranch Rd
Date Range: 10/23/2020 - 10/29/2020
Site Code: 01

	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday					
	10/23/2020			10/24/2020			10/25/2020			10/26/2020			10/27/2020			10/28/2020			10/29/2020			Mid-Week Average		
Time	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	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	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	2	0	2	**3**	0	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	**5**	**2**	**7**	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	2	1	3	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	3	**2**	5	**3**	0	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	2	**5**	7	4	**10**	**14**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	7	**5**	12	**5**	3	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	**8**	**5**	**13**	**5**	2	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	0	2	2	4	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	0	2	2	2	5	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	2	**5**	7	2	5	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	0	2	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	32	31	63	31	30	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	51%	49%	-	51%	49%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	09:00	09:00	09:00	08:00	-	08:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	5	2	7	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	14:00	12:00	14:00	13:00	12:00	12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	8	5	13	5	10	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

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

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

Location: Big Ranch Rd N-O Mattery Winery N Driveway
Date Range: 10/23/2020 - 10/29/2020
Site Code: 02

	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday					
	10/23/2020			10/24/2020			10/25/2020			10/26/2020			10/27/2020			10/28/2020			10/29/2020			Mid-Week Average		
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	3	11	14	5	7	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 AM	4	1	5	3	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 AM	7	8	15	2	4	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 AM	1	7	8	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 AM	12	6	18	8	1	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 AM	51	6	57	12	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	188	24	212	50	8	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	139	55	194	68	25	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	**211**	92	**303**	137	71	208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	156	106	262	**155**	82	237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	150	114	264	128	90	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	146	**153**	299	133	**127**	**260**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	**177**	165	342	139	139	278	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	135	177	312	148	135	283	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	142	258	400	164	153	317	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	142	**446**	**588**	**228**	246	**474**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	110	433	543	151	**310**	461	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	103	329	432	99	239	338	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	71	179	250	61	151	212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	54	86	140	49	90	139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	37	45	82	30	38	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	19	34	53	32	25	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	17	29	46	25	27	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	4	33	37	14	44	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	2,079	2,797	4,876	1,843	2,020	3,863	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	43%	57%	-	48%	52%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	08:00	11:00	08:00	09:00	11:00	11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	211	153	303	155	127	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	12:00	15:00	15:00	15:00	16:00	15:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	177	446	588	228	310	474	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

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

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

Location: Mattery Winery N Driveway E-O Big Ranch Rd
Date Range: 10/30/2020 - 11/5/2020
Site Code: 01

	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday			Mid-Week Average		
	10/30/2020			10/31/2020			11/1/2020			11/2/2020			11/3/2020			11/4/2020			11/5/2020					
Time	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	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	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	4	0	4	**5**	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	3	**4**	**7**	4	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	**5**	2	**7**	2	**4**	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	3	**4**	**7**	3	**4**	**7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	1	1	2	**8**	**4**	**12**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	**4**	**5**	**9**	3	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	1	2	3	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	2	4	6	1	**4**	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	1	2	3	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	0	**5**	5	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	0	2	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	1	1	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	26	32	58	28	23	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	45%	55%	-	55%	45%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	10:00	09:00	09:00	08:00	10:00	11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	5	4	7	5	4	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	13:00	13:00	13:00	12:00	12:00	12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	4	5	9	8	4	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

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

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

Location: Big Ranch Rd N-O Mattery Winery N Driveway
Date Range: 10/30/2020 - 11/5/2020
Site Code: 02

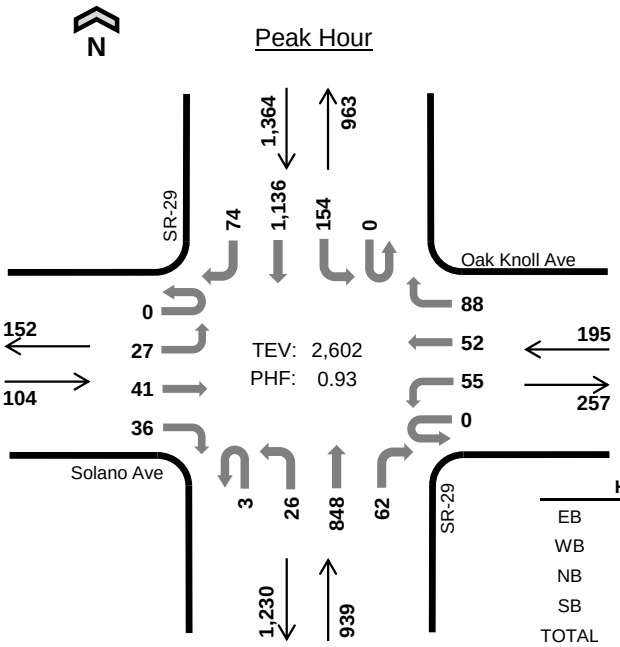
	Friday			Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday					
	10/30/2020			10/31/2020			11/1/2020			11/2/2020			11/3/2020			11/4/2020			11/5/2020			Mid-Week Average		
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	6	6	12	8	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 AM	4	3	7	0	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 AM	3	2	5	5	4	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 AM	2	3	5	2	4	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 AM	13	7	20	6	3	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 AM	47	3	50	13	2	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	161	21	182	40	9	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	181	78	259	59	31	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	**240**	96	**336**	116	59	175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	161	107	268	116	71	187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	137	**131**	268	**137**	96	**233**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	140	127	267	112	**108**	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	123	168	291	119	122	241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	136	192	328	113	118	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	**142**	252	394	**121**	160	**281**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	139	447	**586**	101	166	267	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	126	**459**	585	102	**179**	**281**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	102	318	420	60	176	236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	79	174	253	51	101	152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	49	79	128	53	47	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	28	38	66	33	40	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	25	28	53	25	31	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	13	35	48	18	30	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	12	28	40	12	25	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	2,069	2,802	4,871	1,422	1,598	3,020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	42%	58%	-	47%	53%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	08:00	10:00	08:00	10:00	11:00	10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	240	131	336	137	108	233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
PM Peak	14:00	16:00	15:00	14:00	16:00	14:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Vol.	142	459	586	121	179	281	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####

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

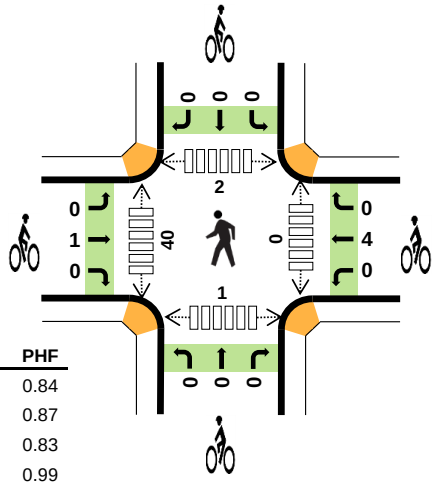
Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

SR-29
Solano Ave

Date: 10/23/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 2:30 PM to 3:30 PM



	HV %:	PHF
EB	3.8%	0.84
WB	0.5%	0.87
NB	4.7%	0.83
SB	4.2%	0.99
TOTAL	4.1%	0.93



Four-Hour Count Summaries

Interval Start		Solano Ave Eastbound				Oak Knoll Ave 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		
2:30 PM		0	6	13	10	0	14	10	19	0	5	267	11	0	48	286	10	699	0
2:45 PM		0	4	17	10	0	14	13	28	2	8	203	11	0	34	292	12	648	0
3:00 PM		0	7	5	10	0	12	12	17	0	10	216	15	0	38	282	20	644	0
3:15 PM		0	10	6	6	0	15	17	24	1	3	162	25	0	34	276	32	611	2,602
Peak Hour	All	0	27	41	36	0	55	52	88	3	26	848	62	0	154	1,136	74	2,602	0
	HV	0	1	1	2	0	0	0	1	0	1	40	3	0	4	49	4	106	0
	HV%	-	4%	2%	6%	-	0%	0%	1%	0%	4%	5%	5%	-	3%	4%	5%	4%	0

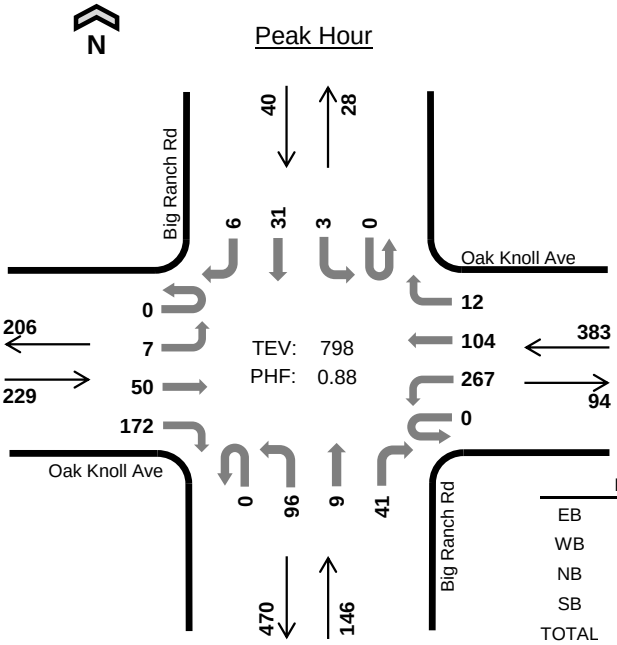
Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:30 PM	1	0	20	12	*33*	1	0	0	0	*1*	0	11	2	0	*13*
2:45 PM	3	0	5	10	*18*	0	0	0	0	*0*	0	5	0	0	*5*
3:00 PM	0	1	9	16	*26*	0	2	0	0	*2*	0	6	0	0	*6*
3:15 PM	0	0	10	19	*29*	0	2	0	0	*2*	0	18	0	1	*19*
Peak Hour	4	1	44	57	*106*	1	4	0	0	*5*	0	40	2	1	*43*

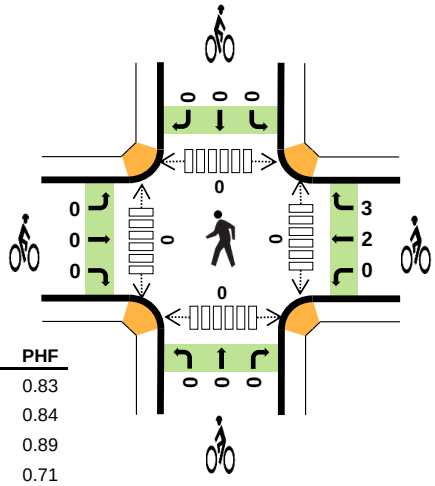
Big Ranch Rd
Oak Knoll Ave

Date: 10/23/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:15 PM to 4:15 PM

Peak Hour



	HV %:	PHF
EB	3.5%	0.83
WB	1.0%	0.84
NB	0.7%	0.89
SB	7.5%	0.71
TOTAL	2.0%	0.88



Four-Hour Count Summaries

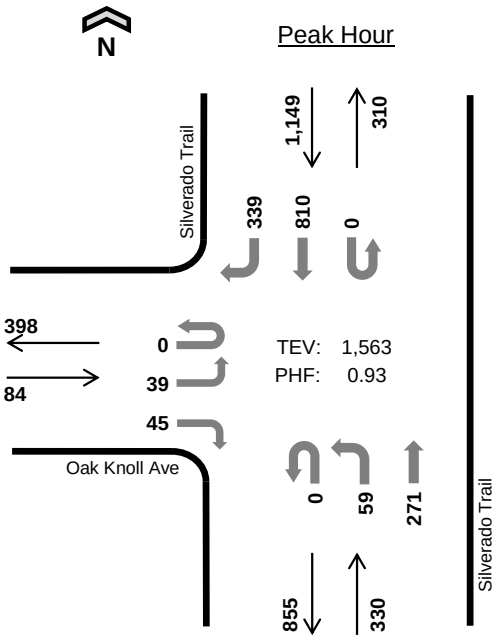
Interval Start		Oak Knoll Ave Eastbound				Oak Knoll Ave Westbound				Big Ranch Rd Northbound				Big Ranch Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:15 PM		0	4	15	30	0	54	28	0	0	24	0	15	0	2	6	1	179	0
3:30 PM		0	0	13	54	0	67	28	2	0	25	4	12	0	0	12	2	219	0
3:45 PM		0	2	12	55	0	83	27	4	0	25	1	8	0	1	8	1	227	0
4:00 PM		0	1	10	33	0	63	21	6	0	22	4	6	0	0	5	2	173	798
Peak Hour	All	0	7	50	172	0	267	104	12	0	96	9	41	0	3	31	6	798	0
	HV	0	0	5	3	0	4	0	0	0	0	0	1	0	0	1	2	16	0
	HV%	-	0%	10%	2%	-	1%	0%	0%	-	0%	0%	2%	-	0%	3%	33%	2%	0

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

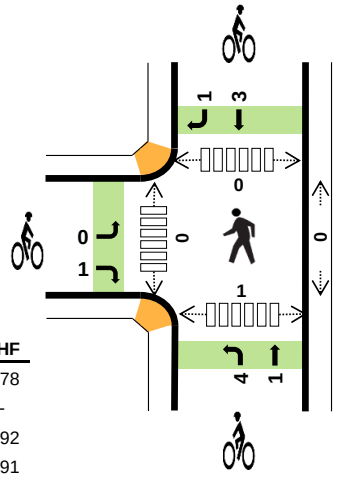
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:15 PM	4	1	1	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
3:30 PM	3	1	0	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
3:45 PM	0	1	0	1	*2*	0	3	0	0	*3*	0	0	0	0	*0*
4:00 PM	1	1	0	0	*2*	0	2	0	0	*2*	0	0	0	0	*0*
Peak Hour	8	4	1	3	*16*	0	5	0	0	*5*	0	0	0	0	*0*

Silverado Trail
Oak Knoll Ave

Date: 10/23/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:30 PM to 4:30 PM



	HV %:	PHF
EB	7.1%	0.78
WB	-	-
NB	1.5%	0.92
SB	3.8%	0.91
TOTAL	3.5%	0.93



Four-Hour Count Summaries

Interval Start		Oak Knoll Ave Eastbound				0 Westbound				Silverado Trail Northbound				Silverado Trail Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM		0	11	0	10	0	0	0	0	0	20	70	0	0	0	193	85	389	0
3:45 PM		0	15	0	12	0	0	0	0	0	12	64	0	0	0	214	103	420	0
4:00 PM		0	6	0	12	0	0	0	0	0	13	72	0	0	0	207	70	380	0
4:15 PM		0	7	0	11	0	0	0	0	0	14	65	0	0	0	196	81	374	1,563
Peak Hour	All	0	39	0	45	0	0	0	0	0	59	271	0	0	0	810	339	1,563	0
	HV	0	2	0	4	0	0	0	0	0	0	5	0	0	0	39	5	55	0
	HV%	-	5%	-	9%	-	-	-	-	-	0%	2%	-	-	-	5%	1%	4%	0

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

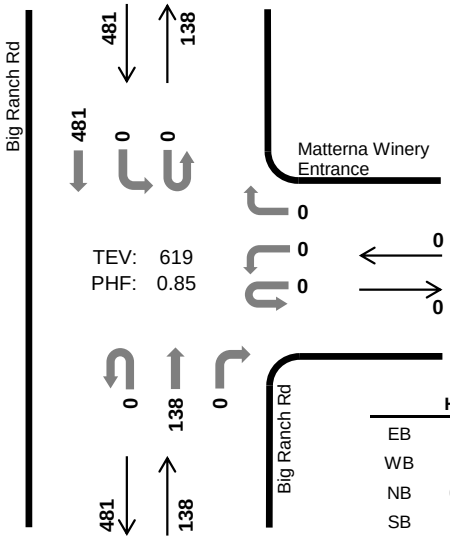
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:30 PM	1	0	2	8	*11*	0	0	1	1	*2*	0	0	0	0	*0*
3:45 PM	4	0	1	15	*20*	0	0	2	0	*2*	0	0	0	0	*0*
4:00 PM	0	0	2	11	*13*	1	0	2	0	*3*	0	0	0	0	*0*
4:15 PM	1	0	0	10	*11*	0	0	0	3	*3*	0	0	0	1	*1*
Peak Hour	6	0	5	44	*55*	1	0	5	4	*10*	0	0	0	1	*1*

Big Ranch Rd
Matterna Winery Entrance

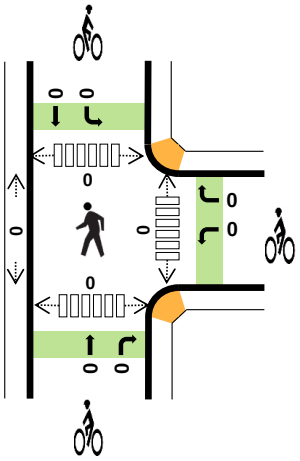
Date: 10/23/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:30 PM to 4:30 PM

N

Peak Hour



	HV %:	PHF
EB	-	-
WB	-	-
NB	0.7%	0.88
SB	1.0%	0.82
TOTAL	1.0%	0.85



Four-Hour Count Summaries

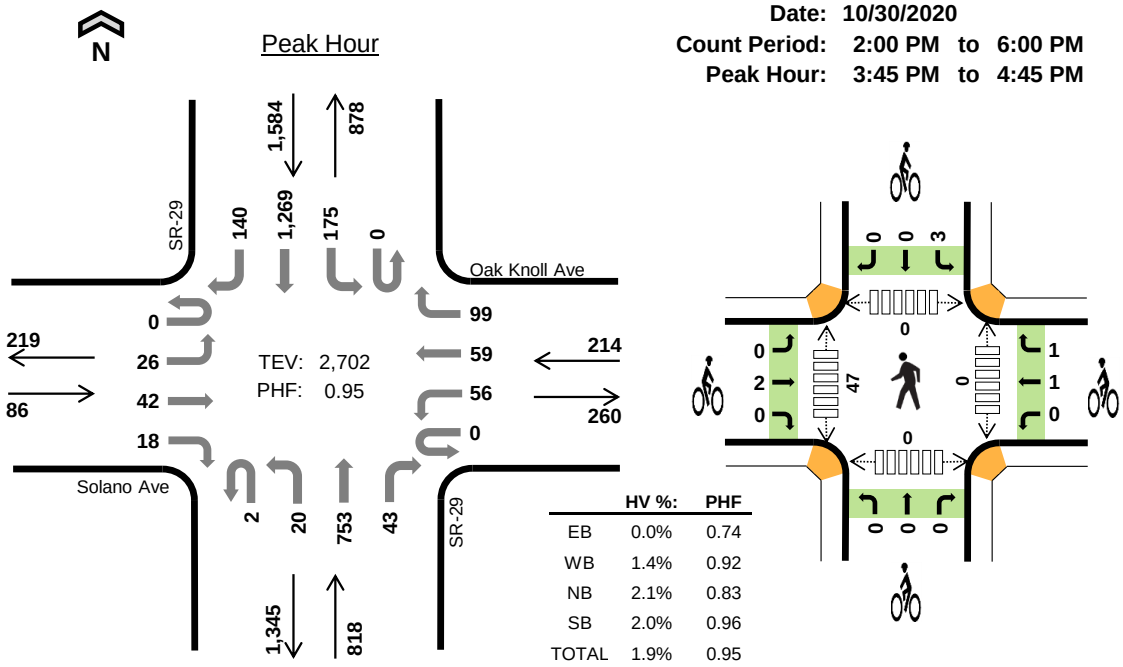
Interval Start		0				Matterna Winery Entrance				Big Ranch Rd				Big Ranch Rd				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM		0	0	0	0	0	0	0	0	0	0	39	0	0	0	133	0	172	0
3:45 PM		0	0	0	0	0	0	0	0	0	0	35	0	0	0	146	0	181	0
4:00 PM		0	0	0	0	0	0	0	0	0	0	32	0	0	0	100	0	132	0
4:15 PM		0	0	0	0	0	0	0	0	0	0	32	0	0	0	102	0	134	619
Peak Hour	All	0	0	0	0	0	0	0	0	0	0	138	0	0	0	481	0	619	0
	HV	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	6	0
	HV%	-	-	-	-	-	-	-	-	-	-	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
3:30 PM	0	0	1	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
3:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:00 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	0	0	1	5	*6*	0	0	0	0	*0*	0	0	0	0	*0*

SR-29
Solano Ave

Date: 10/30/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:45 PM to 4:45 PM



Four-Hour Count Summaries

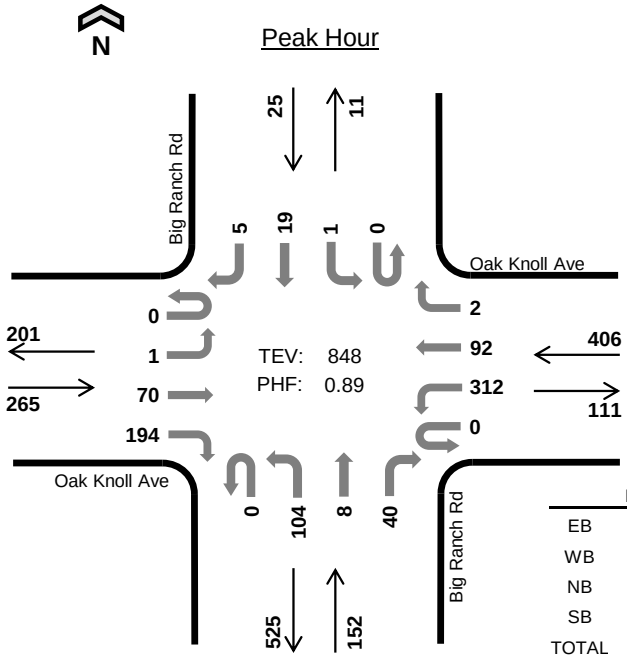
Interval Start		Solano Ave Eastbound				Oak Knoll Ave Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:45 PM		0	6	10	5	0	11	15	32	1	3	234	8	0	51	293	40	709	0
4:00 PM		0	6	6	6	0	17	15	22	0	5	169	12	0	30	338	25	651	0
4:15 PM		0	9	6	3	0	15	15	26	0	5	179	12	0	39	321	36	666	0
4:30 PM		0	5	20	4	0	13	14	19	1	7	171	11	0	55	317	39	676	2,702
Peak Hour	All	0	26	42	18	0	56	59	99	2	20	753	43	0	175	1,269	140	2,702	0
	HV	0	0	0	0	0	1	1	1	0	0	16	1	0	4	25	3	52	0
	HV%	-	0%	0%	0%	-	2%	2%	1%	0%	0%	2%	2%	-	2%	2%	2%	2%	0

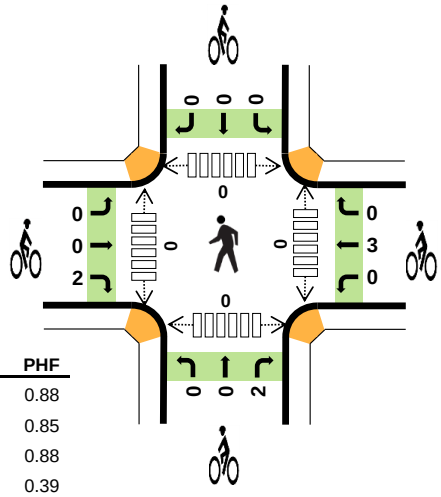
Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:45 PM	0	0	6	6	*12*	0	0	0	1	*1*	0	8	0	0	*8*
4:00 PM	0	0	3	13	*16*	0	0	0	0	*0*	0	7	0	0	*7*
4:15 PM	0	1	5	6	*12*	0	2	0	1	*3*	0	16	0	0	*16*
4:30 PM	0	2	3	7	*12*	2	0	0	1	*3*	0	16	0	0	*16*
Peak Hour	0	3	17	32	*52*	2	2	0	3	*7*	0	47	0	0	*47*

Big Ranch Rd
Oak Knoll Ave

Date: 10/30/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:30 PM to 4:30 PM





	HV %:	PHF
EB	1.9%	0.88
WB	1.5%	0.85
NB	2.0%	0.88
SB	8.0%	0.39
TOTAL	1.9%	0.89

Four-Hour Count Summaries

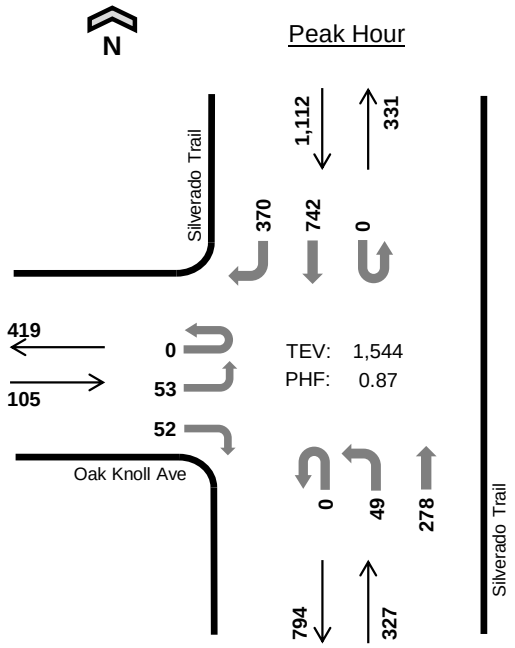
Interval Start		Oak Knoll Ave Eastbound				Oak Knoll Ave Westbound				Big Ranch Rd Northbound				Big Ranch Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM		0	0	25	45	0	76	25	0	0	23	1	12	0	0	2	1	210	0
3:45 PM		0	0	21	54	0	94	25	0	0	32	4	7	0	0	0	1	238	0
4:00 PM		0	1	11	48	0	68	25	2	0	23	2	7	0	1	13	2	203	0
4:15 PM		0	0	13	47	0	74	17	0	0	26	1	14	0	0	4	1	197	848
Peak Hour	All	0	1	70	194	0	312	92	2	0	104	8	40	0	1	19	5	848	0
	HV	0	0	1	4	0	6	0	0	0	1	0	2	0	0	2	0	16	0
	HV%	-	0%	1%	2%	-	2%	0%	0%	-	1%	0%	5%	-	0%	11%	0%	2%	0

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

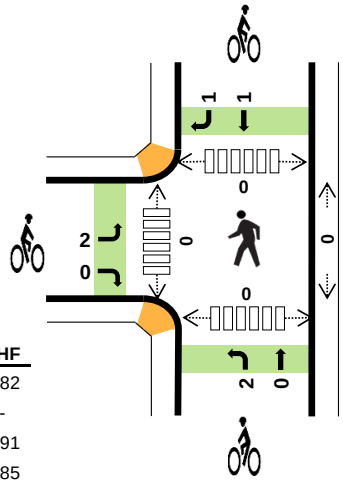
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:30 PM	2	3	0	2	*7*	0	2	0	0	*2*	0	0	0	0	*0*
3:45 PM	0	1	1	0	*2*	1	0	0	0	*1*	0	0	0	0	*0*
4:00 PM	1	1	1	0	*3*	0	1	0	0	*1*	0	0	0	0	*0*
4:15 PM	2	1	1	0	*4*	1	0	2	0	*3*	0	0	0	0	*0*
Peak Hour	5	6	3	2	*16*	2	3	2	0	*7*	0	0	0	0	*0*

Silverado Trail
Oak Knoll Ave

Date: 10/30/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:30 PM to 4:30 PM



	HV %:	PHF
EB	1.9%	0.82
WB	-	-
NB	1.5%	0.91
SB	2.1%	0.85
TOTAL	1.9%	0.87



Four-Hour Count Summaries

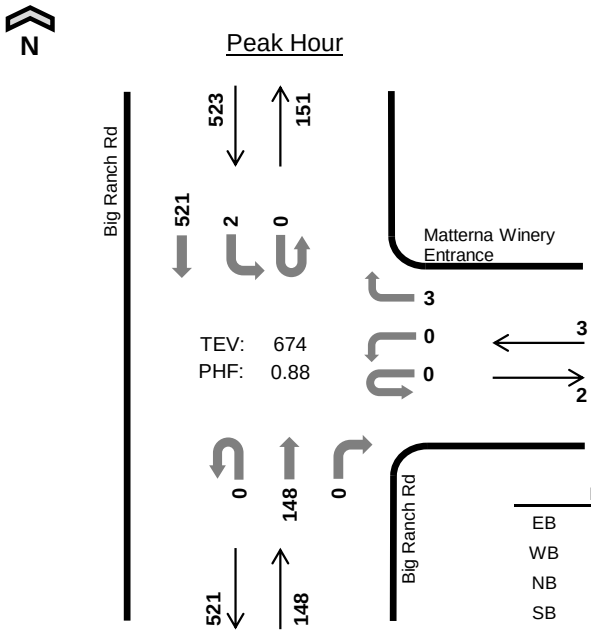
Interval Start		Oak Knoll Ave Eastbound				n/a Westbound				Silverado Trail Northbound				Silverado Trail Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM		0	12	0	17	0	0	0	0	0	17	68	0	0	0	200	91	405	0
3:45 PM		0	12	0	19	0	0	0	0	0	11	72	0	0	0	220	108	442	0
4:00 PM		0	7	0	6	0	0	0	0	0	12	78	0	0	0	169	86	358	0
4:15 PM		0	22	0	10	0	0	0	0	0	9	60	0	0	0	153	85	339	1,544
Peak Hour	All	0	53	0	52	0	0	0	0	0	49	278	0	0	0	742	370	1,544	0
	HV	0	2	0	0	0	0	0	0	0	1	4	0	0	0	19	4	30	0
	HV%	-	4%	-	0%	-	-	-	-	-	2%	1%	-	-	-	3%	1%	2%	0

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

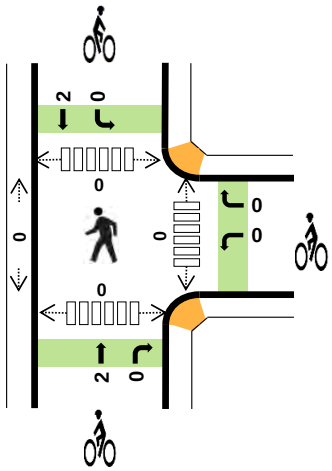
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:30 PM	0	0	2	8	*10*	0	0	2	0	*2*	0	0	0	0	*0*
3:45 PM	1	0	0	6	*7*	0	0	0	1	*1*	0	0	0	0	*0*
4:00 PM	0	0	1	4	*5*	0	0	0	1	*1*	0	0	0	0	*0*
4:15 PM	1	0	2	5	*8*	2	0	0	0	*2*	0	0	0	0	*0*
Peak Hour	2	0	5	23	*30*	2	0	2	2	*6*	0	0	0	0	*0*

Big Ranch Rd
Matterna Winery Entrance

Date: 10/30/2020
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 3:30 PM to 4:30 PM



	HV %:	PHF
EB	-	-
WB	0.0%	0.75
NB	2.7%	0.90
SB	2.1%	0.87
TOTAL	2.2%	0.88



Four-Hour Count Summaries

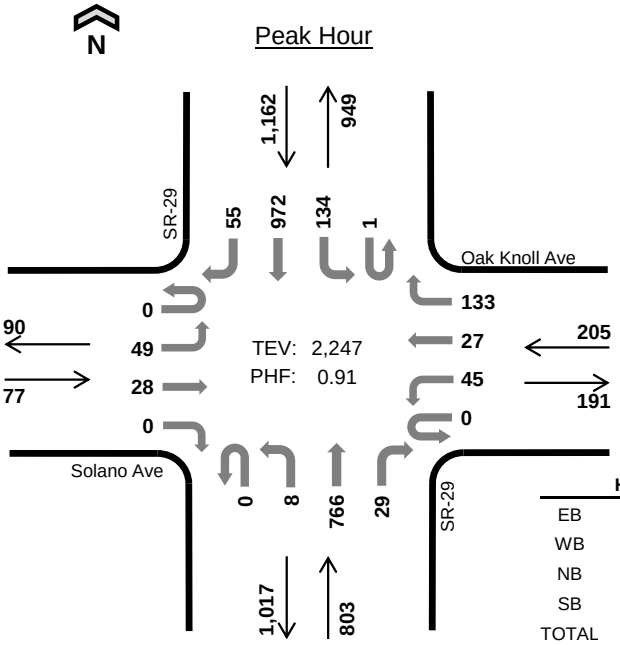
Interval Start		n/a				Matterna Winery Entrance				Big Ranch Rd				Big Ranch Rd				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM		0	0	0	0	0	0	0	1	0	0	36	0	0	1	121	0	159	0
3:45 PM		0	0	0	0	0	0	0	1	0	0	41	0	0	0	150	0	192	0
4:00 PM		0	0	0	0	0	0	0	0	0	0	31	0	0	0	128	0	159	0
4:15 PM		0	0	0	0	0	0	0	1	0	0	40	0	0	1	122	0	164	674
Peak Hour	All	0	0	0	0	0	0	0	3	0	0	148	0	0	2	521	0	674	0
	HV	0	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	15	0
	HV%	-	-	-	-	-	-	-	0%	-	-	3%	-	-	0%	2%	-	2%	0

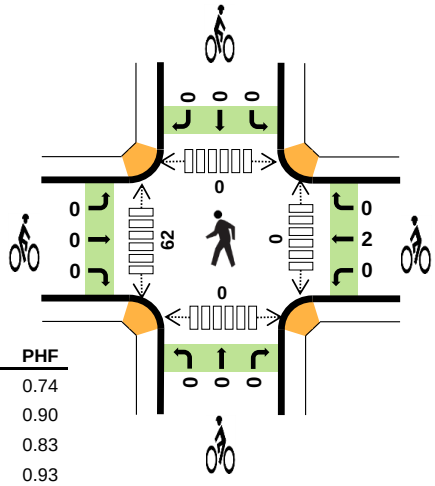
Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:30 PM	0	0	1	7	*8*	0	0	0	0	*0*	0	0	0	0	*0*
3:45 PM	0	0	1	1	*2*	0	0	0	1	*1*	0	0	0	0	*0*
4:00 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	1	2	*3*	0	0	2	1	*3*	0	0	0	0	*0*
Peak Hour	0	0	4	11	*15*	0	0	2	2	*4*	0	0	0	0	*0*

SR-29
Solano Ave

Date: 10/24/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 3:00 PM to 4:00 PM





	HV %:	PHF
EB	0.0%	0.74
WB	1.5%	0.90
NB	1.5%	0.83
SB	0.7%	0.93
TOTAL	1.0%	0.91

Six-Hour Count Summaries

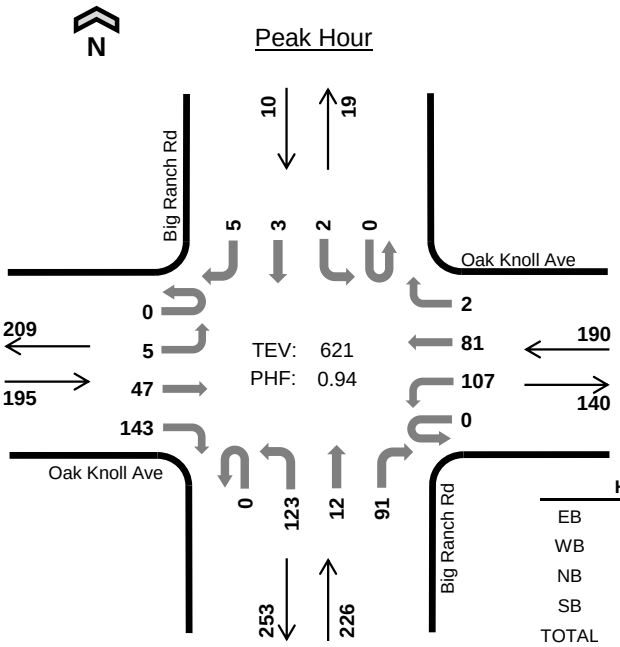
Interval Start		Solano Ave Eastbound				Oak Knoll Ave Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM		0	17	2	0	0	13	8	36	0	1	236	6	0	32	253	10	614	0
3:15 PM		0	19	7	0	0	16	3	36	0	1	173	7	0	27	230	13	532	0
3:30 PM		0	7	10	0	0	6	6	31	0	3	193	7	0	36	261	17	577	0
3:45 PM		0	6	9	0	0	10	10	30	0	3	164	9	1	39	228	15	524	2,247
Peak Hour	All	0	49	28	0	0	45	27	133	0	8	766	29	1	134	972	55	2,247	0
	HV	0	0	0	0	0	0	0	3	0	0	11	1	0	0	5	3	23	0
	HV%	-	0%	0%	-	-	0%	0%	2%	-	0%	1%	3%	0%	0%	1%	5%	1%	0

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

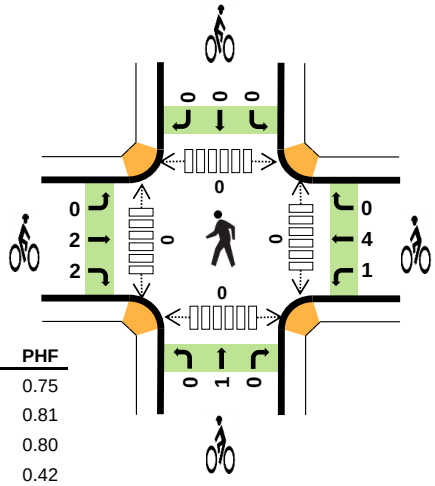
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:00 PM	0	1	4	1	*6*	0	0	0	0	*0*	0	15	0	0	*15*
3:15 PM	0	0	3	4	*7*	0	0	0	0	*0*	0	14	0	0	*14*
3:30 PM	0	1	2	2	*5*	0	0	0	0	*0*	0	23	0	0	*23*
3:45 PM	0	1	3	1	*5*	0	2	0	0	*2*	0	10	0	0	*10*
Peak Hour	0	3	12	8	*23*	0	2	0	0	*2*	0	62	0	0	*62*

Big Ranch Rd
Oak Knoll Ave

Date: 10/24/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 3:00 PM to 4:00 PM



	HV %:	PHF
EB	0.5%	0.75
WB	2.6%	0.81
NB	0.4%	0.80
SB	0.0%	0.42
TOTAL	1.1%	0.94



Six-Hour Count Summaries

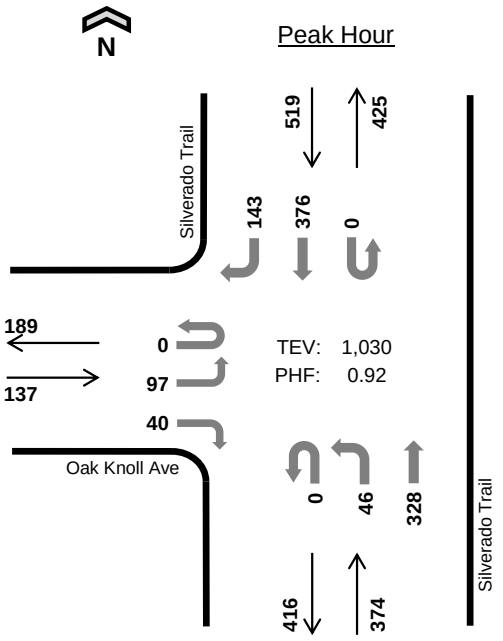
Interval Start		Oak Knoll Ave Eastbound				Oak Knoll Ave Westbound				Big Ranch Rd Northbound				Big Ranch Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM		0	1	5	27	0	23	28	1	0	33	2	36	0	0	1	2	159	0
3:15 PM		0	1	11	26	0	24	21	1	0	36	7	23	0	2	2	2	156	0
3:30 PM		0	2	11	46	0	23	10	0	0	33	3	11	0	0	0	1	140	0
3:45 PM		0	1	20	44	0	37	22	0	0	21	0	21	0	0	0	0	166	621
Peak Hour	All	0	5	47	143	0	107	81	2	0	123	12	91	0	2	3	5	621	0
	HV	0	0	1	0	0	3	2	0	0	1	0	0	0	0	0	0	7	0
	HV%	-	0%	2%	0%	-	3%	2%	0%	-	1%	0%	0%	-	0%	0%	0%	1%	0

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

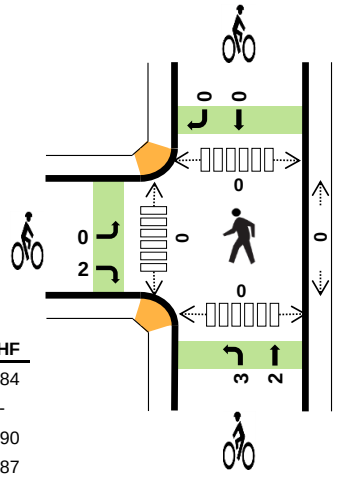
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:00 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
3:15 PM	0	2	0	0	*2*	0	2	1	0	*3*	0	0	0	0	*0*
3:30 PM	0	1	1	0	*2*	4	0	0	0	*4*	0	0	0	0	*0*
3:45 PM	1	1	0	0	*2*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

Silverado Trail
Oak Knoll Ave

Date: 10/24/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 3:00 PM to 4:00 PM



	HV %:	PHF
EB	0.7%	0.84
WB	-	-
NB	1.3%	0.90
SB	1.3%	0.87
TOTAL	1.3%	0.92



Six-Hour Count Summaries

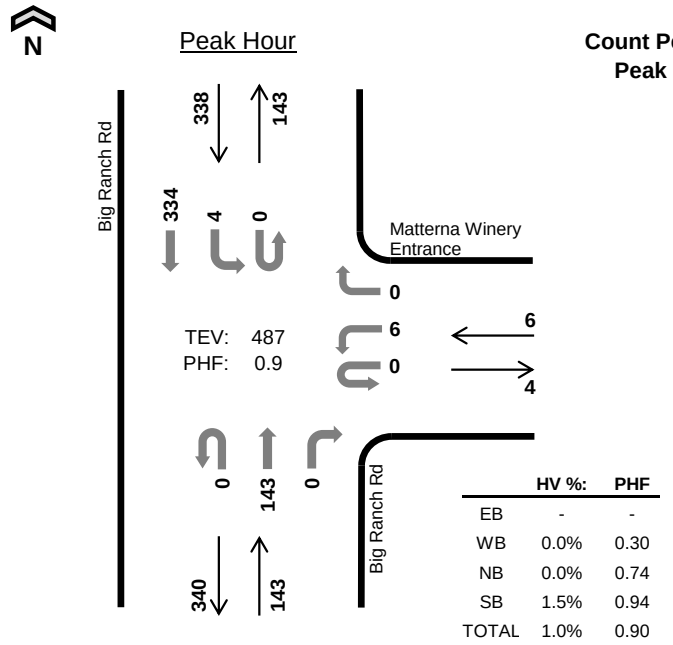
Interval Start		Oak Knoll Ave Eastbound				0 Westbound				Silverado Trail Northbound				Silverado Trail Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:00 PM		0	31	0	9	0	0	0	0	0	10	94	0	0	0	76	39	259	0
3:15 PM		0	30	0	6	0	0	0	0	0	17	80	0	0	0	95	30	258	0
3:30 PM		0	14	0	6	0	0	0	0	0	6	78	0	0	0	92	37	233	0
3:45 PM		0	22	0	19	0	0	0	0	0	13	76	0	0	0	113	37	280	1,030
Peak Hour	All	0	97	0	40	0	0	0	0	0	46	328	0	0	0	376	143	1,030	0
	HV	0	1	0	0	0	0	0	0	0	1	4	0	0	0	3	4	13	0
	HV%	-	1%	-	0%	-	-	-	-	-	2%	1%	-	-	-	1%	3%	1%	0

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

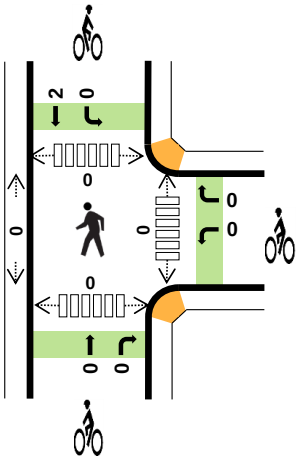
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
3:00 PM	0	0	1	1	*2*	0	0	2	0	*2*	0	0	0	0	*0*
3:15 PM	0	0	2	2	*4*	0	0	2	0	*2*	0	0	0	0	*0*
3:30 PM	0	0	2	1	*3*	2	0	0	0	*2*	0	0	0	0	*0*
3:45 PM	1	0	0	3	*4*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

Big Ranch Rd
Matterna Winery Entrance

Date: 10/24/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	-	-
WB	0.0%	0.30
NB	0.0%	0.74
SB	1.5%	0.94
TOTAL	1.0%	0.90



Six-Hour Count Summaries

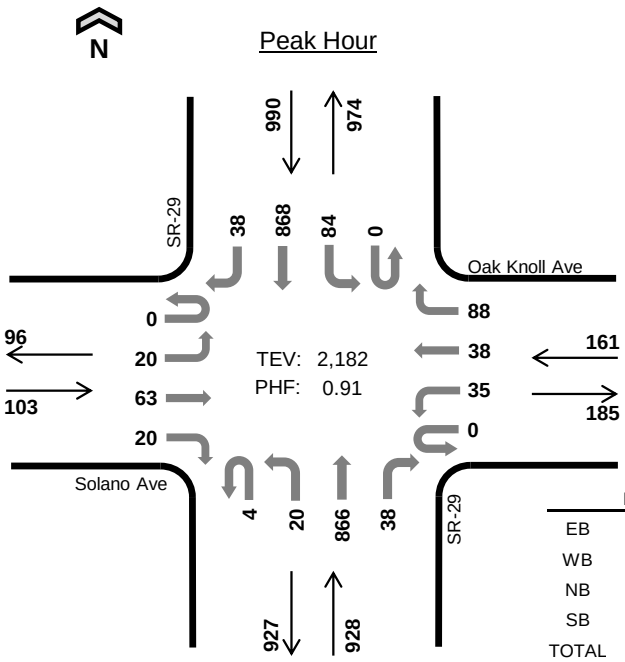
Interval Start		0				Matterna Winery Entrance				Big Ranch Rd				Big Ranch Rd				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:15 PM		0	0	0	0	0	1	0	0	0	0	48	0	0	2	84	0	135	0
4:30 PM		0	0	0	0	0	0	0	0	0	0	37	0	0	0	90	0	127	0
4:45 PM		0	0	0	0	0	5	0	0	0	0	30	0	0	1	87	0	123	0
5:00 PM		0	0	0	0	0	0	0	0	0	0	28	0	0	1	73	0	102	487
Peak Hour	All	0	0	0	0	0	6	0	0	0	0	143	0	0	4	334	0	487	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0
	HV%	-	-	-	-	-	0%	-	-	-	-	0%	-	-	0%	1%	-	1%	0

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

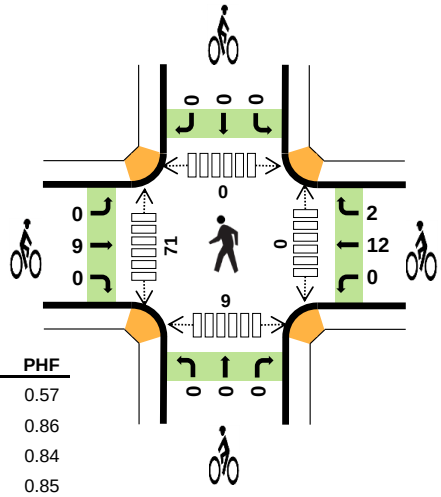
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:15 PM	0	0	0	1	*1*	0	0	0	2	*2*	0	0	0	0	*0*
4:30 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	0	0	0	2	*2*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

SR-29
Solano Ave

Date: 10/31/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 1:45 PM to 2:45 PM



	HV %:	PHF
EB	1.0%	0.57
WB	1.2%	0.86
NB	0.5%	0.84
SB	2.0%	0.85
TOTAL	1.3%	0.91



Six-Hour Count Summaries

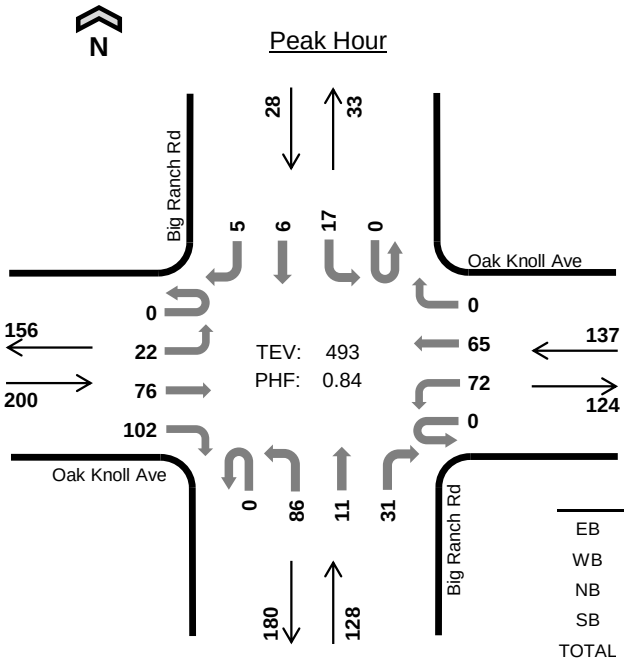
Interval Start		Solano Ave Eastbound				Oak Knoll Ave Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
1:45 PM		0	6	4	2	0	5	4	27	2	6	261	6	0	14	209	10	556	0
2:00 PM		0	7	34	4	0	7	19	21	1	9	246	15	0	22	203	11	599	0
2:15 PM		0	2	8	6	0	11	6	20	0	2	189	8	0	23	198	8	481	0
2:30 PM		0	5	17	8	0	12	9	20	1	3	170	9	0	25	258	9	546	2,182
Peak Hour	All	0	20	63	20	0	35	38	88	4	20	866	38	0	84	868	38	2,182	0
	HV	0	0	1	0	0	1	1	0	0	0	5	0	0	3	16	1	28	0
	HV%	-	0%	2%	0%	-	3%	3%	0%	0%	0%	1%	0%	-	4%	2%	3%	1%	0

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

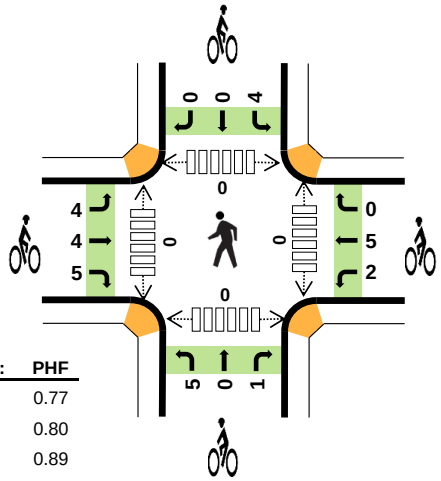
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
1:45 PM	0	0	3	7	*10*	0	3	0	0	*3*	0	16	0	2	*18*
2:00 PM	1	1	1	4	*7*	6	8	0	0	*14*	0	22	0	4	*26*
2:15 PM	0	1	1	5	*7*	0	1	0	0	*1*	0	20	0	0	*20*
2:30 PM	0	0	0	4	*4*	3	2	0	0	*5*	0	13	0	3	*16*
Peak Hour	1	2	5	20	*28*	9	14	0	0	*23*	0	71	0	9	*80*

Big Ranch Rd
Oak Knoll Ave

Date: 10/31/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 2:00 PM to 3:00 PM



	HV %:	PHF
EB	3.0%	0.77
WB	0.0%	0.80
NB	0.8%	0.89
SB	7.1%	0.39
TOTAL	1.8%	0.84



Six-Hour Count Summaries

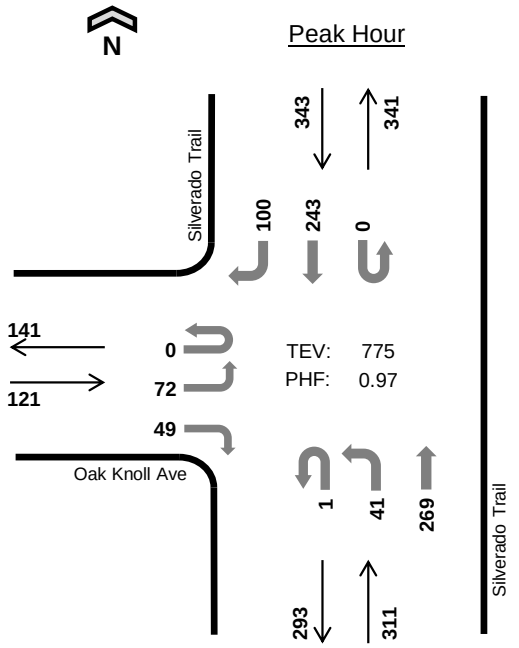
Interval Start		Oak Knoll Ave Eastbound				Oak Knoll Ave Westbound				Big Ranch Rd Northbound				Big Ranch Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	21	18	26	0	24	19	0	0	20	2	12	0	2	1	2	147	0
2:15 PM		0	0	16	24	0	16	12	0	0	25	3	5	0	13	3	2	119	0
2:30 PM		0	0	22	21	0	14	22	0	0	21	5	10	0	1	2	1	119	0
2:45 PM		0	1	20	31	0	18	12	0	0	20	1	4	0	1	0	0	108	493
Peak Hour	All	0	22	76	102	0	72	65	0	0	86	11	31	0	17	6	5	493	0
	HV	0	1	3	2	0	0	0	0	0	1	0	0	0	0	1	1	9	0
	HV%	-	5%	4%	2%	-	0%	0%	-	-	1%	0%	0%	-	0%	17%	20%	2%	0

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

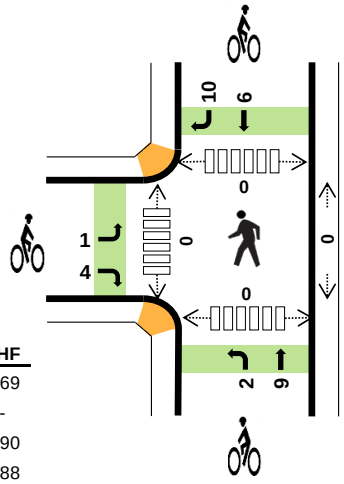
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	3	0	0	1	*4*	6	4	1	0	*11*	0	0	0	0	*0*
2:15 PM	2	0	0	1	*3*	0	0	2	4	*6*	0	0	0	0	*0*
2:30 PM	1	0	0	0	*1*	2	3	3	0	*8*	0	0	0	0	*0*
2:45 PM	0	0	1	0	*1*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

Silverado Trail
Oak Knoll Ave

Date: 10/31/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 12:15 PM to 1:15 PM



	HV %:	PHF
EB	0.0%	0.69
WB	-	-
NB	1.3%	0.90
SB	3.5%	0.88
TOTAL	2.1%	0.97



Six-Hour Count Summaries

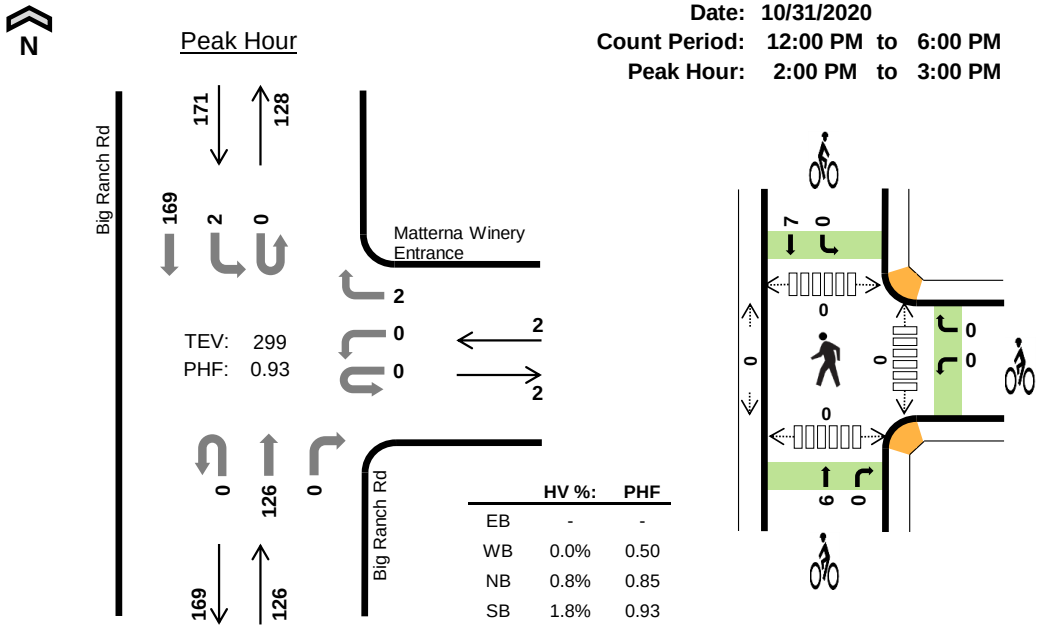
Interval Start		Oak Knoll Ave Eastbound				0 Westbound				Silverado Trail Northbound				Silverado Trail Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:15 PM		0	14	0	10	0	0	0	0	1	14	62	0	0	0	57	32	190	0
12:30 PM		0	21	0	12	0	0	0	0	0	7	62	0	0	0	71	26	199	0
12:45 PM		0	23	0	21	0	0	0	0	0	9	77	0	0	0	50	16	196	0
1:00 PM		0	14	0	6	0	0	0	0	0	11	68	0	0	0	65	26	190	775
Peak Hour	All	0	72	0	49	0	0	0	0	1	41	269	0	0	0	243	100	775	0
	HV	0	0	0	0	0	0	0	0	0	1	3	0	0	0	11	1	16	0
	HV%	-	0%	-	0%	-	-	-	-	0%	2%	1%	-	-	-	5%	1%	2%	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
12:15 PM	0	0	2	4	*6*	0	0	3	7	*10*	0	0	0	0	*0*
12:30 PM	0	0	0	1	*1*	1	0	4	4	*9*	0	0	0	0	*0*
12:45 PM	0	0	1	2	*3*	4	0	2	2	*8*	0	0	0	0	*0*
1:00 PM	0	0	1	5	*6*	0	0	2	3	*5*	0	0	0	0	*0*
Peak Hour	0	0	4	12	*16*	5	0	11	16	*32*	0	0	0	0	*0*

Big Ranch Rd
Matterna Winery Entrance

Date: 10/31/2020
Count Period: 12:00 PM to 6:00 PM
Peak Hour: 2:00 PM to 3:00 PM



Six-Hour Count Summaries

Interval Start		0 Eastbound				Matterna Winery Entrance Westbound				Big Ranch Rd Northbound				Big Ranch Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	0	0	0	0	0	0	1	0	0	33	0	0	0	46	0	80	0
2:15 PM		0	0	0	0	0	0	0	1	0	0	31	0	0	1	42	0	75	0
2:30 PM		0	0	0	0	0	0	0	0	0	0	37	0	0	1	36	0	74	0
2:45 PM		0	0	0	0	0	0	0	0	0	0	25	0	0	0	45	0	70	299
Peak Hour	All	0	0	0	0	0	0	0	2	0	0	126	0	0	2	169	0	299	0
	HV	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	0
	HV%	-	-	-	-	-	-	-	0%	-	-	1%	-	-	0%	2%	-	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
2:00 PM	0	0	0	0	*0*	0	0	1	4	*5*	0	0	0	0	*0*
2:15 PM	0	0	0	3	*3*	0	0	2	0	*2*	0	0	0	0	*0*
2:30 PM	0	0	1	0	*1*	0	0	3	0	*3*	0	0	0	0	*0*
2:45 PM	0	0	0	0	*0*	0	0	0	3	*3*	0	0	0	0	*0*
Peak Hour	0	0	1	3	*4*	0	0	6	7	*13*	0	0	0	0	*0*

Appendix B

Intersection	
Int Delay, s/veh	9.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	72	202	120	90	344	114
Future Vol, veh/h	72	202	120	90	344	114
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	82	230	136	102	391	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	844	470	528	0	-	0
Stage 1	463	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	335	596	1049	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	285	589	1043	-	-	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.7	5.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1043	-	460	-	-
HCM Lane V/C Ratio	0.131	-	0.677	-	-
HCM Control Delay (s)	9	0	27.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.4	-	5	-	-

Intersection	
Int Delay, s/veh	10.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	423	8	12	150	4	35
Future Vol, veh/h	423	8	12	150	4	35
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	481	9	14	170	5	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	163	113	0	0	191	0
Stage 1	106	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	828	940	-	-	1395	-
Stage 1	918	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	815	929	-	-	1387	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	817	1387	-
HCM Lane V/C Ratio	-	-	0.599	0.003	-
HCM Control Delay (s)	-	-	15.8	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	4.1	0	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	83	71	54	380	850	391
Future Vol, veh/h	83	71	54	380	850	391
Conflicting Peds, #/hr	0	0	0	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	89	76	58	409	914	420

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1444	919	1339	0	-	0
Stage 1	919	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	145	329	518	-	-	-
Stage 1	389	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	128	328	516	-	-	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	52.6	1.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	516	-	128	328	-	-
HCM Lane V/C Ratio	0.113	-	0.697	0.233	-	-
HCM Control Delay (s)	12.9	-	81	19.3	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.4	-	3.9	0.9	-	-

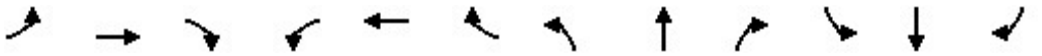
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	206	0	1	545
Future Vol, veh/h	0	2	206	0	1	545
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	2	242	0	1	634

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	878	242	0	0	242	0
Stage 1	242	-	-	-	-	-
Stage 2	636	-	-	-	-	-
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	321	802	-	-	1336	-
Stage 1	803	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	321	802	-	-	1336	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	530	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	802	1336	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	9.5	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	43	40	67	66	104	27	821	56	185	1320	154
Future Volume (veh/h)	28	43	40	67	66	104	27	821	56	185	1320	154
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	30	46	43	72	71	58	29	883	60	199	1419	112
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	67	82	56	144	113	230	51	1981	866	237	2337	1015
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.03	0.55	0.55	0.13	0.66	0.66
Sat Flow, veh/h	117	558	382	571	771	1565	1781	3582	1567	1781	3554	1544
Grp Volume(v), veh/h	119	0	0	143	0	58	29	883	60	199	1419	112
Grp Sat Flow(s),veh/h/ln	1056	0	0	1342	0	1565	1781	1791	1567	1781	1777	1544
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	3.0	1.4	13.2	1.6	9.8	20.5	2.4
Cycle Q Clear(g_c), s	11.0	0.0	0.0	9.4	0.0	3.0	1.4	13.2	1.6	9.8	20.5	2.4
Prop In Lane	0.25		0.36	0.50		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	0	0	258	0	230	51	1981	866	237	2337	1015
V/C Ratio(X)	0.58	0.00	0.00	0.56	0.00	0.25	0.57	0.45	0.07	0.84	0.61	0.11
Avail Cap(c_a), veh/h	289	0	0	340	0	313	103	1981	866	376	2337	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	36.4	0.0	34.0	43.2	11.9	9.3	38.1	8.8	5.7
Incr Delay (d2), s/veh	2.6	0.0	0.0	1.9	0.0	0.6	9.6	0.7	0.2	9.2	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0	5.4	0.0	2.0	1.3	7.8	0.9	8.1	9.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	0.0	38.3	0.0	34.6	52.7	12.7	9.5	47.3	10.0	5.9
LnGrp LOS	D	A	A	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		119			201			972			1730	
Approach Delay, s/veh		38.7			37.2			13.7			14.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	54.8		18.2	7.6	64.2		18.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	11.8	15.2		13.0	3.4	22.5		11.4				
Green Ext Time (p_c), s	0.3	3.7		0.1	0.0	7.4		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	48	175	80	38	141	152
Future Vol, veh/h	48	175	80	38	141	152
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	51	186	85	40	150	162

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	441	231	312	0	-	0
Stage 1	231	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	570	811	1260	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	531	811	1260	-	-	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	5.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	728	-	-
HCM Lane V/C Ratio	0.068	-	0.326	-	-
HCM Control Delay (s)	8.1	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	279	5	12	74	3	14
Future Vol, veh/h	279	5	12	74	3	14
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	297	5	13	79	3	15

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	74	53	0	0	92	0
Stage 1	53	-	-	-	-	-
Stage 2	21	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	932	1020	-	-	1515	-
Stage 1	972	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	930	1020	-	-	1515	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	931	1515	-
HCM Lane V/C Ratio	-	-	0.325	0.002	-
HCM Control Delay (s)	-	-	10.7	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	24	36	229	751	247
Future Vol, veh/h	54	24	36	229	751	247
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	56	25	37	236	774	255

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1087	777	1032	0	-	0
Stage 1	777	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	241	400	677	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	227	399	675	-	-	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.4	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	675	-	227	399	-	-
HCM Lane V/C Ratio	0.055	-	0.245	0.062	-	-
HCM Control Delay (s)	10.6	-	25.9	14.6	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	0.2	-	-

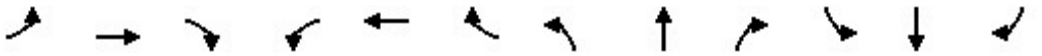
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	2	116	0	3	313
Future Vol, veh/h	1	2	116	0	3	313
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	2	129	0	3	348

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	483	129	0	0	129	0
Stage 1	129	-	-	-	-	-
Stage 2	354	-	-	-	-	-
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	546	926	-	-	1469	-
Stage 1	902	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	544	926	-	-	1469	-
Mov Cap-2 Maneuver	544	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	750	1469	-
HCM Lane V/C Ratio	-	-	0.004	0.002	-
HCM Control Delay (s)	-	-	9.8	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	26	25	104	45	85	13	575	19	177	1255	86
Future Volume (veh/h)	28	26	25	104	45	85	13	575	19	177	1255	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	31	29	27	114	49	60	14	632	21	195	1379	62
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	72	65	37	200	69	292	30	1850	809	233	2260	989
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.02	0.52	0.52	0.13	0.63	0.63
Sat Flow, veh/h	96	349	200	710	372	1571	1810	3582	1566	1781	3582	1568
Grp Volume(v), veh/h	87	0	0	163	0	60	14	632	21	195	1379	62
Grp Sat Flow(s),veh/h/ln	646	0	0	1082	0	1571	1810	1791	1566	1781	1791	1568
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	2.9	0.7	9.3	0.6	9.6	20.8	1.4
Cycle Q Clear(g_c), s	14.7	0.0	0.0	13.8	0.0	2.9	0.7	9.3	0.6	9.6	20.8	1.4
Prop In Lane	0.36		0.31	0.70		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	0	0	269	0	292	30	1850	809	233	2260	989
V/C Ratio(X)	0.50	0.00	0.00	0.61	0.00	0.21	0.47	0.34	0.03	0.84	0.61	0.06
Avail Cap(c_a), veh/h	196	0	0	290	0	314	105	1850	809	376	2260	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	0.0	35.2	0.0	31.0	43.9	12.8	10.7	38.2	10.0	6.4
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.2	0.0	0.3	11.2	0.5	0.1	8.7	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	0.0	6.3	0.0	2.0	0.7	5.8	0.3	7.9	10.3	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	38.4	0.0	31.3	55.0	13.3	10.7	46.8	11.2	6.5
LnGrp LOS	C	A	A	D	A	C	E	B	B	D	B	A
Approach Vol, veh/h		87			223			667			1636	
Approach Delay, s/veh		34.7			36.5			14.1			15.3	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.8	51.5		21.7	6.5	61.8		21.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	11.6	11.3		16.7	2.7	22.8		15.8				
Green Ext Time (p_c), s	0.3	2.4		0.0	0.0	6.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		17.4	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	13.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	221	126	91	357	139
Future Vol, veh/h	86	221	126	91	357	139
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	98	251	143	103	406	158

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	888	499	571	0	-	0
Stage 1	492	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	315	574	1012	-	-	-
Stage 1	617	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	264	567	1006	-	-	-
Mov Cap-2 Maneuver	264	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.9	5.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1006	-	429	-	-
HCM Lane V/C Ratio	0.142	-	0.813	-	-
HCM Control Delay (s)	9.2	0	40.9	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.5	-	7.5	-	-

Intersection	
Int Delay, s/veh	12.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	458	9	14	163	4	38
Future Vol, veh/h	458	9	14	163	4	38
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	520	10	16	185	5	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	176	123	0	0	208	0
Stage 1	116	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	814	928	-	-	1375	-
Stage 1	909	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	801	917	-	-	1367	-
Mov Cap-2 Maneuver	801	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	803	1367	-
HCM Lane V/C Ratio	-	-	0.661	0.003	-
HCM Control Delay (s)	-	-	17.8	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	5.1	0	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	76	62	396	919	407
Future Vol, veh/h	91	76	62	396	919	407
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	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	97	81	66	421	978	433

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1531	978	1411	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	129	304	483	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	111	304	483	-	-	-
Mov Cap-2 Maneuver	111	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77.8	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	483	-	111	304	-	-
HCM Lane V/C Ratio	0.137	-	0.872	0.266	-	-
HCM Control Delay (s)	13.6	-	125.1	21.1	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.5	-	5.2	1	-	-

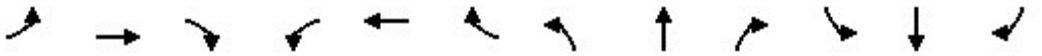
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	215	0	1	577
Future Vol, veh/h	0	2	215	0	1	577
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	2	253	0	1	671

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	926	253	0	0	253	0
Stage 1	253	-	-	-	-	-
Stage 2	673	-	-	-	-	-
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	301	791	-	-	1324	-
Stage 1	794	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	301	791	-	-	1324	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	791	1324	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	9.6	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	44	43	85	65	113	29	840	63	212	1465	171
Future Volume (veh/h)	29	44	43	85	65	113	29	840	63	212	1465	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	31	47	46	91	70	68	31	903	68	228	1575	130
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	63	86	59	162	102	274	53	1824	797	266	2235	971
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.51	0.51	0.15	0.63	0.63
Sat Flow, veh/h	76	495	337	571	585	1569	1781	3582	1566	1781	3554	1543
Grp Volume(v), veh/h	124	0	0	161	0	68	31	903	68	228	1575	130
Grp Sat Flow(s),veh/h/ln	907	0	0	1156	0	1569	1781	1791	1566	1781	1777	1543
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	3.4	1.5	14.9	2.0	11.2	26.6	3.1
Cycle Q Clear(g_c), s	13.6	0.0	0.0	12.7	0.0	3.4	1.5	14.9	2.0	11.2	26.6	3.1
Prop In Lane	0.25		0.37	0.57		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	0	0	264	0	274	53	1824	797	266	2235	971
V/C Ratio(X)	0.60	0.00	0.00	0.61	0.00	0.25	0.58	0.50	0.09	0.86	0.70	0.13
Avail Cap(c_a), veh/h	249	0	0	303	0	314	103	1824	797	376	2235	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	0.0	35.5	0.0	32.1	43.1	14.5	11.3	37.3	11.1	6.8
Incr Delay (d2), s/veh	2.7	0.0	0.0	2.8	0.0	0.5	9.6	1.0	0.2	12.8	1.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	0.0	6.2	0.0	2.3	1.4	9.0	1.1	9.3	12.8	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	0.0	38.2	0.0	32.5	52.7	15.5	11.5	50.2	13.0	7.1
LnGrp LOS	D	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		124			229			1002			1933	
Approach Delay, s/veh		36.3			36.5			16.3			17.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.5	50.8		20.7	7.7	61.6		20.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	13.2	16.9		15.6	3.5	28.6		14.7				
Green Ext Time (p_c), s	0.3	3.7		0.1	0.0	8.2		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	196	86	40	144	164
Future Vol, veh/h	55	196	86	40	144	164
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	59	209	91	43	153	174

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	465	240	327	0	-	0
Stage 1	240	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	552	801	1244	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	511	801	1244	-	-	-
Mov Cap-2 Maneuver	511	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	5.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1244	-	712	-	-
HCM Lane V/C Ratio	0.074	-	0.375	-	-
HCM Control Delay (s)	8.1	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.7	-	-

Intersection	
Int Delay, s/veh	8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	293	5	14	81	3	15
Future Vol, veh/h	293	5	14	81	3	15
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	312	5	15	86	3	16

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	80	58	0	0	101	0
Stage 1	58	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	925	1014	-	-	1504	-
Stage 1	967	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	923	1014	-	-	1504	-
Mov Cap-2 Maneuver	923	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	1001	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	924	1504	-
HCM Lane V/C Ratio	-	-	0.343	0.002	-
HCM Control Delay (s)	-	-	10.9	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	59	26	42	240	805	256
Future Vol, veh/h	59	26	42	240	805	256
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	61	27	43	247	830	264

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1166	833	1097	0	-	0
Stage 1	833	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	216	372	640	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	201	371	638	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	730	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.9	1.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	638	-	201	371	-	-
HCM Lane V/C Ratio	0.068	-	0.303	0.072	-	-
HCM Control Delay (s)	11.1	-	30.5	15.5	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	2	124	0	3	339
Future Vol, veh/h	1	2	124	0	3	339
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	2	138	0	3	377

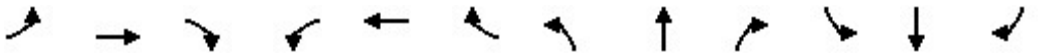
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	521	138	0	0	138	0
Stage 1	138	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	519	916	-	-	1458	-
Stage 1	894	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	517	916	-	-	1458	-
Mov Cap-2 Maneuver	517	-	-	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	692	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	729	1458	-
HCM Lane V/C Ratio	-	-	0.005	0.002	-
HCM Control Delay (s)	-	-	10	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

HCM 6th Signalized Intersection Summary
3: SR29 & Oak Knoll

11-12-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	30	28	113	50	92	14	620	27	197	1355	94
Future Volume (veh/h)	31	30	28	113	50	92	14	620	27	197	1355	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	34	33	31	124	55	68	15	681	30	216	1489	103
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	62	57	30	193	65	314	31	1757	768	254	2206	966
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.49	0.49	0.14	0.62	0.62
Sat Flow, veh/h	39	287	151	624	327	1572	1810	3582	1565	1781	3582	1568
Grp Volume(v), veh/h	98	0	0	179	0	68	15	681	30	216	1489	103
Grp Sat Flow(s),veh/h/ln	478	0	0	951	0	1572	1810	1791	1565	1781	1791	1568
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	3.3	0.7	10.8	0.9	10.6	24.6	2.4
Cycle Q Clear(g_c), s	18.0	0.0	0.0	16.6	0.0	3.3	0.7	10.8	0.9	10.6	24.6	2.4
Prop In Lane	0.35		0.32	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	0	0	258	0	314	31	1757	768	254	2206	966
V/C Ratio(X)	0.66	0.00	0.00	0.69	0.00	0.22	0.48	0.39	0.04	0.85	0.67	0.11
Avail Cap(c_a), veh/h	149	0	0	258	0	314	105	1757	768	376	2206	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	0.0	0.0	35.2	0.0	30.1	43.8	14.4	11.9	37.6	11.4	7.1
Incr Delay (d2), s/veh	9.9	0.0	0.0	7.8	0.0	0.3	10.8	0.6	0.1	11.4	1.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	0.0	0.0	7.6	0.0	2.2	0.7	6.9	0.5	8.8	12.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	0.0	43.0	0.0	30.4	54.6	15.1	12.0	49.0	13.0	7.3
LnGrp LOS	D	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		98			247			726			1808	
Approach Delay, s/veh		42.7			39.6			15.8			17.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.9	49.1		23.0	6.6	60.4		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	12.6	12.8		20.0	2.7	26.6		18.6				
Green Ext Time (p_c), s	0.3	2.7		0.0	0.0	7.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	18.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	95	235	130	95	360	160
Future Vol, veh/h	95	235	130	95	360	160
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	108	267	148	108	409	182

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	918	514	598	0	-	0
Stage 1	507	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	303	562	989	-	-	-
Stage 1	607	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	251	555	983	-	-	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.7	5.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	983	-	412	-	-
HCM Lane V/C Ratio	0.15	-	0.91	-	-
HCM Control Delay (s)	9.3	0	56.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	9.8	-	-

Intersection	
Int Delay, s/veh	13.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	480	10	15	175	5	40
Future Vol, veh/h	480	10	15	175	5	40
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	545	11	17	199	6	45

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	188	131	0	0	223	0
Stage 1	124	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	801	919	-	-	1358	-
Stage 1	902	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	787	908	-	-	1350	-
Mov Cap-2 Maneuver	787	-	-	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	948	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	789	1350	-
HCM Lane V/C Ratio	-	-	0.706	0.004	-
HCM Control Delay (s)	-	-	19.7	7.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	6	0	-

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	81	69	407	973	421
Future Vol, veh/h	98	81	69	407	973	421
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	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	104	86	73	433	1035	448

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1614	1035	1483	0	-	0
Stage 1	1035	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	114	282	454	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 96	282	454	-	-	-
Mov Cap-2 Maneuver	~ 96	-	-	-	-	-
Stage 1	287	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	119.3	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	454	-	96	282	-	-
HCM Lane V/C Ratio	0.162	-	1.086	0.306	-	-
HCM Control Delay (s)	14.5	-	198.6	23.3	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.6	-	6.8	1.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

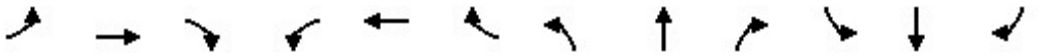
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	223	0	1	594
Future Vol, veh/h	0	2	223	0	1	594
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	2	262	0	1	691

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	955	262	0	0	262	0
Stage 1	262	-	-	-	-	-
Stage 2	693	-	-	-	-	-
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	289	782	-	-	1314	-
Stage 1	786	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	289	782	-	-	1314	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	782	1314	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	9.6	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	45	44	100	72	118	30	855	65	230	1585	185
Future Volume (veh/h)	30	45	44	100	72	118	30	855	65	230	1585	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	32	48	47	108	77	73	32	919	70	247	1704	199
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	52	70	42	161	90	314	54	1695	741	285	2142	903
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.03	0.47	0.47	0.16	0.60	0.60
Sat Flow, veh/h	8	352	212	487	451	1572	1781	3582	1565	1781	3554	1498
Grp Volume(v), veh/h	127	0	0	185	0	73	32	919	70	247	1704	199
Grp Sat Flow(s),veh/h/ln	572	0	0	939	0	1572	1781	1791	1565	1781	1777	1498
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	3.5	1.6	16.4	2.2	12.2	32.9	5.5
Cycle Q Clear(g_c), s	18.0	0.0	0.0	17.6	0.0	3.5	1.6	16.4	2.2	12.2	32.9	5.5
Prop In Lane	0.25		0.37	0.58		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	0	0	251	0	314	54	1695	741	285	2142	903
V/C Ratio(X)	0.77	0.00	0.00	0.74	0.00	0.23	0.59	0.54	0.09	0.87	0.80	0.22
Avail Cap(c_a), veh/h	165	0	0	251	0	314	103	1695	741	376	2142	903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	0.0	35.4	0.0	30.2	43.1	16.8	13.1	36.9	13.6	8.2
Incr Delay (d2), s/veh	19.9	0.0	0.0	10.8	0.0	0.4	9.7	1.2	0.3	15.1	3.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	0.0	0.0	8.1	0.0	2.4	1.4	10.0	1.3	10.1	16.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	0.0	0.0	46.2	0.0	30.6	52.7	18.0	13.3	52.0	16.8	8.8
LnGrp LOS	D	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		127			258			1021			2150	
Approach Delay, s/veh		52.0			41.8			18.8			20.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.4	47.6		23.0	7.8	59.2		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	14.2	18.4		20.0	3.6	34.9		19.6				
Green Ext Time (p_c), s	0.3	3.8		0.0	0.0	8.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			22.4									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	59	216	95	42	150	175
Future Vol, veh/h	59	216	95	42	150	175
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	63	230	101	45	160	186

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	500	253	346	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	527	788	1224	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	482	788	1224	-	-	-
Mov Cap-2 Maneuver	482	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	5.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1224	-	694	-	-
HCM Lane V/C Ratio	0.083	-	0.422	-	-
HCM Control Delay (s)	8.2	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	2.1	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	309	6	15	86	4	16
Future Vol, veh/h	309	6	15	86	4	16
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	329	6	16	91	4	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	87	62	0	0	107	0
Stage 1	62	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	916	1009	-	-	1497	-
Stage 1	963	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	913	1009	-	-	1497	-
Mov Cap-2 Maneuver	913	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	915	1497	-
HCM Lane V/C Ratio	-	-	0.366	0.003	-
HCM Control Delay (s)	-	-	11.2	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	28	47	250	851	263
Future Vol, veh/h	63	28	47	250	851	263
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	65	29	48	258	877	271

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1234	880	1151	0	-	0
Stage 1	880	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	197	349	611	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	348	609	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	714	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.7	1.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	609	-	181	348	-	-
HCM Lane V/C Ratio	0.08	-	0.359	0.083	-	-
HCM Control Delay (s)	11.4	-	35.6	16.3	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.5	0.3	-	-

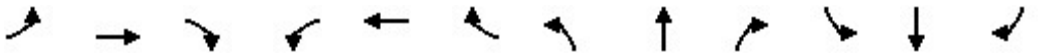
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	2	135	0	3	363
Future Vol, veh/h	1	2	135	0	3	363
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	2	150	0	3	403

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	559	150	0	0	150	0
Stage 1	150	-	-	-	-	-
Stage 2	409	-	-	-	-	-
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	494	902	-	-	1444	-
Stage 1	883	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	902	-	-	1444	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	707	1444	-
HCM Lane V/C Ratio	-	-	0.005	0.002	-
HCM Control Delay (s)	-	-	10.1	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	32	30	120	55	97	15	660	30	213	1435	100
Future Volume (veh/h)	33	32	30	120	55	97	15	660	30	213	1435	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	36	35	33	132	60	74	16	725	33	234	1577	77
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	54	50	23	193	62	314	33	1721	752	272	2203	964
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.48	0.48	0.15	0.62	0.62
Sat Flow, veh/h	0	250	116	625	311	1572	1810	3582	1565	1781	3582	1568
Grp Volume(v), veh/h	104	0	0	192	0	74	16	725	33	234	1577	77
Grp Sat Flow(s),veh/h/ln	366	0	0	936	0	1572	1810	1791	1565	1781	1791	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.8	11.9	1.0	11.5	27.3	1.8
Cycle Q Clear(g_c), s	18.0	0.0	0.0	18.0	0.0	3.6	0.8	11.9	1.0	11.5	27.3	1.8
Prop In Lane	0.35		0.32	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	0	0	255	0	314	33	1721	752	272	2203	964
V/C Ratio(X)	0.82	0.00	0.00	0.75	0.00	0.24	0.48	0.42	0.04	0.86	0.72	0.08
Avail Cap(c_a), veh/h	127	0	0	255	0	314	105	1721	752	376	2203	964
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	0.0	36.1	0.0	30.2	43.8	15.2	12.4	37.2	11.9	7.0
Incr Delay (d2), s/veh	32.7	0.0	0.0	12.0	0.0	0.4	10.5	0.8	0.1	13.6	2.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	0.0	0.0	8.5	0.0	2.4	0.8	7.7	0.6	9.5	13.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	0.0	0.0	48.1	0.0	30.6	54.2	16.0	12.5	50.8	13.9	7.2
LnGrp LOS	E	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		104			266			774			1888	
Approach Delay, s/veh		66.4			43.2			16.6			18.2	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	48.2		23.0	6.6	60.4		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	13.5	13.9		20.0	2.8	29.3		20.0				
Green Ext Time (p_c), s	0.3	2.9		0.0	0.0	7.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	72	204	122	92	345	114
Future Vol, veh/h	72	204	122	92	345	114
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	82	232	139	105	392	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	854	471	529	0	-	0
Stage 1	464	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	330	595	1048	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	280	588	1042	-	-	-
Mov Cap-2 Maneuver	280	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.4	5.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1042	-	457	-	-
HCM Lane V/C Ratio	0.133	-	0.686	-	-
HCM Control Delay (s)	9	0	28.4	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.5	-	5.1	-	-

Intersection	
Int Delay, s/veh	10.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	424	8	12	152	4	35
Future Vol, veh/h	424	8	12	152	4	35
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	482	9	14	173	5	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	165	115	0	0	194	0
Stage 1	108	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	826	937	-	-	1391	-
Stage 1	916	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	813	926	-	-	1383	-
Mov Cap-2 Maneuver	813	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	815	1383	-
HCM Lane V/C Ratio	-	-	0.602	0.003	-
HCM Control Delay (s)	-	-	15.9	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	4.1	0	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	84	72	54	380	850	392
Future Vol, veh/h	84	72	54	380	850	392
Conflicting Peds, #/hr	0	0	0	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	89	77	57	404	904	417

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1424	906	1323	0	-	0
Stage 1	906	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	150	334	522	-	-	-
Stage 1	394	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	333	521	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	49.2	1.6	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	521	-	133	333	-	-
HCM Lane V/C Ratio	0.11	-	0.672	0.23	-	-
HCM Control Delay (s)	12.8	-	75	19	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.4	-	3.7	0.9	-	-

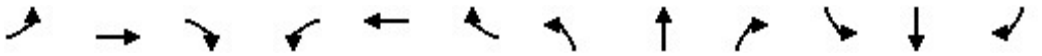
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	206	1	4	545
Future Vol, veh/h	1	6	206	1	4	545
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	7	242	1	5	634

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	887	243	0	0	243	0
Stage 1	243	-	-	-	-	-
Stage 2	644	-	-	-	-	-
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	317	801	-	-	1335	-
Stage 1	802	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	315	801	-	-	1335	-
Mov Cap-2 Maneuver	315	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	524	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	1335	-
HCM Lane V/C Ratio	-	-	0.013	0.004	-
HCM Control Delay (s)	-	-	10.6	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	43	40	69	66	104	27	821	57	186	1320	154
Future Volume (veh/h)	28	43	40	69	66	104	27	821	57	186	1320	154
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	30	46	43	74	71	58	29	883	61	200	1419	112
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	67	83	56	146	112	234	51	1971	862	238	2329	1012
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.03	0.55	0.55	0.13	0.66	0.66
Sat Flow, veh/h	111	553	376	573	749	1566	1781	3582	1566	1781	3554	1544
Grp Volume(v), veh/h	119	0	0	145	0	58	29	883	61	200	1419	112
Grp Sat Flow(s),veh/h/ln	1040	0	0	1322	0	1566	1781	1791	1566	1781	1777	1544
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	2.9	1.4	13.2	1.6	9.9	20.6	2.4
Cycle Q Clear(g_c), s	11.2	0.0	0.0	9.7	0.0	2.9	1.4	13.2	1.6	9.9	20.6	2.4
Prop In Lane	0.25		0.36	0.51		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	0	0	258	0	234	51	1971	862	238	2329	1012
V/C Ratio(X)	0.58	0.00	0.00	0.56	0.00	0.25	0.57	0.45	0.07	0.84	0.61	0.11
Avail Cap(c_a), veh/h	285	0	0	337	0	313	103	1971	862	376	2329	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	0.0	36.4	0.0	33.8	43.2	12.1	9.5	38.0	8.9	5.8
Incr Delay (d2), s/veh	2.6	0.0	0.0	1.9	0.0	0.5	9.6	0.7	0.2	9.3	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0	5.5	0.0	2.0	1.3	7.9	0.9	8.1	9.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	38.3	0.0	34.4	52.7	12.8	9.6	47.4	10.1	6.0
LnGrp LOS	D	A	A	D	A	C	D	B	A	D	B	A
Approach Vol, veh/h		119			203			973			1731	
Approach Delay, s/veh		38.5			37.2			13.8			14.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	54.5		18.4	7.6	64.0		18.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	11.9	15.2		13.2	3.4	22.6		11.7				
Green Ext Time (p_c), s	0.3	3.7		0.1	0.0	7.4		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	48	176	81	39	142	152
Future Vol, veh/h	48	176	81	39	142	152
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	51	187	86	41	151	162

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	232	313	0	-	0
Stage 1	232	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	567	810	1259	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	527	810	1259	-	-	-
Mov Cap-2 Maneuver	527	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	818	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	5.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1259	-	726	-	-
HCM Lane V/C Ratio	0.068	-	0.328	-	-
HCM Control Delay (s)	8.1	0	12.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	280	5	12	74	3	14
Future Vol, veh/h	280	5	12	74	3	14
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	298	5	13	79	3	15

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	74	53	0	0	92	0
Stage 1	53	-	-	-	-	-
Stage 2	21	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	932	1020	-	-	1515	-
Stage 1	972	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	930	1020	-	-	1515	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	931	1515	-
HCM Lane V/C Ratio	-	-	0.326	0.002	-
HCM Control Delay (s)	-	-	10.7	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	24	36	229	751	248
Future Vol, veh/h	55	24	36	229	751	248
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	57	25	37	236	774	256

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1087	777	1033	0	-	0
Stage 1	777	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	241	400	677	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	227	399	675	-	-	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.6	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	675	-	227	399	-	-
HCM Lane V/C Ratio	0.055	-	0.25	0.062	-	-
HCM Control Delay (s)	10.6	-	26.1	14.6	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1	0.2	-	-

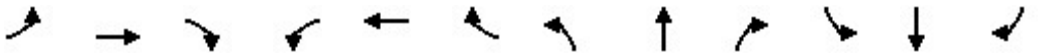
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	4	116	1	5	313
Future Vol, veh/h	2	4	116	1	5	313
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	2	4	129	1	6	348

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	490	130	0	0	130	0
Stage 1	130	-	-	-	-	-
Stage 2	360	-	-	-	-	-
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	541	925	-	-	1468	-
Stage 1	901	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	538	925	-	-	1468	-
Mov Cap-2 Maneuver	538	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	706	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	746	1468	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-
HCM Control Delay (s)	-	-	9.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	26	25	105	45	85	13	575	20	177	1255	86
Future Volume (veh/h)	28	26	25	105	45	85	13	575	20	177	1255	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	31	29	27	115	49	60	14	632	22	195	1379	62
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	72	65	37	201	69	295	30	1844	806	233	2254	987
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.02	0.51	0.51	0.13	0.63	0.63
Sat Flow, veh/h	95	346	198	709	367	1571	1810	3582	1566	1781	3582	1568
Grp Volume(v), veh/h	87	0	0	164	0	60	14	632	22	195	1379	62
Grp Sat Flow(s),veh/h/ln	640	0	0	1076	0	1571	1810	1791	1566	1781	1791	1568
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	2.9	0.7	9.4	0.6	9.6	20.9	1.4
Cycle Q Clear(g_c), s	14.9	0.0	0.0	14.0	0.0	2.9	0.7	9.4	0.6	9.6	20.9	1.4
Prop In Lane	0.36		0.31	0.70		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	0	0	270	0	295	30	1844	806	233	2254	987
V/C Ratio(X)	0.50	0.00	0.00	0.61	0.00	0.20	0.47	0.34	0.03	0.84	0.61	0.06
Avail Cap(c_a), veh/h	193	0	0	288	0	314	105	1844	806	376	2254	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	35.1	0.0	30.9	43.9	12.9	10.7	38.2	10.1	6.4
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.3	0.0	0.3	11.2	0.5	0.1	8.7	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	0.0	6.4	0.0	2.0	0.7	5.8	0.4	7.9	10.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	38.4	0.0	31.2	55.0	13.4	10.8	46.8	11.3	6.6
LnGrp LOS	C	A	A	D	A	C	E	B	B	D	B	A
Approach Vol, veh/h		87			224			668			1636	
Approach Delay, s/veh		34.6			36.5			14.2			15.4	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.8	51.3		21.9	6.5	61.6		21.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	11.6	11.4		16.9	2.7	22.9		16.0				
Green Ext Time (p_c), s	0.3	2.4		0.0	0.0	6.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			17.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	223	128	93	358	139
Future Vol, veh/h	86	223	128	93	358	139
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	98	253	145	106	407	158

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	896	500	572	0	-	0
Stage 1	493	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	312	573	1011	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	566	1005	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	42.1	5.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1005	-	427	-	-
HCM Lane V/C Ratio	0.145	-	0.822	-	-
HCM Control Delay (s)	9.2	0	42.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.5	-	7.7	-	-

Intersection	
Int Delay, s/veh	12.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	459	9	14	165	4	38
Future Vol, veh/h	459	9	14	165	4	38
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	522	10	16	188	5	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	177	124	0	0	211	0
Stage 1	117	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	813	927	-	-	1372	-
Stage 1	908	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	800	916	-	-	1364	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	802	1364	-
HCM Lane V/C Ratio	-	-	0.663	0.003	-
HCM Control Delay (s)	-	-	17.9	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	5.1	0	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	92	77	62	396	919	408
Future Vol, veh/h	92	77	62	396	919	408
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	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	98	82	66	421	978	434

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1531	978	1412	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	129	304	483	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	111	304	483	-	-	-
Mov Cap-2 Maneuver	111	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	79	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	483	-	111	304	-	-
HCM Lane V/C Ratio	0.137	-	0.882	0.269	-	-
HCM Control Delay (s)	13.6	-	127.3	21.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.5	-	5.3	1.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	215	1	4	577
Future Vol, veh/h	1	6	215	1	4	577
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	7	253	1	5	671

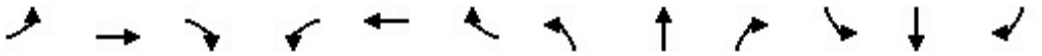
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	935	254	0	0	254	0
Stage 1	254	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	297	790	-	-	1323	-
Stage 1	793	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	295	790	-	-	1323	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	637	1323	-
HCM Lane V/C Ratio	-	-	0.013	0.004	-
HCM Control Delay (s)	-	-	10.7	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

HCM 6th Signalized Intersection Summary
3: SR29 & Oak Knoll

11-12-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	44	43	87	65	113	29	840	64	213	1465	171
Future Volume (veh/h)	29	44	43	87	65	113	29	840	64	213	1465	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	31	47	46	94	70	68	31	903	69	229	1575	184
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	63	86	59	165	101	283	53	1802	787	267	2214	962
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.03	0.50	0.50	0.15	0.62	0.62
Sat Flow, veh/h	72	479	325	567	561	1570	1781	3582	1565	1781	3554	1543
Grp Volume(v), veh/h	124	0	0	164	0	68	31	903	69	229	1575	184
Grp Sat Flow(s),veh/h/ln	876	0	0	1128	0	1570	1781	1791	1565	1781	1777	1543
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	3.3	1.5	15.1	2.1	11.3	27.0	4.6
Cycle Q Clear(g_c), s	14.1	0.0	0.0	13.3	0.0	3.3	1.5	15.1	2.1	11.3	27.0	4.6
Prop In Lane	0.25		0.37	0.57		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	0	0	266	0	283	53	1802	787	267	2214	962
V/C Ratio(X)	0.60	0.00	0.00	0.62	0.00	0.24	0.58	0.50	0.09	0.86	0.71	0.19
Avail Cap(c_a), veh/h	239	0	0	296	0	314	103	1802	787	376	2214	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	0.0	0.0	35.2	0.0	31.6	43.1	14.9	11.6	37.3	11.5	7.3
Incr Delay (d2), s/veh	3.1	0.0	0.0	3.2	0.0	0.4	9.6	1.0	0.2	13.0	2.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	0.0	6.4	0.0	2.3	1.4	9.1	1.2	9.3	13.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	0.0	38.4	0.0	32.0	52.7	15.9	11.8	50.3	13.5	7.7
LnGrp LOS	D	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		124			232			1003			1988	
Approach Delay, s/veh		36.2			36.6			16.7			17.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.5	50.3		21.2	7.7	61.1		21.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	13.3	17.1		16.1	3.5	29.0		15.3				
Green Ext Time (p_c), s	0.3	3.7		0.1	0.0	8.4		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	197	87	41	145	164
Future Vol, veh/h	55	197	87	41	145	164
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	59	210	93	44	154	174

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	471	241	328	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	548	800	1243	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	506	800	1243	-	-	-
Mov Cap-2 Maneuver	506	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	5.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1243	-	710	-	-
HCM Lane V/C Ratio	0.074	-	0.378	-	-
HCM Control Delay (s)	8.1	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.8	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	294	5	14	82	3	15
Future Vol, veh/h	294	5	14	82	3	15
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	313	5	15	87	3	16

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	81	59	0	0	102	0
Stage 1	59	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	924	1012	-	-	1503	-
Stage 1	966	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	922	1012	-	-	1503	-
Mov Cap-2 Maneuver	922	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	1001	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	923	1503	-
HCM Lane V/C Ratio	-	-	0.345	0.002	-
HCM Control Delay (s)	-	-	10.9	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	26	42	240	805	257
Future Vol, veh/h	60	26	42	240	805	257
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	62	27	43	247	830	265

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1166	833	1098	0	-	0
Stage 1	833	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	216	372	639	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	200	371	637	-	-	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	730	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.2	1.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	637	-	200	371	-	-
HCM Lane V/C Ratio	0.068	-	0.309	0.072	-	-
HCM Control Delay (s)	11.1	-	30.9	15.5	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	0.2	-	-

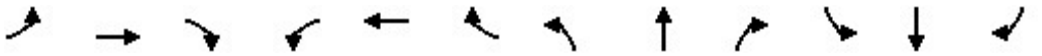
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	4	124	1	5	339
Future Vol, veh/h	2	4	124	1	5	339
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	2	4	138	1	6	377

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	528	139	0	0	139	0
Stage 1	139	-	-	-	-	-
Stage 2	389	-	-	-	-	-
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	514	915	-	-	1457	-
Stage 1	893	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	511	915	-	-	1457	-
Mov Cap-2 Maneuver	511	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	724	1457	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-
HCM Control Delay (s)	-	-	10	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	30	28	114	50	92	14	620	28	197	1355	94
Future Volume (veh/h)	31	30	28	114	50	92	14	620	28	197	1355	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	34	33	31	125	55	68	15	681	31	216	1489	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	61	56	29	193	64	314	31	1757	768	254	2206	966
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.49	0.49	0.14	0.62	0.62
Sat Flow, veh/h	34	282	146	626	322	1572	1810	3582	1565	1781	3582	1568
Grp Volume(v), veh/h	98	0	0	180	0	68	15	681	31	216	1489	70
Grp Sat Flow(s),veh/h/ln	462	0	0	948	0	1572	1810	1791	1565	1781	1791	1568
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	3.3	0.7	10.8	0.9	10.6	24.6	1.6
Cycle Q Clear(g_c), s	18.0	0.0	0.0	16.8	0.0	3.3	0.7	10.8	0.9	10.6	24.6	1.6
Prop In Lane	0.35		0.32	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	0	0	257	0	314	31	1757	768	254	2206	966
V/C Ratio(X)	0.67	0.00	0.00	0.70	0.00	0.22	0.48	0.39	0.04	0.85	0.67	0.07
Avail Cap(c_a), veh/h	146	0	0	257	0	314	105	1757	768	376	2206	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	0.0	35.3	0.0	30.1	43.8	14.4	11.9	37.6	11.4	6.9
Incr Delay (d2), s/veh	11.2	0.0	0.0	8.1	0.0	0.3	10.8	0.6	0.1	11.4	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	0.0	0.0	7.7	0.0	2.2	0.7	6.9	0.5	8.8	12.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	43.4	0.0	30.4	54.6	15.1	12.0	49.0	13.0	7.1
LnGrp LOS	D	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		98			248			727			1775	
Approach Delay, s/veh		44.1			39.9			15.8			17.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.9	49.1		23.0	6.6	60.4		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	12.6	12.8		20.0	2.7	26.6		18.8				
Green Ext Time (p_c), s	0.3	2.7		0.0	0.0	7.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		19.7	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	95	237	132	97	361	160
Future Vol, veh/h	95	237	132	97	361	160
Conflicting Peds, #/hr	7	7	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	108	269	150	110	410	182

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	925	515	599	0	-	0
Stage 1	508	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	300	562	988	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	555	982	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	58.7	5.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	982	-	410	-	-
HCM Lane V/C Ratio	0.153	-	0.92	-	-
HCM Control Delay (s)	9.3	0	58.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	10	-	-

Intersection	
Int Delay, s/veh	13.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	481	10	15	177	5	40
Future Vol, veh/h	481	10	15	177	5	40
Conflicting Peds, #/hr	7	7	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	0	2	0	0
Mvmt Flow	547	11	17	201	6	45

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	189	132	0	0	225	0
Stage 1	125	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	800	917	-	-	1356	-
Stage 1	901	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	786	906	-	-	1348	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	948	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	788	1348	-
HCM Lane V/C Ratio	-	-	0.708	0.004	-
HCM Control Delay (s)	-	-	19.8	7.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	6	0	-

Intersection	
Int Delay, s/veh	11.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	99	82	69	407	973	422
Future Vol, veh/h	99	82	69	407	973	422
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	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	105	87	73	433	1035	449

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1614	1035	1484	0	-	0
Stage 1	1035	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	114	282	453	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 96	282	453	-	-	-
Mov Cap-2 Maneuver	~ 96	-	-	-	-	-
Stage 1	287	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	121.1	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	453	-	96	282	-	-
HCM Lane V/C Ratio	0.162	-	1.097	0.309	-	-
HCM Control Delay (s)	14.5	-	202.1	23.4	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.6	-	6.9	1.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

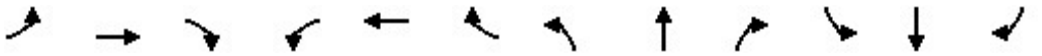
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	223	1	4	594
Future Vol, veh/h	1	6	223	1	4	594
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	86
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	1	7	262	1	5	691

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	964	263	0	0	263	0
Stage 1	263	-	-	-	-	-
Stage 2	701	-	-	-	-	-
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	286	781	-	-	1313	-
Stage 1	786	-	-	-	-	-
Stage 2	496	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	781	-	-	1313	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	625	1313	-
HCM Lane V/C Ratio	-	-	0.013	0.004	-
HCM Control Delay (s)	-	-	10.8	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	45	44	102	72	118	30	855	66	231	1585	185
Future Volume (veh/h)	30	45	44	102	72	118	30	855	66	231	1585	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1885	1900	1870	1870	1870
Adj Flow Rate, veh/h	32	48	47	110	77	73	32	919	71	248	1704	199
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	0	2	2	2
Cap, veh/h	50	68	40	162	88	314	54	1693	740	286	2142	930
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.03	0.47	0.47	0.16	0.60	0.60
Sat Flow, veh/h	0	340	200	490	440	1572	1781	3582	1565	1781	3554	1543
Grp Volume(v), veh/h	127	0	0	187	0	73	32	919	71	248	1704	199
Grp Sat Flow(s),veh/h/ln	539	0	0	930	0	1572	1781	1791	1565	1781	1777	1543
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.5	1.6	16.4	2.3	12.2	32.9	5.3
Cycle Q Clear(g_c), s	18.0	0.0	0.0	18.0	0.0	3.5	1.6	16.4	2.3	12.2	32.9	5.3
Prop In Lane	0.25		0.37	0.59		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	0	250	0	314	54	1693	740	286	2142	930
V/C Ratio(X)	0.80	0.00	0.00	0.75	0.00	0.23	0.59	0.54	0.10	0.87	0.80	0.21
Avail Cap(c_a), veh/h	158	0	0	250	0	314	103	1693	740	376	2142	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	35.6	0.0	30.2	43.1	16.8	13.1	36.8	13.6	8.2
Incr Delay (d2), s/veh	25.2	0.0	0.0	11.9	0.0	0.4	9.7	1.3	0.3	15.3	3.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	0.0	0.0	8.3	0.0	2.4	1.4	10.0	1.3	10.1	16.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	0.0	0.0	47.4	0.0	30.6	52.7	18.1	13.4	52.1	16.8	8.7
LnGrp LOS	E	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		127			260			1022			2151	
Approach Delay, s/veh		57.3			42.7			18.8			20.1	
Approach LOS		E			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.5	47.5		23.0	7.8	59.2		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	14.2	18.4		20.0	3.6	34.9		20.0				
Green Ext Time (p_c), s	0.3	3.8		0.0	0.0	8.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			22.7									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	59	217	96	43	151	175
Future Vol, veh/h	59	217	96	43	151	175
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	1	0	0	0	1
Mvmt Flow	63	231	102	46	161	186

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	504	254	347	0	-	0
Stage 1	254	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.44	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	524	787	1223	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	787	1223	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	5.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1223	-	692	-	-
HCM Lane V/C Ratio	0.084	-	0.424	-	-
HCM Control Delay (s)	8.2	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	2.1	-	-

Intersection	
Int Delay, s/veh	8.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	310	6	15	87	4	16
Future Vol, veh/h	310	6	15	87	4	16
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	330	6	16	93	4	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	88	63	0	0	109	0
Stage 1	63	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	915	1007	-	-	1494	-
Stage 1	962	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	912	1007	-	-	1494	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	914	1494	-
HCM Lane V/C Ratio	-	-	0.368	0.003	-
HCM Control Delay (s)	-	-	11.2	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	28	47	250	851	264
Future Vol, veh/h	64	28	47	250	851	264
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	66	29	48	258	877	272

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1234	880	1152	0	-	0
Stage 1	880	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	197	349	610	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	348	608	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	714	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.9	1.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	608	-	181	348	-	-
HCM Lane V/C Ratio	0.08	-	0.365	0.083	-	-
HCM Control Delay (s)	11.4	-	35.9	16.3	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.6	0.3	-	-

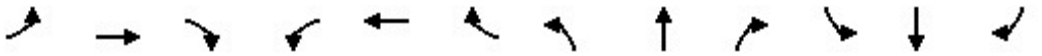
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	4	135	1	5	363
Future Vol, veh/h	2	4	135	1	5	363
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	2	4	150	1	6	403

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	566	151	0	0	151	0
Stage 1	151	-	-	-	-	-
Stage 2	415	-	-	-	-	-
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	489	901	-	-	1442	-
Stage 1	882	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	487	901	-	-	1442	-
Mov Cap-2 Maneuver	487	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	668	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	702	1442	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-
HCM Control Delay (s)	-	-	10.2	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



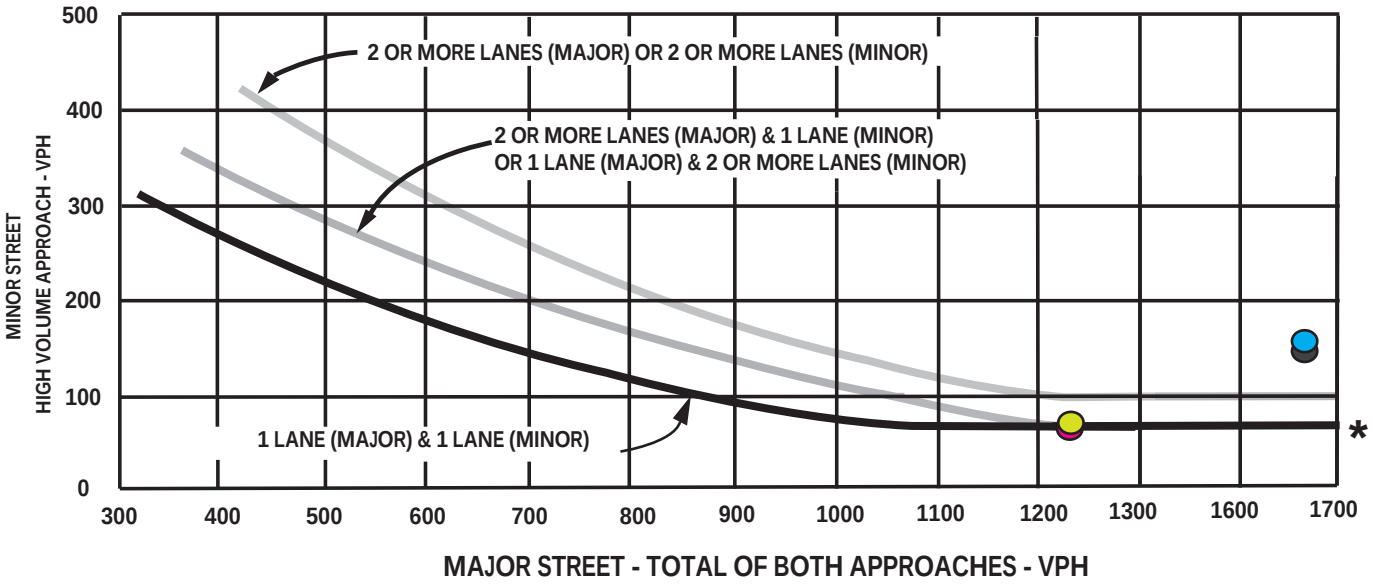
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	32	30	121	55	97	15	660	31	213	1435	100
Future Volume (veh/h)	33	32	30	121	55	97	15	660	31	213	1435	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1885	1900	1870	1885	1900
Adj Flow Rate, veh/h	36	35	33	133	60	74	16	725	34	234	1577	77
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	2	1	0
Cap, veh/h	54	50	23	193	61	314	33	1721	752	272	2203	964
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.48	0.48	0.15	0.62	0.62
Sat Flow, veh/h	0	250	116	626	307	1572	1810	3582	1565	1781	3582	1568
Grp Volume(v), veh/h	104	0	0	193	0	74	16	725	34	234	1577	77
Grp Sat Flow(s),veh/h/ln	366	0	0	934	0	1572	1810	1791	1565	1781	1791	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.8	11.9	1.0	11.5	27.3	1.8
Cycle Q Clear(g_c), s	18.0	0.0	0.0	18.0	0.0	3.6	0.8	11.9	1.0	11.5	27.3	1.8
Prop In Lane	0.35		0.32	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	0	0	254	0	314	33	1721	752	272	2203	964
V/C Ratio(X)	0.82	0.00	0.00	0.76	0.00	0.24	0.48	0.42	0.05	0.86	0.72	0.08
Avail Cap(c_a), veh/h	127	0	0	254	0	314	105	1721	752	376	2203	964
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	0.0	36.2	0.0	30.2	43.8	15.2	12.4	37.2	11.9	7.0
Incr Delay (d2), s/veh	32.7	0.0	0.0	12.4	0.0	0.4	10.5	0.8	0.1	13.6	2.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	0.0	0.0	8.6	0.0	2.4	0.8	7.7	0.6	9.5	13.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	0.0	0.0	48.6	0.0	30.6	54.2	16.0	12.5	50.8	13.9	7.2
LnGrp LOS	E	A	A	D	A	C	D	B	B	D	B	A
Approach Vol, veh/h		104			267			775			1888	
Approach Delay, s/veh		66.4			43.6			16.6			18.2	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	48.2		23.0	6.6	60.4		23.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	19.0	38.0		18.0	5.2	51.8		18.0				
Max Q Clear Time (g_c+I1), s	13.5	13.9		20.0	2.8	29.3		20.0				
Green Ext Time (p_c), s	0.3	2.9		0.0	0.0	7.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Appendix C

PEAK HOUR VOLUME WARRANT #3
(Rural Area)
Silverado Trail/Oak Knoll Ave



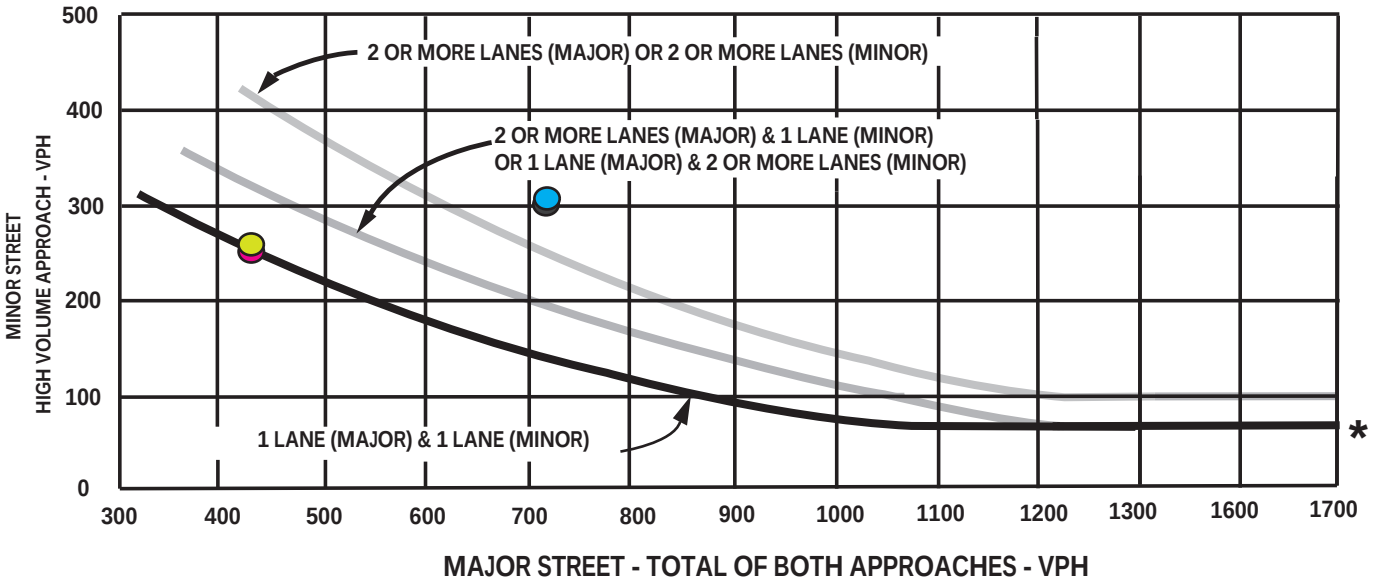
= Existing (2019) Friday without Project
= Existing (2019) Friday with Project
= Existing (2019) Saturday without Project
= Existing (2019) Saturday with Project

*** 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

PEAK HOUR VOLUME WARRANT #3
(Rural Area)
Oak Knoll Ave/Big Ranch Rd (South)



= 2025 Friday without Project
= 2025 Friday with Project
= 2025 Saturday without Project
= 2025 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

CRANE TRANSPORTATION GROUP

Appendix Figure C-2

PEAK HOUR VOLUME WARRANT #3
(Rural Area)
Oak Knoll Ave/Big Ranch Rd (South)

Appendix D

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	2	Impaired	sideswipe	no
2	1	unsafe turn	ran off road	no
3	2	impaired	sideswipe	no
4	1	improper turn	hit object	no
5	2	unsafe speed	rear end	yes
6	2	unsafe speed	rear end	no
7	2	right of way	broadside	no
8	2	starting/backing	rear end	yes
9	2	unsafe speed	rear end	no
10	2	wrong side	broadside	yes
11	1	unsafe turn	hit object	yes
12	1	unsafe speed	hit object	yes
13	2	right of way	broadside	yes
14	2	unsafe speed	rear end	no
15	1	impaired	hit object	yes
16	2	unsafe speed	rear end	yes
17	2	improper turn	sideswipe	no
18	2	unsafe speed	rear end	yes
19	2	starting/backing	rear end	no
20	1	improper turn	hit object	no
21	2	unsafe speed	rear end	no
22	2	right of way	broadside	yes
23	2	right of way	broadside	no
24	2	right of way	broadside	yes
25	2	starting/backing	broadside	yes

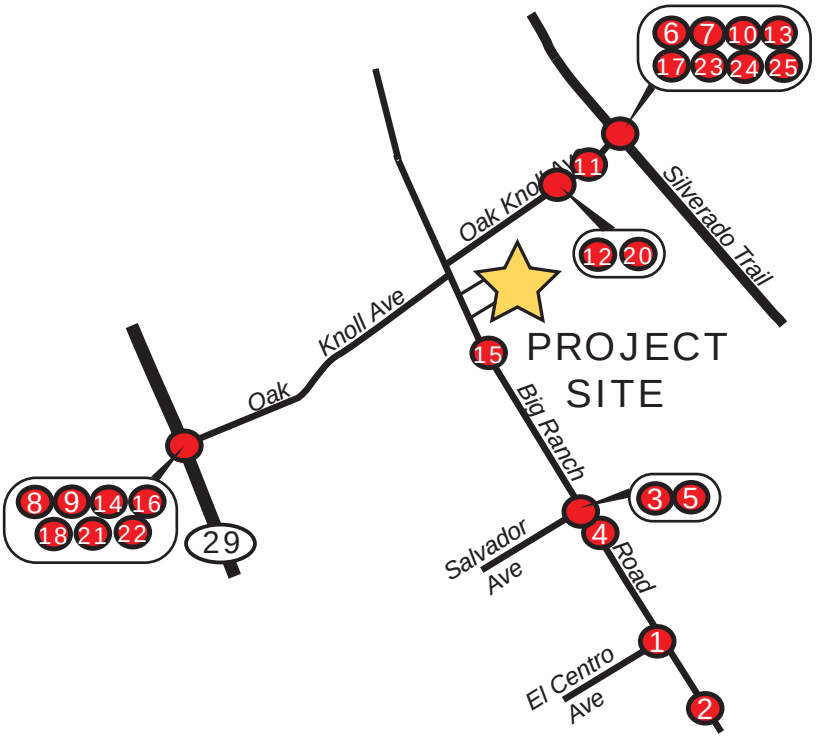


Figure D-1

Accidents in the Vicinity
of the Project Site - 2015

CRANE TRANSPORTATION GROUP

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	2	right of way	broadside	yes
2	1	improper turn	hit object	yes
3	1	impaired	hit object	no
4	1	improper turn	hit object	no
5	2	unsafe speed	rear end	yes
6	2	right of way	broadside	no
7	1	improper turn	overturn	yes
8	1	improper turn	hit object	no
9	2	improper turn	broadside	no
10	2	wrong side	sideswipe	yes
11	2	right of way	broadside	yes
12	3	impaired	rear end	no
13	2	wrong side	sideswipe	no
14	2	unsafe speed	rear end	yes
15	2	right of way	broadside	no
16	2	impaired	rear end	yes
17	1	improper turn	hit object	no
18	1	impaired	hit object	yes
19	2	right of way	broadside	no
20	2	right of way	head on	yes
21	1	impaired	ran off road	no
22	1	unsafe speed	hit object	no
23	2	unsafe speed	broadside	yes
24	2	unsafe speed	rear end	no
25	2	unsafe speed	rear end	no
26	2	starting/backing	rear end	no
27	1	impaired	hit object	no
28	3	unsafe speed	rear end	no

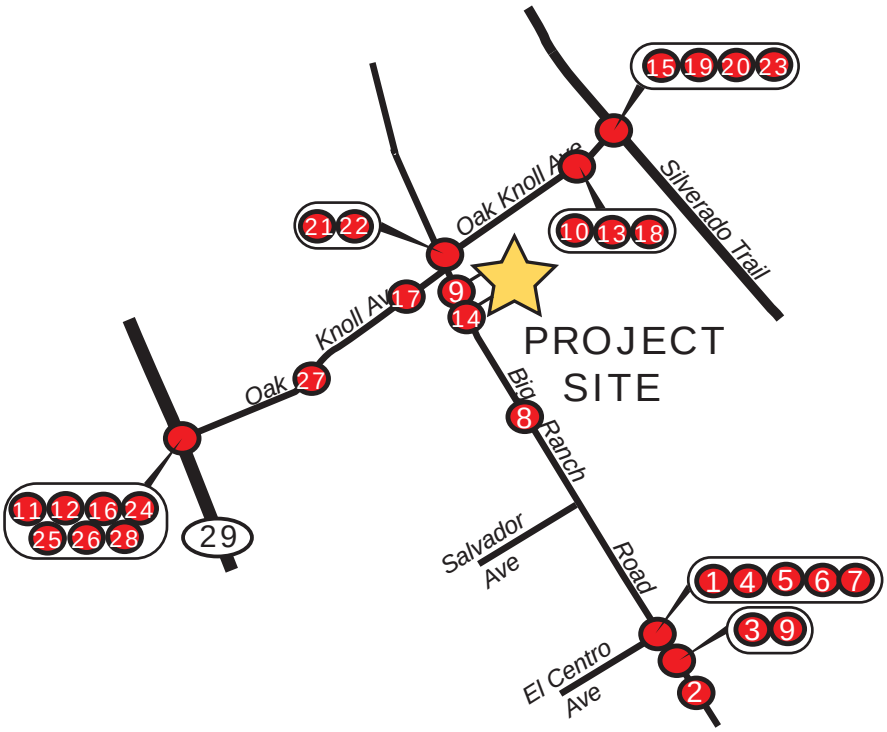


Figure D-2

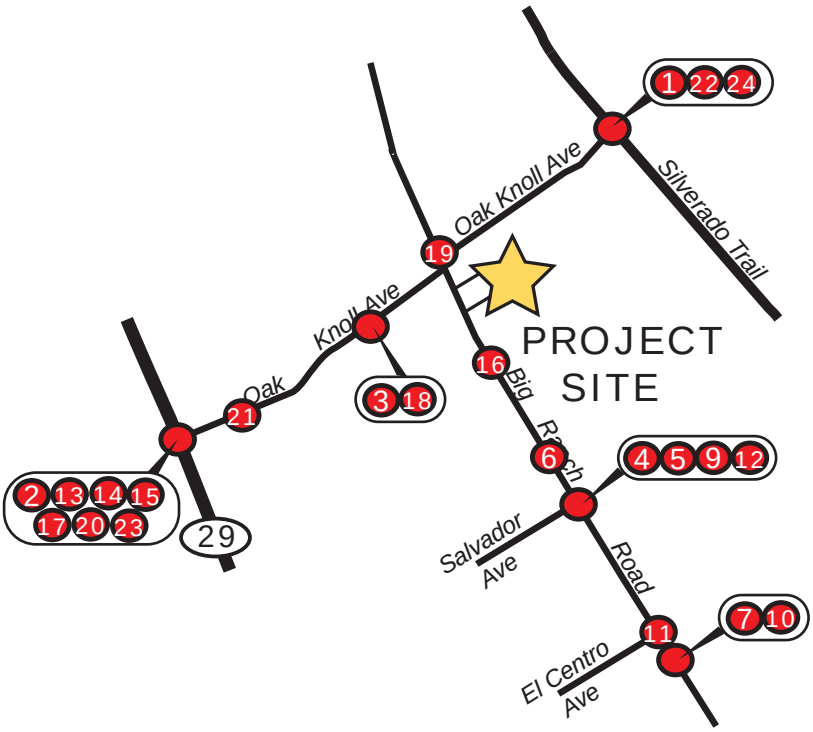
Accidents in the Vicinity of the Project Site - 2016

CRANE TRANSPORTATION GROUP

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	2	right of way	rear end	yes
2	3	unsafe speed	rear end	no
3	1	impaired	hit object	yes
4	1	improper turn	overturn	yes
5	1	improper turn	overturn	no
6	2	unsafe speed	rear end	no
7	1	improper turn	ran off road	no
8	1	improper turn	hit object	no
9	3	unsafe speed	rear end	no
10	2	wrong side	sideswipe	yes
11	2	unsafe speed	rear end	no
12	2	wrong side	sideswipe	no
13	2	unsafe speed	rear end	no
14	2	unsafe speed	rear end	yes
15	2	unsafe speed	rear end	no
16	1	improper turn	hit object	no
17	2	starting/backing	rear end	yes
18	1	impaired	hit object	yes
19	1	improper turn	hit object	no
20	1	starting/backing	hit object	no
21	1	improper turn	hit object	no
22	2	right of way	broadside	no
23	2	unsafe speed	rear end	no
24	2	right of way	broadside	yes



CRANE TRANSPORTATION GROUP

Figure D-3

Accidents in the Vicinity of the Project Site - 2017

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	2	right of way	head on	yes
2	1	improper turn	hit object	no
3	2	impaired	broadside	no
4	2	impaired	rear end	no
5	2	right of way	broadside	no
6	2	right of way	broadside	no
7	1	improper turn	hit object	yes
8	2	lane change	sideswipe	no
9	2	unsafe speed	rear end	no
10	2	right of way	cyclist	yes
11	2	right of way	broadside	yes
12	2	unsafe speed	rear end	no
13	2	impaired	broadside	no
14	2	starting/backing	rear end	no
15	2	right of way	broadside	yes
16	2	right of way	head on	yes
17	2	unsafe speed	rear end	yes
18	2	right of way	broadside	yes
19	2	right of way	broadside	yes
20	3	unsafe speed	rear end	yes
21	2	improper turn	broadside	yes
22	2	right of way	broadside	yes
23	2	unsafe speed	rear end	yes
24	2	improper turn	sideswipe	no

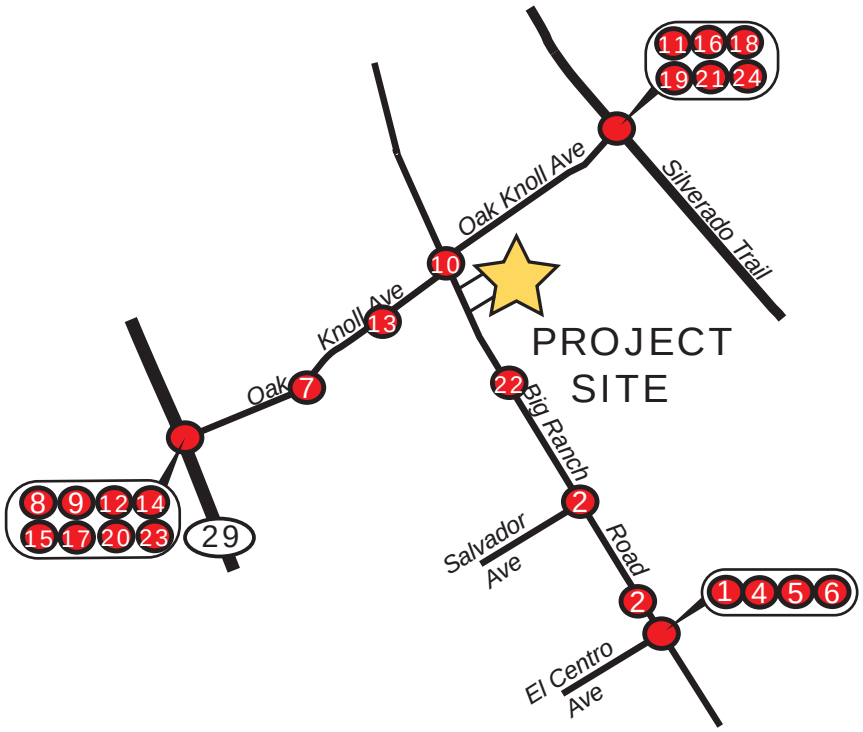


Figure D-4

Accidents in the Vicinity
of the Project Site - 2018

CRANE TRANSPORTATION GROUP

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	1	impaired	hit object	yes
2	1	improper turn	hit object	no
3	1	impaired	overturned	fatal
4	1	improper turn	hit object	no
5	2	impaired	sideswipe	no
6	1	improper turn	hit object	yes
7	2	starting/backing	rear end	no
8	1	impaired	hit object	yes
9	2	right of way	broadside	no
10	2	improper turn	broadside	no
11	2	unsafe speed	broadside	yes
12	2	right of way	broadside	no
13	2	right of way	broadside	yes
14	2	unsafe speed	rear end	yes
15	2	right of way	broadside	no
16	1	not driver	hit object	no
17	1	impaired	hit object	no
18	2	right of way	broadside	no
19	2	right of way	broadside	yes
20	2	unsafe speed	rear end	yes
21	1	impaired	hit object	yes
22	1	unsafe speed	hit object	no
23	2	unsafe speed	broadside	yes
24	2	unsafe speed	rear end	no
25	2	unsafe speed	rear end	no
26	2	starting/backing	rear end	no
27	1	impaired	hit object	no
28	3	unsafe speed	rear end	no

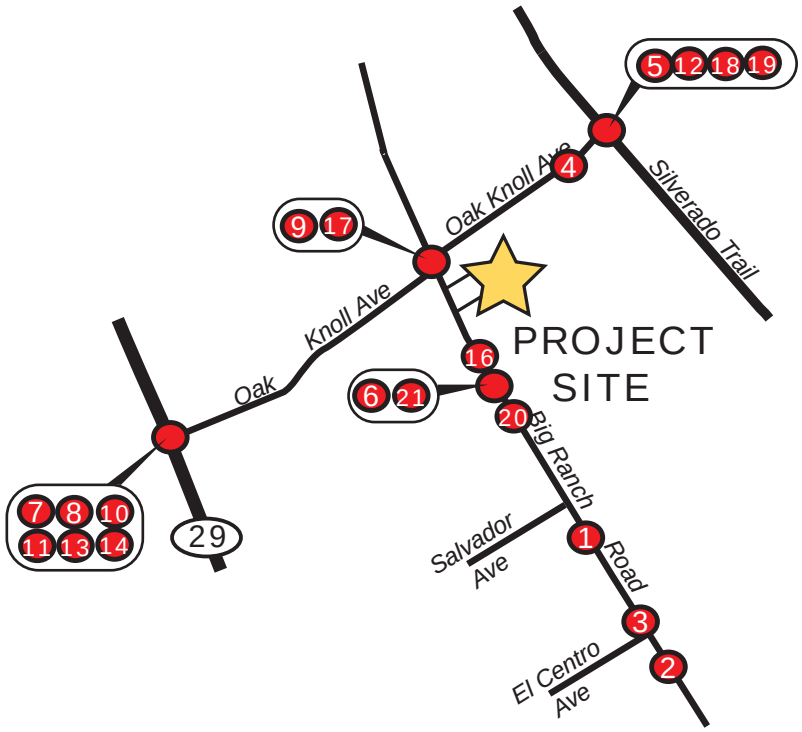


Figure D-5

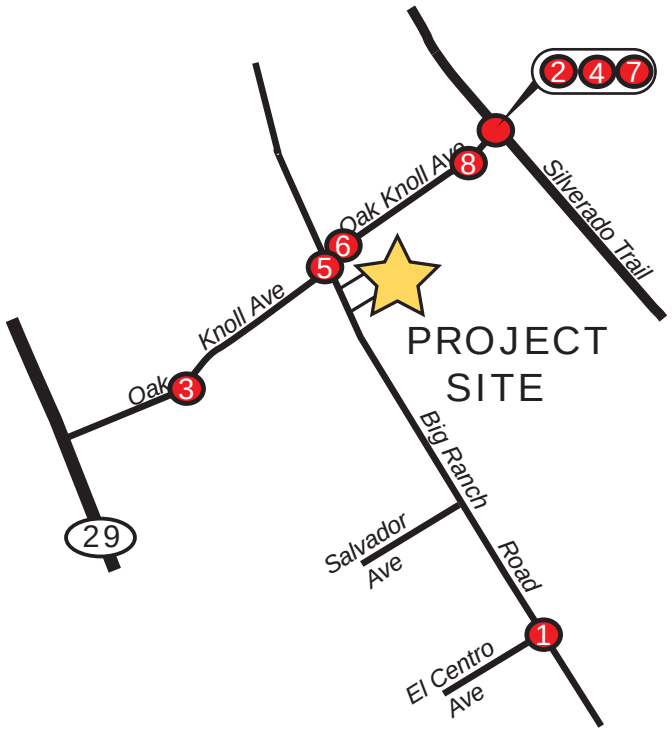
Accidents in the Vicinity of the Project Site - 2019

CRANE TRANSPORTATION GROUP

NORTH

Not To Scale

	# of veh	Cause	Type	Injury
1	2	unsafe speed	sideswipe	no
2	2	right of way	bradside	yes
3	1	improper turn	overturned	no
4	1	impaired	hit cyclist	yes
5	1	impaired	hit object	no
6	1	improper turn	hit object	no
7	2	impaired	broadside	no
8	2	wrong side	sideswipe	no

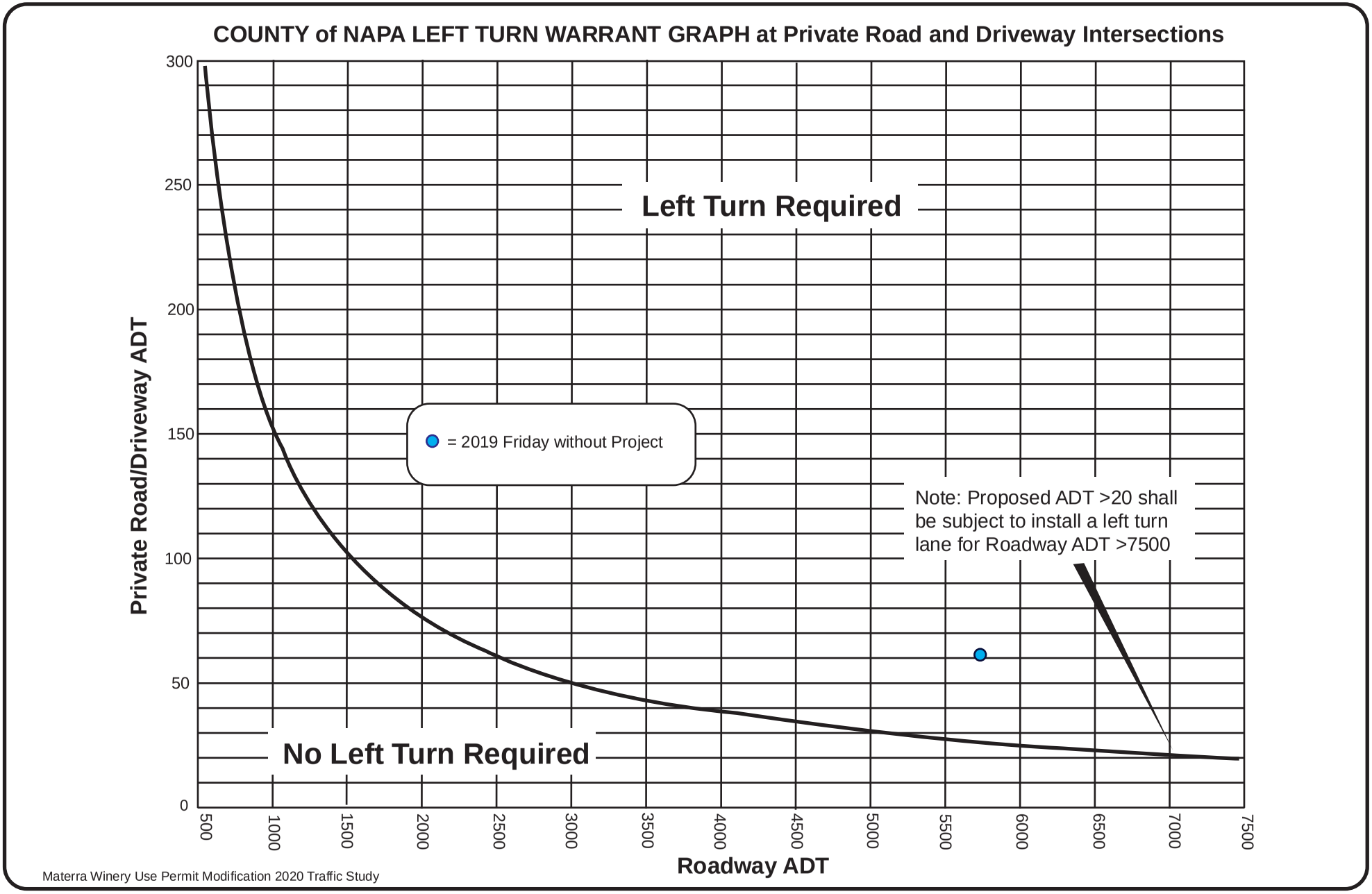


CRANE TRANSPORTATION GROUP

Figure D-6

Accidents in the Vicinity
of the Project Site
Jan 1 through September 8, 2020

Appendix E



CRANE TRANSPORTATION GROUP

Appendix Figure E-1

COUNTY of NAPA LEFT TURN WARRANT GRAPH

Left Turn from Big Ranch Road to Project Driveway

Appendix F

APPENDIX F

Trip Generation from Approved (Not Built) Projects in Close Proximity to Materra Winery

	Harvest Friday PM Peak Hour Trips		Harvest Saturday PM Peak Hour Trips	
	IN	**OUT**	**IN**	**OUT**
Boyd Winery [(1)]	5	5	2	8
H & L Winery [(2)]	N/A	N/A	N/A	N/A

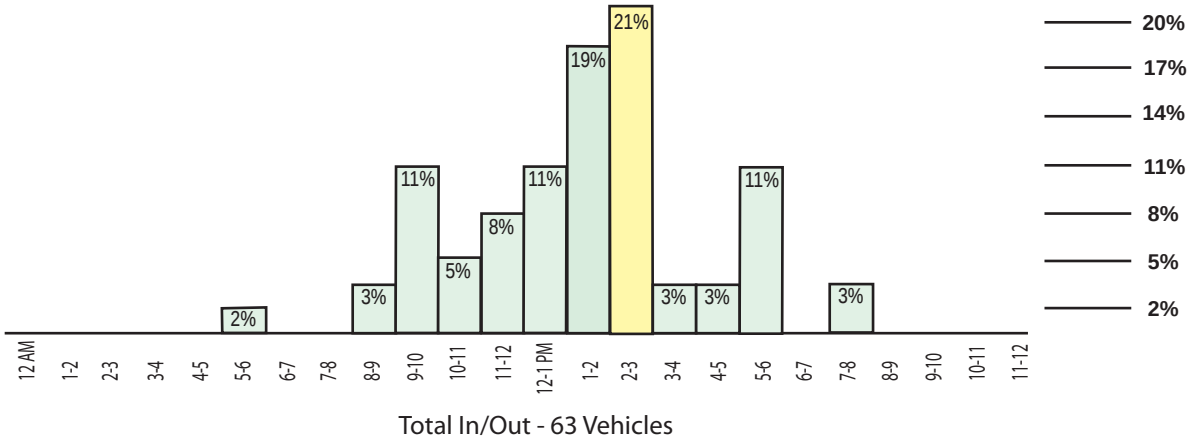
Traffic Volume Sources:
[(1)]Boyd Winery – Focused Trip Generation Analysis for the approved Boyd Winery project by Omni-Means, October 18, 2017.
[(2)]H & L Winery (small winery) – No traffic study prepared – Only circulation related measure will be relocating the proposed winery driveway from Oak Knoll Avenue to an existing vineyard access road along Big Ranch Road. (Permitted in 2015.)

Compiled by: Crane Transportation Group

Appendix G

MATERRA WINERY DRIVEWAY
Friday Hourly Percent of Total Trips

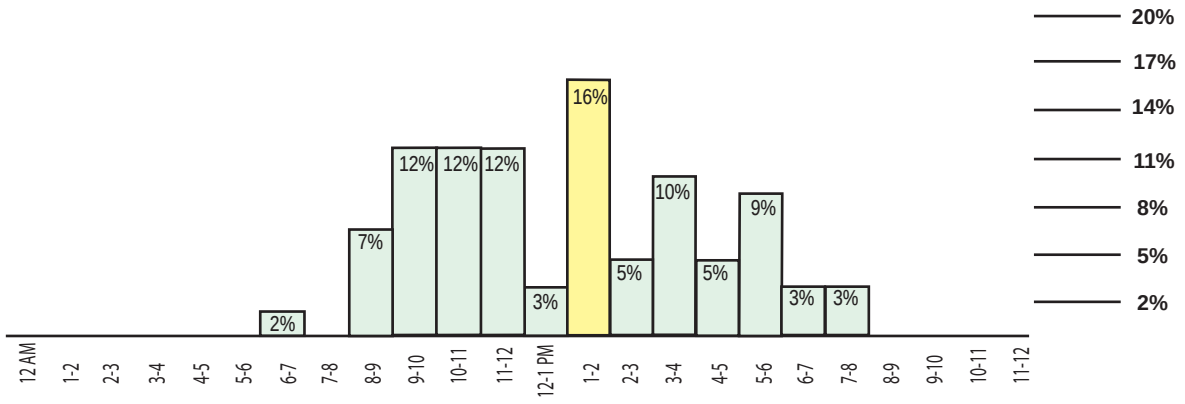
Friday, October 23, 2020



Total In/Out - 63 Vehicles

MATERRA WINERY DRIVEWAY
Friday Hourly Percent of Total Trips

Friday, October 30, 2020



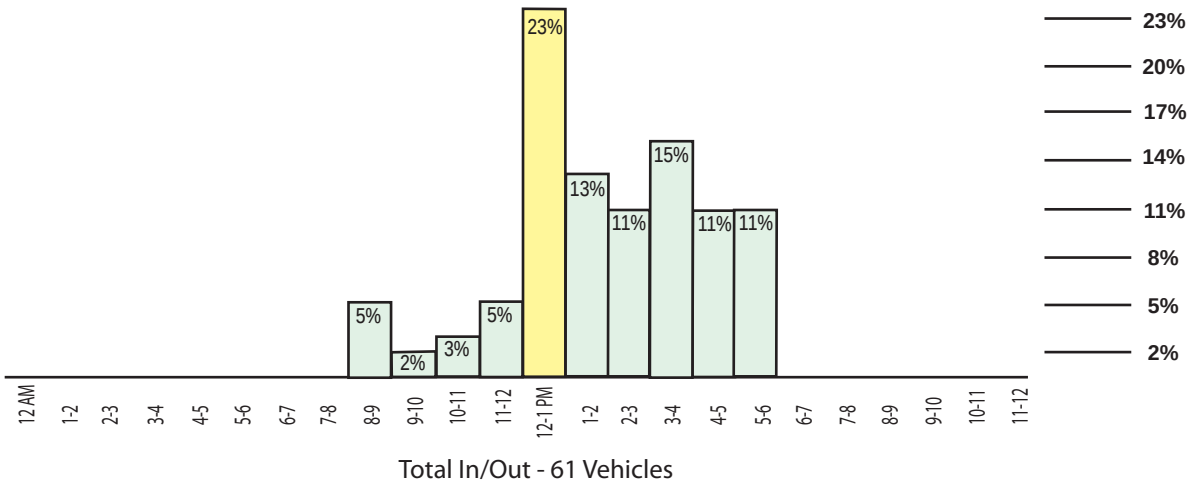
Total In/Out - 58 Vehicles

Appendix Figure G-1

Friday Traffic Totals and Percentages
Materra Winery (by Hour) - Oct 23 & Oct 30, 2020

MATERRA WINERY DRIVEWAY
Saturday Hourly Percent of Total Trips

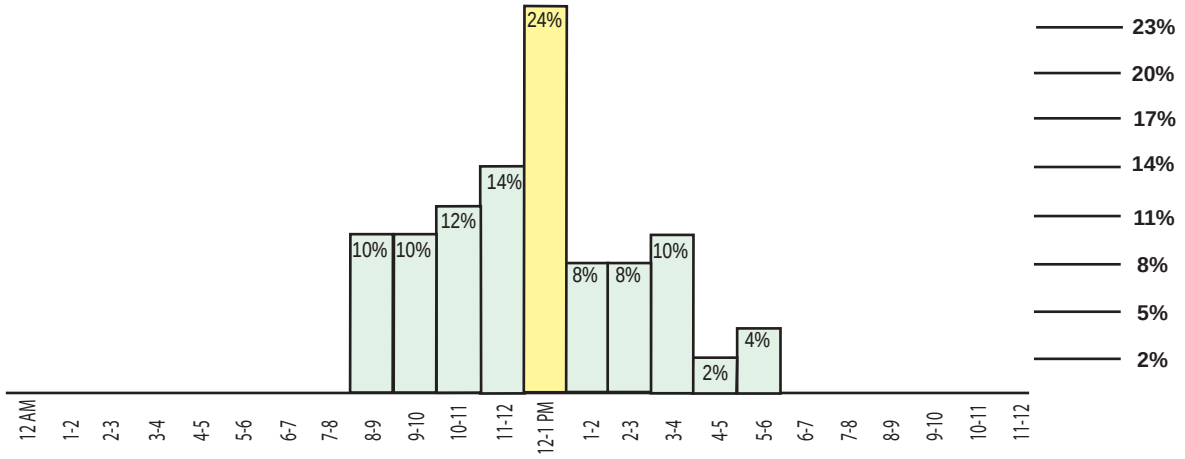
Saturday, October 24, 2020



Total In/Out - 61 Vehicles

MATERRA WINERY DRIVEWAY
Saturday Hourly Percent of Total Trips

Saturday, October 31, 2020



Total In/Out - 51 Vehicles

Appendix Figure G-2

Saturday Traffic Totals and Percentages
Materra Winery (by Hour) - Oct 24 & Oct 31, 2020

MATERRA WINERY

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]: 3 x 3.05 one-way trips per employee	= 9	daily trips
2.	Total number of PT employees[1]: 3 x 1.90 one-way trips per employee	= 6	daily trips
3.	Maximum weekday visitors[2]: 18 /2.6 visitors per vehicle x 2 one-way trips	= 14	daily trips
4.	Gallons of production: 110,000 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 2	daily trips
5.	**TOTAL**	= 31	**daily trips**

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

6.	Total number of FT employees[1]: 3 x 3.05 one-way trips per employee	= 9	daily trips
7.	Total number of PT employees[1]: 7 x 1.90 one-way trips per employee	= 14	daily trips
8.	Maximum weekday visitors[2]: 18 /2.6 visitors per vehicle x 2 one-way trips	= 14	daily trips
9.	Gallons of production: 110,000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 2	daily trips
10.	Avg. annual tons of grape on-haul: 330 / 144 truck trips x 2 one-way trips	= 5	daily trips
11.	**TOTAL**	= 43	**daily trips**

Section C. 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	daily trips
13.	Total number of PT Sat. employees[1]: 3 x 1.90 one-way trips per employee	= 6	daily trips
14.	Maximum Saturday visitors[2]: 18 /2.8 visitors per vehicle x 2 one-way trips	= 13	daily trips
15.	Gallons of production: 110,000 /1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 2	daily trips
16.	**TOTAL**	= 30	**daily trips**

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

17.	Total number of FT Sat. employees[1]: 3 x 3.05 one-way trips per employee	= 9	daily trips
18.	Total number of PT Sat. employees[1]: 7 x 1.90 one-way trips per employee	= 14	daily trips
19.	Maximum Saturday visitors[2]: 18 /2.8 visitors per vehicle x 2 one-way trips	= 13	daily trips
20.	Gallons of production: 110,000 /1,000 x 0.009 daily truck trips x 2 one-way trips	= 2	daily trips
21.	Avg. annual tons of grape on-haul: 330 / 144 truck trips x 2 one-way trips	= 5	daily trips
22.	**TOTAL**	= 42	**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

MATERRA WINERY

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

6 + 3 + 2.9

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) = 18 PM peak trips

7.8 + 3 + 6.7

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) = 15 PM peak trips

8.5 + 3 + 2.9

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) = 21 PM peak trips

11.1 + 3 + 6.7

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) = 12,135 Annual trips

6,386 + 2,365 + 2,460 + 924

MATERRA WINERY

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]: 12 x 3.05 one-way trips per employee	= 37	daily trips
2.	Total number of PT employees[1]: 2 x 1.90 one-way trips per employee	= 4	daily trips
3.	Maximum weekday visitors[2]: 34/2.6 visitors per vehicle x 2 one-way trips	= 26	daily trips
4.	Gallons of production: 150,000/1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 3	daily trips
5.	**TOTAL**	= **70**	**daily trips**

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

6.	Total number of FT employees[1]: 12 x 3.05 one-way trips per employee	= 37	daily trips
7.	Total number of PT employees[1]: 5 x 1.90 one-way trips per employee	= 10	daily trips
8.	Maximum weekday visitors[2]: 34/2.6 visitors per vehicle x 2 one-way trips	= 26	daily trips
9.	Gallons of production: 150,000/1,000 x 0.009 daily truck trips x 2 one-way trips	= 3	daily trips
10.	Avg. annual tons of grape on-haul: 510 / 144 truck trips x 2 one-way trips	= 7	daily trips
11.	**TOTAL**	= **83**	**daily trips**

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

12.	Total number of FT Sat. employees[1]: 12 x 3.05 one-way trips per employee	= 37	daily trips
13.	Total number of PT Sat. employees[1]: 2 x 1.90 one-way trips per employee	= 4	daily trips
14.	Maximum Saturday visitors[2]: 34/2.8 visitors per vehicle x 2 one-way trips	= 24	daily trips
15.	Gallons of production: 150,000/1,000 x 0.009 daily truck trips[3] x 2 one-way trips	= 3	daily trips
16.	**TOTAL**	= **68**	**daily trips**

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

17.	Total number of FT Sat. employees[1]: 12 x 3.05 one-way trips per employee	= 37	daily trips
18.	Total number of PT Sat. employees[1]: 5 x 1.90 one-way trips per employee	= 10	daily trips
19.	Maximum Saturday visitors[2]: 34/2.8 visitors per vehicle x 2 one-way trips	= 24	daily trips
20.	Gallons of production: 150,000/1,000 x 0.009 daily truck trips x 2 one-way trips	= 3	daily trips
21.	Avg. annual tons of grape on-haul: 510 / 144 truck trips x 2 one-way trips	= 7	daily trips
22.	**TOTAL**	= **81**	**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

MATERRA WINERY

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) = 25 PM peak trips

11 + 12 + 1.9

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) = 31 PM peak trips

13.7 + 12 + 4.8

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) = 30 PM peak trips

15.4 + 12 + 1.9

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) = 37 PM peak trips

19.4 + 12 + 4.8

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) = 26,343 Annual trips

14.420 + 4,565 + 5,576 + 1,782

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.***

MATERRA WINERY

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.*

Appendix H

MATERRA
CUNAT FAMILY VINEYARDS

TRANSPORTATION DEMAND MANAGEMENT PLAN

November 12, 2020

Winery Management presents the following Transportation Demand Management (TDM) plan. Individually, or as a whole, these actionable, meaningful and measurable initiatives are being proposed with the Materra, Cunat Family Winery Use Permit Modification (P20-00184), with the intent of reducing vehicular miles traveled (VMT) to and from our winery facility. Many of the elements in this plan are already part of our standard business policy.

The TDM programs will be administered by our HR department and the General Manager of Materra. Harrison Heitz and Brian G. Cunat.

1. The winery will offer to all employees a $5.00 per day stipend for every day they commute with another employee, or rideshare with other workers in the valley.

2. This stipend would also apply to any employee using any form of public transportation

3. The winery will continue to participate in an emergency guaranteed-ride-home program, ensuring that all commuters can get home safely in the event of an emergency.

4. Winery guests will be extended the same emergency guaranteed-ride program to their hotel, lodging, or residence. This includes any guest deemed not suitable to drive.

The Materra Winery currently utilizes, and will continue to utilize, hired shuttle services. As daily visitation at our winery is by appointment only, we encourage groups coming to the winery to utilize shuttle services. A list of recommended companies is provided at time of visitation booking. In addition to these services, Materra will:

1. Offer to guest the option of being picked up at their lodging, within a 15-mile radius. This includes the cities of Napa and St. Helena, as well as the towns of Yountville, Oakville and Rutherford.

2. Welcome and encourage bicycle tours.

3. Install an electric car charging station as part of Use Permit Modification P20-00184.

It has been a practice to allow some employees to work from home when possible. Some positions, such as cellar workers and hospitality, are still needed at the winery.

We have established, and will continue to implement, a 4-day work week to limit the number of cars on the road. Each worker puts in a 10-hour day, but then only needs to be on the road 4 days a week. Employee work hours have also been designed to keep away from peak traffic hours. Flex time is also offered for some positions to avoid peak traffic congestion. Hospitality staff schedule tastings to begin no earlier than 10:00 am, and no later than 4:30 pm, allowing guests to avoid most peak traffic congestion periods.

Respectfully Submitted by
Materra, Cunat Family winery management

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