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Traffic Impact Study and Addendum

Saintsbury Winery Major Modification P18-00027
Planning Commission Hearing August 19, 2020

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MEMORANDUM

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FROM: Mark Crane, P.E. (cranetransgroup@gmail.com)

DATE: May 18, 2020

RE: **SAINTSBURY WINERY TRAFFIC STUDY ADDENDUM – REVISED MEASURE TO ELIMINATE SIGNIFICANT PROJECT TRAFFIC IMPACT AT THE SR 12-121/CUTTINGS WHARF RD INTERSECTION**

Emily:

Based upon discussion and agreement between County staff and the Saintsbury project applicant, the measures detailed below are proposed to eliminate the project's expected cumulative significant circulation impact at the SR 12-121/Cuttings Wharf Road intersection. Counts conducted for our Traffic Impact Study showed that the peak hours at the subject intersection were 3:30-4:30 PM on Friday and 1:00-2:00 PM on Saturday. During these hours all project traffic added to the intersection would be visitors by appointment (ten 2-way vehicles from 3:30-4:30 PM on a Friday and nine 2-way vehicles from 1:00-2:00 PM on a Saturday).

Traffic analysis showed that the addition of project traffic to the SR 12-121/Cuttings Wharf Road intersection would result in a cumulative (year 2030) significant impact during both the Friday and Saturday PM peak traffic hours. However, after discussion with County Public Works staff it was determined that no physical improvements (such as signalization) were feasible to reduce the impact to a less than significant level. We also understand that payment of the County's

planned Traffic Impact Fee ("TIF") may not include a project that would mitigate traffic in this area.

Therefore, the only remaining measure possible would be to reduce net new project traffic during both peak hours to levels resulting in a less than significant impact based upon County criteria. To accomplish this objective the applicant has agreed to eliminate 100% of net new traffic entering or leaving the winery from 3:30-4:30 PM on a Friday afternoon and from 1:00-2:00 PM on a Saturday. This measure would require the Transportation Demand Management (TDM) Coordinator to schedule tastings for net new guests such that they are either entering or leaving the winery at times other than the critical hours. It should be noted that based upon the winery's practice of conducting tastings for about an hour and 15 minutes it will be possible to have guests arrive just before each restricted hour and then leave after the restricted hour. In addition, reductions less than 100% would have reduced project traffic impacts to a less than significant level. However, the applicant is willing for 100% reductions during both critical hours. Reduction of the net new project traffic during both peak hours as described above results in a less than significant impact based on County criteria.

In conclusion, the Saintsbury applicant is agreeable to eliminating 100% of net new guest traffic entering or leaving the winery from 3:30-4:30 PM on a Friday and from 1:00-2:00 PM on a Saturday. The Winery TDM Coordinator will be responsible for net new guest appointment scheduling to avoid visitation traffic on the local circulation system during these hours. Provision of a Winery TDM Coordinator can be enforced through a condition of approval that would replace the mitigation measure in this project's Traffic Impact Study that required payment of the County's planned TIF.

Mark Crane, P.E.

FINAL TRAFFIC IMPACT REPORT

SAINTSBURY WINERY
USE PERMIT MODIFICATION 2019
IN NAPA COUNTY

January 7, 2020

Prepared for: SAINTSBURY WINERY

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I. INTRODUCTION

This traffic report has been prepared for Saintsbury Winery to determine if traffic from the winery's proposed use permit modification 2018 will result in any significant local circulation system impacts along State Route 12-121, Cuttings Wharf Road, Los Carneros Avenue or Withers Road and the need for any mitigation measures. See **Figure 1** for the project location.

II. SCOPE OF SERVICES

The scope of service for this traffic study was developed and approved by the Napa County Public Works and Planning Departments. Evaluation was conducted for harvest Friday and Saturday PM peak traffic conditions. Existing, year 2020 and year 2030 (Cumulative – General Plan Buildout) horizons were evaluated both with and without project traffic. Operating conditions at the SR 12-121 intersections with Cuttings Wharf Road and Los Carneros Avenue as well as at the Withers Road intersections with Cuttings Wharf Road and Los Carneros Avenue were evaluated for all analysis scenarios based upon County traffic significance criteria. In addition, sight line adequacy was evaluated at the project's driveway intersection with Withers Road. Significant impacts, if any, were identified and measures listed, if needed, to mitigate all impacts to a less than significant level.

III. EXECUTIVE SUMMARY OF IMPACTS, CONCLUSIONS & RECOMMENDATIONS

A. IMPACTS

1. PROJECT TRIP GENERATION

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

HARVEST

FRIDAY PM PEAK HOUR* (3:30-4:30)		SATURDAY PM PEAK HOUR* (1:00-2:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
5	8	8	4

* Peak hour at the SR 12-121 intersections with Cuttings Wharf Road and Los Carneros Avenue.

2. INTERSECTION IMPACTS WHICH WILL NOT BE SIGNIFICANT

Project traffic will not result in any Existing or year 2020 significant Friday or Saturday PM peak hour impacts to the SR 12-121 intersections with Cuttings Wharf Road or Los Carneros Avenue, nor for 2030 conditions at SR 12-121 and Los Carneros Avenue. In addition, project traffic will not result in significant Existing, Year 2020 or Cumulative (Year 2030) harvest condition Friday or Saturday PM peak hour impacts at the Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue.

3. SIGNIFICANT INTERSECTION IMPACTS

Project traffic will result in a significant cumulative (year 2030) impact at the SR12-121/Cuttings Wharf Road intersection for both Friday and Saturday PM peak hour conditions.

4. LEFT TURN LANE NOT WARRANTED

Project traffic will not warrant provision of a left turn lane on the Withers Road approach to the project driveway.

5. ACCEPTABLE SIGHT LINES

Sight lines are acceptable at the project driveway connection to Withers Road.

6. PROPOSED MARKETING EVENT SCHEDULES ELIMINATE PEAK TRAFFIC TIMES

Existing marketing events would be replaced by 6 events/year with 50 people (18 vehicles) and 2 events/year with 100 people (36 vehicles). Events would either end by 2:30 PM, or start at 6:00 PM, thereby not adding any significant level of traffic to the local roadway system during the critical 3:00-5:30 PM time period. ***Less than significant.***

7. TRIP & VMT REDUCTION MEASURES

The project applicant will have a staff person appointed as Transportation Demand Management (TDM) coordinator to facilitate employees reducing auto commuting and Vehicle Miles Traveled (VMT). In addition, the TDM coordinator will promote use of shuttle buses to all marketing events.

B. CONCLUSIONS & RECOMMENDATIONS

The project would result in only one potentially significant off-site circulation system operational impact: at the SR 12-121 intersection with the Cuttings Wharf Road intersection for cumulative (year 2030) conditions. However, while this intersection currently warrants signalization the County and Caltrans are not in favor of signalizing this location. As an alternative mitigation, the County Public Works Department and the project applicant have agreed that the project applicant will pay the traffic impact fee currently being developed by the County.

IV. OVERALL SUMMARY OF FINDINGS (WITHOUT AND WITH PROJECT)

A. "WITHOUT PROJECT" OPERATING CONDITIONS

1. Existing Harvest Volumes – September 2018

The SR 12-121 intersections with Cuttings Wharf Road and Los Carneros Avenue would be expected to have slightly higher volumes during the harvest Saturday PM peak traffic hour compared to the harvest Friday PM peak traffic hour. During the peak traffic hours at Cuttings Wharf Road about 2,650 peak hour vehicles are projected to enter the intersection from 1:00 to 2:00 PM on Saturday versus about 2,530 peak hour vehicles from 3:30 to 4:30 PM on Friday, while at the Los Carneros Avenue intersection about 2,490 vehicles are projected to enter the intersection during the Saturday PM peak hour versus about 2,335 vehicles during the Friday PM peak hour. However, the driveway serving the Saintsbury Winery would be expected to have slightly higher volumes during the Friday PM peak hour (8 two-way vehicles) versus the Saturday PM peak hour (5 two-way vehicles).

2. Year 2018, 2020 or Cumulative (2030) Harvest (Without Project) Circulation System Operation

- **SR 12-121/Cuttings Wharf Road unsignalized intersection** – unacceptable levels of service + volumes now meet both urban and rural peak hour signal warrant criteria levels during both the Friday and Saturday PM peak traffic hours.
- **SR 12-121/Los Carneros Avenue unsignalized intersection** – unacceptable levels of service during both the Friday and Saturday PM peak traffic hours and volumes would meet rural signal warrant criteria in both 2020 and 2030.
- **Withers Road/Cuttings Wharf Road unsignalized intersection** – acceptable levels of service on the Withers Road eastbound stop sign controlled intersection approach during both the Friday and Saturday PM peak traffic hours; adequate sight lines.
- **Withers Road/Los Carneros Avenue unsignalized intersection** – acceptable levels of service on the Withers Road westbound stop sign controlled intersection approach during both the Friday and Saturday PM peak traffic hours; adequate sight lines.

B. PROJECT IMPACTS

1. Project Trip Generation

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

PROJECT TRIP GENERATION

HARVEST

FRIDAY PM PEAK HOUR* (3:30-4:30)		SATURDAY PM PEAK HOUR* (1:00-2:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
5	8	8	4

* Peak hour at the SR 12-121 intersections with Cuttings Wharf Road and Los Carneros Avenue.
Source: Saintsbury Winery; compiled by Crane Transportation Group

Trips during both the Friday and Saturday PM peak hours will be visitors by appointment.

2. Project Site Access to Withers Road

The Saintsbury Winery will continue to have employee and visitor access to Withers Road at the existing winery driveway connection. No left turn lane is in place along Withers Road at the project driveway and "with project" volumes will not warrant provision of a left turn lane based upon County daily traffic volume criteria. ***Less than significant.***

3. Year 2018 Harvest + Project Off-Site Circulation Impacts

The proposed project would not result in any significant levels of service and delay impacts to the SR 12-121 intersections with Cuttings Wharf Road or Los Carneros Avenue, both of which would already be operating unacceptably without project traffic. The increase in traffic due to the project would be less than 5.5 percent on either the Cuttings Wharf Road or Los Carneros Avenue stop sign controlled approaches to SR 12-121. These increases would not meet the County's level of service impact significance criteria limit. Also, the project would not result in any significant signal warrant impact at the SR 12-121/Cuttings Wharf Road intersection, with total volumes entering the intersection increased less than 1 percent at a location already meeting signal warrant #3 criteria levels. Finally, project traffic would not degrade acceptable level of service at the Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue to unacceptable conditions. ***Less than significant.***

4. Year 2020 Harvest + Project Off-Site Circulation Impacts

The proposed project would not result in any significant levels of service and delay impacts to the SR 12-121 intersections with Cuttings Wharf Road or Los Carneros Avenue, both of which would already be operating unacceptably without project traffic. The increase in traffic due to the project would be less than 5 percent on either the Cuttings Wharf Road or Los Carneros Avenue stop sign controlled approaches to SR 12-121. These increases would not meet the County's level of service significance criteria limit. Also, the project would not result in any significant signal warrant impacts at the

SR 12-121 intersections with Cuttings Wharf Road or Los Carneros Avenue, with total volumes entering the intersections increased less than 1 percent at locations already meeting signal warrant #3 criteria levels. Finally, project traffic would not degrade acceptable level of service at the Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue to unacceptable conditions. ***Less than significant.***

5. **Cumulative (Year 2030) Harvest + Project Off-Site Circulation Impacts**
The proposed project would result in a significant level of service and delay impact to the SR 12-121 intersection with Cuttings Wharf Road, which would already be operating unacceptably without project traffic. The increase in traffic on the stop sign controlled Cuttings Wharf Road intersection approach due to the project compared to the growth in ambient volumes between Existing and Cumulative conditions would be 29 percent during the Friday PM peak hour and 12 percent during the Saturday PM peak hour. These increases would exceed the County's maximum 5 percent traffic increase criteria for cumulative traffic conditions. However, this impact would be mitigated when the SR 12-121/Cuttings Wharf Road intersection is signalized. The project would pay a fair share contribution towards the signal. Finally, project traffic would not result in a significant cumulative impact at the SR 12-121/Los Carneros Avenue intersection or the Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue. ***Potentially significant impact.***

6. **Sight Lines at Project Driveway**
Sight lines at the existing Saintsbury Winery driveway connection to Withers Road meet minimum stopping sight distance criteria based upon the Caltrans March 2014 *Highway Design Manual*. ***Less than significant.***

7. **New Marketing Event Scheduling**
Existing marketing events would be replaced by 6 events/year with 50 people (18 vehicles) and 2 events/year with 100 people (36 vehicles). Events would either end by 2:30 PM, or start at 6:00 PM, thereby not adding any significant level of traffic to the local roadway system during the critical 3:00-5:30 PM time period. ***Less than significant.***

C. RECOMMEDATIONS

1. **SR 12-121/Cuttings Wharf Road:** The project would result in one significant off-site circulation system operational impact: at the SR 12-121 intersection with Cuttings Wharf Road for Friday and Saturday cumulative traffic conditionsHowever, while this intersection currently warrants signalization neither the County nor Caltrans are in favor of signalizing this location. As an alternative mitigation, the County Public Works Department and the project applicant have agreed that the project applicant will pay the traffic impact fee currently being developed by the County. ***Impact reduced to less than significant.***

V. PROJECT LOCATION & DESCRIPTION

The Saintsbury Winery is located on the south side of Withers Road about 700 feet west of Cuttings Wharf Road and 540 feet east of Los Carneros Avenue (see **Figure 2**). The winery is accessed via a single driveway.

The proposed Saintsbury Use Permit Modification 2018 will have the following yearly production increase and increased employees, visitation and marketing events.

- No change in production; A maximum of 160,000 gallons in any given year, with an average of 135,000 gallons per year.
- 3 new full-time employees.
- Up to 19 total employees during harvest (existing + project).
- No new bottling on-site.
- Visitation (by appointment only) will be increased from 12 up to a maximum of 95 people/day (up to a maximum of 450 per week). Visitation hours will remain 10:00 AM to 5:00 PM, 7 days per week.
- No new grape delivery trucks or other trucks.
- New marketing events as detailed below.

Proposed New Marketing Events – To Replace Existing Events

Marketing Event #1	# events/year: 6
Wine Club/	maximum # people/event: 50
Release Event	typical days: Weekend (primarily in March, May, Sept. & Nov.)
	typical hours: 10:00 AM to 2:30 PM
Marketing Event #2	# events/year: 2
Large Event	maximum # people/event: 100 guests + 2 event staff
	typical days: Weekend (one in August and second in November)
	typical hours: 10:00 AM to 2:30 PM

Bottling

Days of existing on-site bottling per year: 13-15 days
Additional days per year of new on-site bottling due to project: No change

TDM Coordinator
A staff person will be appointed TDM coordinator to implement programs that will reduce single occupant commuting by employees and to provide shuttle bus or van service for all major marketing events.

VI. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

The following locations have been evaluated.

1. **SR 12-121/Cuttings Wharf Road intersection. (The Cuttings Wharf Road approach is stop sign controlled.)**

2. **SR 12-121/Los Carneros Avenue intersection. (The Los Carneros Avenue northbound and southbound approaches are stop sign controlled.)**

3. **Withers Road/Cuttings Wharf Road intersection. (The Withers Road eastbound approach is stop sign controlled.)**

4. **Withers Road/Los Carneros Avenue intersection. (The Withers Road eastbound and westbound approaches are stop sign controlled.)**

5. **Withers Road/Saintsbury Winery main driveway intersection.**

B. VOLUMES

1. ANALYSIS SEASONS AND DAYS OF THE WEEK

At County request 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, conditions during this month were selected for evaluation.

In regards to the peak traffic days of the week, the Napa County Travel Behavioral Study[1] 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 PM peak hour volumes are higher on a Friday than on either a Wednesday or Thursday. Therefore, Friday and Saturday PM peak traffic conditions were evaluated in this study.

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

2. COUNT RESULTS

Friday 3:00 to 6:00 PM as well as Saturday 1:00 to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) on June 8 & 9, 2018 at the SR 12-121 intersections with Cuttings Wharf Road and Los Carneros Avenue, as well as at the Withers Road intersections with Cuttings Wharf Road, Los Carneros Avenue and the Saintsbury Winery driveway. The PM peak traffic hours at the SR 12-121 intersections were determined to be 3:30-4:30 PM on Friday and 1:00-2:00 PM on Saturday. Resultant June Friday and Saturday 2018 PM peak hour volumes are presented in **Appendix Figures A-1 & A-2**.

3. SEASONAL ADJUSTMENTS

Seasonal factors to adjust June 2018 counts to reflect September 2018 (harvest) conditions were developed using the Caltrans PeMS Friday and Saturday PM peak period count data. Overall, June 2018 PM peak hour volumes would be expected to increase by about 8.3 percent on Friday and by almost 6.2 percent on Saturday to reflect September 2018 harvest conditions. Resultant year 2018 harvest Friday and Saturday PM peak hour volumes are presented in **Figures 4 & 5**.

C. ROADWAYS

Roadway descriptions are based upon the designation that SR 12-121 and Withers Road run in a general east-west direction through the project area, while Cuttings Wharf Road and Los Carneros Avenue run in a general north-south direction. The project site is along the east side of Withers Road about 700 feet west of Cuttings Wharf Road and 540 feet east of Los Carneros Avenue. **Figure 3** presents existing intersection geometrics and control.

SR 12-121 provides subregional access to Cuttings Wharf Road. It is a two-lane highway with a 55 mile per hour posted speed limit near the project site. It extends from the Sonoma/Napa county line easterly to State Route 29. SR 12-121 has two well-paved travel lanes and wide paved shoulders. A left turn deceleration lane is provided on the westbound approach to Cuttings Wharf Road while a right turn deceleration lane is provided on the eastbound approach. An eastbound acceleration lane is also provided for right turns from Cuttings Wharf Road.

Cuttings Wharf Road is a two-lane collector roadway extending in a general southerly direction from its intersection with SR 12-121. It ends about 3 miles south of SR 12-121 at the Napa River. There is no posted speed limit between the project driveway and SR 12-121, although observed speeds ranged from 40 to 55 miles per hour. Cuttings Wharf Road is stop sign controlled on its single lane approach to SR 12-121.

Los Carneros Avenue is a two-lane collector roadway extending south from an unsignalized intersection with SR 12-121 for about 6,200 feet before making a 90-degree turn to the east where it eventually ends at Cuttings Wharf Road. It has centerline striping and a posted speed limits of 25 miles per hour in the project vicinity.

Withers Road is a two-lane rural road extending westerly from an unsignalized intersection with Cuttings Wharf Road to a four-leg intersection with Los Carneros Avenue, where it lacks centerline striping and has no posted speed limits.

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

2. MINIMUM ACCEPTABLE OPERATION

Napa County's minimum acceptable operating condition standards for unsignalized intersections are Level of Service D (LOS D) for the side street stop sign controlled approaches at two-way stop intersections as well as for overall operation at all-way-stop intersections. Please see capacity worksheets in the **Appendix**.

E. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION

1. ANALYSIS METHODOLOGY

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

There are 10 possible tests for determining whether a traffic signal should be considered for installation. These tests, called "warrants", consider criteria such as actual traffic volume, pedestrian volume, presence of school children, and accident history. The intersection volume data together with the available collision histories were compared to warrants contained in the *California Manual on Uniform Traffic Control Devices, 2014, Revision 3 (2014 CMUTCD Rev. 2)*. Section 4C of the 2014 CMUTCD Rev. 3 provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the 2014 CMUTCD Rev. 3, satisfaction of one or more warrants does not necessarily require immediate installation of a traffic signal. It is merely an indication that the local jurisdiction should begin monitoring conditions at that location and that a signal may ultimately be required.

Warrant 3, the peak hour volume warrant, is often used as an initial check of signalization needs since peak hour volume data is typically available and this warrant is usually the first one to be met. Warrant 3 is based on a logarithmic curve and takes only the hour with the highest volume of the day into account. For intersections in rural locations (with local area population less than 10,000 people or where the posted speed limit or 85th percentile speed on the uncontrolled intersection approaches is greater than 40 miles per hour) a 70 percent “rural” warrant is applied. Both the urban and rural peak hour warrants have been evaluated in this study. Please see the **Appendix** for the warrant charts.

F. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study that would improve intersection capacity.[2]

[2] Mr. Michael Hawkins, Napa County Public Works Department, March 2018.

VII. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for existing (2018), year 2020 and year 2030 harvest conditions. The 2030 horizon reflects the cumulative County General Plan Buildout year. At County request traffic projections were initially developed for a list of new or expanding winery projects already approved but not built in the vicinity of the Saintsbury Winery. The list and the traffic studies used to obtain their projections are presented in **Table 3**.

Initial review of the County calibration run and 2030 modeling results indicated that direct use of 2030 model volumes would not produce accurate projections for the study area roadways. Instead, an analysis procedure referred to as the "Difference Method" was utilized which determines the change in traffic projected by the model between the calibration year and the General Plan horizon year. The proportional amount of this total increase (from 2018 to 2030) is then determined and added to the existing traffic counts to produce 2030 projections.

Resultant year 2030 traffic modeling projections were then compared to volumes expected from the nearby projects. While mainline volume increases along SR 12-121 appeared reasonable from the model, traffic increases expected from the County's list of approved nearby projects were greater than increases projected by the model along Cuttings Wharf Road and Los Carneros Avenue. Cumulative traffic model results were therefore modified to reflect the increases from the list of projects. After adjustments, cumulative two-way weekday volumes along SR 12-121 would be expected to grow about 10 percent from 2018 to 2030. Assuming development of the nearby projects over the next two years as well as regional growth, there would be about a 3.8 percent growth in weekday two-way PM peak hour traffic along SR 12-121 from 2018 to the year 2020. 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 on SR 12-121 were increased by similar percentages found for the weekday PM peak hour.

General Plan weekday PM peak hour traffic modeling projections were available for Cuttings Wharf Road but did not fully reflect traffic from the nearby projects. After inclusion of traffic from these developments, Cuttings Wharf Road would be expected to receive about a 17 percent increase in Friday PM peak hour traffic and about a 20 percent increase in Saturday PM peak hour traffic from 2018 to 2030, while 2018 to 2020 increases would be about 11 percent during a Friday PM peak hour and 14 percent during a Saturday PM peak hour.

General Plan weekday PM peak hour traffic modeling projections were also available for Los Carneros Avenue, but also did not fully reflect traffic from the nearby projects. After inclusion of traffic from the specific projects Los Carneros Avenue would be expected to receive about a 98 percent increase in Friday PM peak hour traffic and a 71 percent increase in Saturday PM peak hour traffic between 2018 and 2030, while 2018 to 2020 increases would be about 65 percent during a Friday PM peak hour and 86 percent during a Saturday PM peak hour.

Resultant year 2020 harvest "Without Project" Friday and Saturday peak hour volumes are

presented in **Figures 6 & 7**, while year 2030 (Cumulative) harvest "Without Project" Friday and Saturday peak hour volumes are presented in **Figures 8 & 9**.

VIII. OFF-SITE HARVEST (WITHOUT PROJECT) CIRCULATION SYSTEM OPERATION

A. YEAR 2018 (WITHOUT PROJECT) OPERATING CONDITIONS

1. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS E

2) Saturday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS E

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

c. Withers Road/Cuttings Wharf Road

1) Friday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS A

2) Saturday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS A

d. Withers Road/Los Carneros Avenue

1) Friday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2) Saturday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Volumes would not meet either urban or rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would not meet either urban or rural peak hour signal warrant #3 criteria.

B. YEAR 2020 (WITHOUT PROJECT) OPERATING CONDITIONS

1. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS F

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

c. Withers Road/Cuttings Wharf Road

1) Friday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS B

2) Saturday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS B

d. Withers Road/Los Carneros Avenue

1) Friday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2) Saturday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Volumes would meet rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would meet rural peak hour signal warrant #3 criteria.

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

1. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Cuttings Wharf Road stop sign controlled approach operation: LOS F

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Los Carneros Avenue stop sign controlled approach operation: LOS F

c. Withers Road/Cuttings Wharf Road

1) Friday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS B

2) Saturday PM Peak Hour

Acceptable Withers Road eastbound stop sign controlled approach operation: LOS B

d. Withers Road/Los Carneros Avenue

1) Friday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2) Saturday PM Peak Hour

Acceptable Withers Road westbound stop sign controlled approach operation: LOS A

2. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 12-121/Cuttings Wharf Road

1) Friday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would meet both urban and rural peak hour signal warrant #3 criteria.

b. SR 12-121/Los Carneros Avenue

1) Friday PM Peak Hour

Volumes would meet rural peak hour signal warrant #3 criteria.

2) Saturday PM Peak Hour

Volumes would meet rural peak hour signal warrant #3 criteria.

IX. PROJECT IMPACT EVALUATION SIGNIFICANCE CRITERIA

A. COUNTY OF NAPA SIGNIFICANCE CRITERIA

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

EXISTING + PROJECT CONDITIONS

A. SIGNALIZED INTERSECTIONS

A project would cause a significant impact requiring mitigation if:

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

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

Project Contribution % = Project Trips ÷ Existing Volumes

Maintaining LOS D or better at all signalized intersections would sometimes require expanding the physical footprint of an intersection. In some locations around the County, expanding physical transportation infrastructure could be in direct conflict with the County's goals of preserving the area's rural character, improving safety, and sustaining the agricultural industry, making these potential improvements infeasible. The County's Circulation Element lists intersections that are slated for improvement or expansion in unincorporated Napa County.[3]

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.

[3]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.

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

B. 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:

1. An unsignalized intersection operates at LOS A, B, C or D during the selected peak hours without project trips, the LOS deteriorates to LOS E or F with the addition of project traffic, and the peak hour traffic signal warrant criteria should also be evaluated and presented for information purposes, or
2. An unsignalized intersection operates at LOS E or F during the selected peak hours without project trips and the project contributes one percent or more of the total entering traffic for all way stop controlled intersections, or 10 percent or more of the traffic on a side street approach for side street stop controlled intersections; the peak hour traffic signal warrant criteria should also be evaluated and presented for informational purposes.

All Way Stop Controlled Intersections

For the second criteria at an all way stop controlled intersection, the following equation should be used if the all way stop controlled intersection operates at LOS E or F without the project.

Project Contribution % = Project Trips ÷ Existing Volumes

Side Street Stop Controlled Intersections

For the second criteria at a side street stop controlled intersection, the following equation should be used if the side street stop controlled intersection operates at LOS E or F without the project.

Project Contribution % = Project Trips ÷ Existing Volumes

Both of those volumes are for the stop controlled approaches only. Each stop controlled approach that operates at LOS E or F should be analyzed individually.

CUMULATIVE+ PROJECT CONDITIONS

A. SIGNALIZED INTERSECTIONS AND UNSIGNALIZED INTERSECTIONS

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

1. The overall amount of expected traffic growth causes conditions to deteriorate such that any of the significance criteria described above for existing conditions are met, and
2. The project's contribution to a significant cumulative impact would be equal to or greater than five percent of the growth in traffic from existing conditions.

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

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

- If projected daily volumes on the project driveway in combination with volumes on the roadway providing access to the project driveway meet County warrant criteria for provision of a left turn lane on the approach to the project entrance.

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

B. PROJECT TRIP GENERATION

Friday and Saturday PM peak hour trip generation projections were developed with the assistance of the project applicant for all components of new employee and visitor activities associated with the proposed Saintsbury Winery Use Permit Modification 2018 (see worksheets in the **Appendix**). Results are presented on an hourly basis in **Tables 6** and **7** for harvest Friday and Saturday conditions, while a summary of peak hour trips is presented in **Table 8**. A distribution of project visitor traffic is shown in **Appendix Figure A-3**, with 50 percent of visitor traffic occurring between 2:00 and 4:00 PM. During the harvest Friday PM peak traffic hour there would be a projected 5 inbound and 8 outbound vehicles, while during the harvest Saturday PM peak traffic hour, there would be a projected 8 inbound and 4 outbound vehicles. As shown, during both the Friday and Saturday PM peak hours all new trips would be associated with increased visitor traffic.

It should be noted that Saintsbury Winery will be developing a Traffic Demand Management (TDM) plan to reduce travel (and vehicle miles traveled) by employees and visitors. To provide a conservative traffic analysis no project trip generation reductions due to TDM measures have been included in the analysis.

C. PROJECT TRIP DISTRIBUTION

Project traffic was distributed to SR 12-121, Cuttings Wharf Road and Los Carneros Avenue in a pattern reflective of existing distribution patterns at the Saintsbury Winery driveway intersection as well as other nearby intersections. During the Friday and Saturday PM peak hours the majority of inbound project traffic on SR 12-121 would be expected to come from the east, while a majority of outbound traffic would be expected to turn to the east on the state highway.

The harvest Friday and Saturday PM peak hour project traffic increments expected on the local roadway network during the times of ambient peak traffic flows are presented in **Figures 10 & 11**. Friday and Saturday Existing "With Project" PM peak hour harvest volumes are presented in **Figures 12 & 13**; Year 2020 "With Project" PM peak hour harvest volumes are presented in **Figures 14 & 15**, and Cumulative (year 2030) "With Project" PM peak hour harvest volumes are presented in **Figures 16 & 17**.

D. FUTURE PLANNED ROADWAY IMPROVEMENTS

There are no capacity increasing roadway improvements planned by Caltrans or the County on the local roadway network serving the project site.[4]

X. PROJECT OFF-SITE IMPACTS

A. YEAR 2018 HARVEST (WITH PROJECT) CONDITIONS

1. SUMMARY

Project traffic would not result in any level of service or signal warrant significant impacts to the SR 12-121 or Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue during either the Friday or Saturday PM peak traffic hours. ***Less than significant***.

2. INTERSECTION LEVEL OF SERVICE – Table 4

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 12-121/Cuttings Wharf Road intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. However, the increase in traffic due to the project would not meet the County's traffic impact significance criteria requiring a 10 percent or greater increase in traffic on the stop sign controlled intersection approach in order to result in a significant impact. During the Friday PM peak hour the project

[4] Mr. Michael Hawkins, Napa County Public Works Department, March 2018.

would result in a 5.3 percent increase in traffic on the Cuttings Wharf Road stop sign controlled intersection approach, while during the Saturday PM peak hour the project would result in a 2.5 percent increase in traffic on the Cuttings Wharf Road intersection approach. ***Less than significant.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. However, the increase in traffic due to the project would not meet the County's traffic impact significance criteria requiring a 10 percent or greater increase in traffic on the stop sign controlled intersection approach in order to result in a significant impact. During the Friday PM peak hour the project would result in a 2.7 percent increase in traffic on the Los Carneros Avenue stop sign controlled intersection approach, while during the Saturday PM peak hour the project would result in a 3.6 percent increase in traffic on the Los Carneros Avenue intersection approach. ***Less than significant.***

c) WITHERS ROAD/CUTTINGS WHARF ROAD & WITHERS ROAD/LOS CARNEROS AVENUE

The Withers Road unsignalized intersections with both Cuttings Wharf Road and Los Carneros Avenue would maintain acceptable LOS A or B operation with the addition of project traffic. ***Less than significant.***

3. SIGNALIZATION NEEDS – Table 5

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 12-121/Cuttings Wharf Road intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding both urban and rural signal warrant #3 criteria levels. However, the proposed project would result in less than a 1 percent increase in traffic passing through the intersection during the Friday and Saturday PM peak traffic hours. The project would add a 0.4 percent increase during the Friday PM peak hour and a 0.3 percent increase during the Saturday PM peak hour. ***Less than significant.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue intersection would not have ambient Friday and Saturday PM peak hour volumes exceeding urban or rural signal warrant #3 criteria levels and the proposed project would not increase volumes passing through the intersection to meet warrant criteria levels during either the Friday or Saturday PM peak traffic hours. ***Less than significant.***

B. YEAR 2020 HARVEST (WITH PROJECT) CONDITIONS

1. SUMMARY

Project traffic would not result in any level of service or signal warrant significant impacts to the SR 12-121 or Withers Road intersections with Cuttings Wharf Road or Los Carneros Avenue during any Friday or Saturday PM peak traffic hours. ***Less than significant***.

2. INTERSECTION LEVEL OF SERVICE – Table 4

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 12-121/Cuttings Wharf Road intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. However, the increase in traffic due to the project would not meet the County's traffic impact significance criteria requiring a 10 percent or greater increase in traffic on the stop sign controlled intersection approach in order to result in a significant impact. During the Friday PM peak hour the project would result in a 4.7 percent increase in traffic on the Cuttings Wharf Road stop sign controlled intersection approach, while during the Saturday PM peak hour the project would result in a 2.2 percent increase in traffic on the Cuttings Wharf Road intersection approach. ***Less than significant.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. However, the increase in traffic due to the project would not meet the County's recently adopted traffic impact significance criteria requiring a 10 percent or greater increase in traffic on the stop sign controlled intersection approach in order to result in a significant impact. During the Friday PM peak hour the project would result in a 1.6 percent increase in traffic on the Los Carneros Avenue stop sign controlled intersection approach, while during the Saturday PM peak hour the project would result in a 1.9 percent increase in traffic on the Los Carneros Avenue intersection approach. ***Less than significant.***

3. SIGNALIZATION NEEDS – Table 5

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 29/Oakville Cross Road intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding both urban and rural signal warrant #3 criteria levels. However, the proposed project would result in less than a 1 percent increase in traffic passing through the intersection during the Friday and Saturday PM peak traffic hours. The project would add a 0.4 percent increase during the Friday PM peak hour and 0.3 percent increase during the Saturday PM peak hour. ***Less than significant.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue would already have ambient Friday and Saturday PM peak hour volumes meeting or exceeding rural signal warrant #3 criteria levels. However, the proposed project would result in less than a 1 percent increase in traffic passing through the intersection during the Friday and Saturday PM peak traffic hours. The project would add a 0.1 percent increase during the Friday PM peak hour and 0.2 percent increase during the Saturday PM peak hour. ***Less than significant.***

C. CUMULATIVE (YEAR 2030) HARVEST (WITH PROJECT) CONDITIONS

1. SUMMARY

Project traffic would result in a significant level of service impact to the SR 12-121/Cuttings Wharf Road intersection during both the Friday and Saturday PM peak traffic hours. ***Potentially significant impact***.

2. INTERSECTION LEVEL OF SERVICE – Table 4

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 12-121/Cuttings Wharf Road intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. The increase in traffic due to the project in relation to the growth in traffic from existing to 2030 conditions on the stop sign controlled intersection approach would meet the County's traffic impact significance criteria requiring a 5 percent or greater increase in order to result in a significant impact. During the Friday PM peak hour the project would result in a 29 percent increase in traffic on the Cuttings Wharf Road intersection approach, while during the Saturday PM peak hour the project would result in a 12 percent increase in traffic on the Cuttings Wharf Road intersection approach. ***Potentially significant impact.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue intersection would maintain unacceptable Friday and Saturday PM peak hour operation with the addition of project traffic. However, the increase in traffic due to the project would not meet the County's traffic impact significance criteria requiring a 5 percent or greater increase in the growth of traffic from existing to 2030 conditions on the stop sign controlled intersection approach in order to result in a significant impact. During the Friday PM peak hour the project would result in a 3.6 percent increase in traffic on the Los Carneros Avenue stop sign controlled intersection approach, while during the Saturday PM peak hour the project would result in a 3.4 percent increase in traffic on the Los Carneros Avenue intersection approach. ***Less than significant.***

3. SIGNALIZATION NEEDS – Table 5

a) SR 12-121/CUTTINGS WHARF ROAD

The SR 12-121/Cuttings Wharf Road intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding both rural and urban signal warrant #3 criteria levels. However, the proposed project would result in less than a 5 percent increase in the growth in traffic from existing to 2030 conditions passing through the intersection during the Friday and Saturday PM peak traffic hours. The project would add a 3.9 percent increase during the Friday PM peak hour and a 3.2 percent increase during the Saturday PM peak hour. ***Less than significant.***

b) SR 12-121/LOS CARNEROS AVENUE

The SR 12-121/Los Carneros Avenue intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding rural signal warrant #3 criteria levels. However, the proposed project would result in less than a 5 percent increase in the growth in traffic from existing to 2030 conditions passing through the intersection during the Friday and Saturday PM peak traffic hours. The project would add a 1.3 percent increase during the Friday PM peak hour and a 1.5 percent increase during the Saturday PM peak hour. ***Less than significant.***

XI. PROJECT ACCESS IMPACTS

A. SIGHT LINE ADEQUACY AT WITHERS ROAD/SAINTSBURY WINERY DRIVEWAY INTERSECTION

Sight lines at the Withers Road/Saintsbury Winery driveway intersection are acceptable to the east and west along Withers Road. Existing sight lines are as follows for a driver exiting the site.

Sight line to the east along Withers Road (to see westbound vehicles) > 1,000 feet
Sight line to the west along Withers Road (to see eastbound vehicles) > 1,000 feet

The Caltrans Design Manual (March 2014) states that stopping sight distance is the sight line criteria to be utilized at private road connections to public roadways. The minimum required stopping sight distances based upon vehicle speed and grade are as follows.

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

Source: Caltrans Highway Design Manual, March 2014

There is no posted speed limit at the project entrance. Vehicles were observed by Crane Transportation Group traveling between 25 and 35 mph. Based upon a 35 or 40 mile per hour criteria, there are adequate sight lines to both the east and west along Withers Road for a driver exiting the winery driveway. ***Less than significant***.

B. PROJECT ENTRANCE LEFT TURN LANE REQUIREMENT

Combined daily volumes on Withers Road and the Saintsbury Winery driveway would not meet County criteria for provision of a left turn lane on the Withers Road westbound approach to the winery driveway with the addition of project traffic. Please see the County warrant criteria chart in **Appendix Figure A-4**. ***Less than significant.***

XII. MARKETING EVENTS

Table 9 presents the list of new Saintsbury Winery marketing events that will replace their existing event schedule. There will be six events/year with 50 guests (resulting in about 18 vehicles), and two events/year with 100 guests (resulting in about 38 vehicles). All new events will either end by 2:30 PM or start no earlier than 6:00 PM, thereby avoiding adding traffic to the local roadway network during the critical 3:00 to 5:30 PM period. ***Less than significant.***

XIII. RECOMMENDATIONS

1. **SR 12-121/Cuttings Wharf Road:** The project would result in one significant off-site circulation system operational impact: at the SR 12-121 intersection with Cuttings Wharf Road for Friday and Saturday cumulative traffic conditions. However, while this intersection currently warrants signalization neither the County nor Caltrans are in favor of signalizing this location. As an alternative mitigation, the County Public Works Department and the project applicant have agreed that the project applicant will pay the traffic impact fee currently being developed by the County. ***Impact reduced to less than significant.***

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

TRIP GENERATION
APPROVED/PENDING PROJECTS ADDING TRAFFIC TO ROAD SYSTEM IN VICINITY OF SAINTSBURY WINERY

PROJECT	LOCATION	FRIDAY PM PEAK HOUR TRIPS		SATURDAY PM PEAK HOUR TRIPS	
		IN	OUT	IN	OUT
Hyde Winery Expansion[1]	1044 Los Carneros Road, just south of SR 12-121	12	24	25	25
Carneros Resort; relocate uses within project (no new traffic projected)[2]	North of SR 12-121, opposite Los Carneros Avenue	0	0	0	0
Etude Winery Expansion[3]	Cuttings Wharf Road south of Withers Road	9	8	9	8
Hudson Vineyards Winery[4]	5398 SR 12-121, west of Old Sonoma Road	7	11	7	6
Cuvaison Winery Expansion[5]	1221 Duhig Road	5	19	20	19
Bouchaine Vineyards, Inc. Winery Expansion[6]	1075 Buchli Station Road	4	12	14	15
Mahoney Vineyards Winery[7]	1134 Dealy Lane	1	2	2	2
Sleeping Giant Winery[8]	North side of Las Amigas Road in Carneros	1	1	1	1

(1) Traffic Impact Study for Hyde Winery, by W-Trans, under preparation June 2018.
(2) Carneros Inn Use Permit Modification, under review June 2018. (No traffic study prepared as no additional traffic expected.)
(3) Traffic Impact Report, Etude Winery Expansion by Crane Transportation Group, July 15, 2016.
(4) Traffic Import Report, Proposed Hudson Vineyards Winery Along SR 12-121 by Crane Transportation Group, April 27, 2015.
(5) Traffic Impact Study for Cuvaison Winery by W-Trans, September 21, 2017.
(6) Traffic Impact Study for Expansion of Bouchaine Vineyards by W-Trans, April 14, 2015.
(7) Mahoney Vineyards CEQA Determination Use Permit Application, County of Napa Planning, Building & Environmental Services, May 18, 2016.
(8) Sleeping Giant Winery Potential Traffic Impacts and Warrant for Traffic Study by RSA, January 7, 2016.

Project list source: Napa County
Compiled by: Crane Transportation Group

Table 4

INTERSECTION LEVEL OF SERVICE

EXISTING (2018) HARVEST

LOCATION	WEEKDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	EXISTING	EXISTING + PROJECT	EXISTING	EXISTING + PROJECT
SR 12-121/Cuttings Wharf Road	E-42.2[(1)]	E-44.6	E-41.4	E-42.6
SR 12-121/Los Carneros Ave.	F-61.3[(2)]	F-67.8	F-187	F-205
Los Carneros Ave./Withers Road	A-8.7[(3)]	A-8.7	A-8.4	A-8.4
Cuttings Wharf Road/Withers Road	A-9.8[(4)]	B-10.1	A-9.9	B-10.1

YEAR 2020 HARVEST

LOCATION	WEEKDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	EXISTING	EXISTING + PROJECT	EXISTING	EXISTING + PROJECT
SR 12-121/Cuttings Wharf Road	F-55.5[(1)]	F-59.7	F-53.6	F-56.0
SR 12-121/Los Carneros Ave.	F-162.2[(2)]	F-173.3	F-422	F-445
Los Carneros Ave./Withers Road	A-8.8[(3)]	A-8.8	A-8.4	A-8.4
Cuttings Wharf Road/Withers Road	B-10.0[(4)]	B-10.4	B-10.2	B-10.4

CUMULATIVE (YEAR 2030) HARVEST

LOCATION	WEEKDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	EXISTING	EXISTING + PROJECT	EXISTING	EXISTING + PROJECT
SR 12-121/Cuttings Wharf Road	F-82.5[(1)]	F-90.0	F-72.8	F-78.9
SR 12-121/Los Carneros Ave.	F-227[(2)]	F-242	F-649	F-683
Los Carneros Ave./Withers Road	A-8.8[(3)]	A-8.8	A-8.4	A-8.4
Cuttings Wharf Road/Withers Road	B-10.1[(4)]	B-10.5	B-10.3	B-10.5

(1) Side street stop sign controlled level of service – Northbound Los Carneros Ave. approach LOS/delay (in seconds).
(2) Side street stop sign controlled level of service – Northbound Cuttings Wharf Road approach LOS/delay (in seconds).
(3) Side street stop sign controlled level of service – Westbound Withers Road approach LOS/delay (in seconds).
(2) Side street stop sign controlled level of service – Eastbound Withers Road approach LOS/delay (in seconds).

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

Table 5

INTERSECTION SIGNAL WARRANT EVALUATION

Do Volumes Meet Caltrans Peak Hour Warrant #3 Volume Criteria Levels?

EXISTING – 2018 HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 12-121/Cuttings Wharf Road	Yes – R, U	Yes [0.3%]	Yes – R, U	Yes [0.4%]
SR 12-121//Los Carneros Ave.	No	No	No	No

YEAR 2020 HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 12-121/Cuttings Wharf Road	Yes – R, U	Yes [0.3%]	Yes – R, U	Yes [0.4%]
SR 12-121//Los Carneros Ave.	Yes – R	Yes [0.1%]	Yes – R	Yes [0.2%]

CUMULATIVE (YEAR 2030) HARVEST

LOCATION	FRIDAY PM PEAK HOUR		SATURDAY PM PEAK HOUR	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 12-121/Cuttings Wharf Road	Yes – R, U	Yes (3.9%)	Yes – R, U	Yes (3.2%)
SR 12-121//Los Carneros Ave.	Yes – R	Yes (1.3%)	Yes – R	Yes (1.5%)

[xx] – Percent project traffic added to intersection. Less than a 1% increase is not considered a significant impact for existing & 2020 conditions.
(xx) – Percent project traffic added to the growth in volumes between existing and cumulative conditions. Less than a 5% increase is not considered a significant impact.

Source: Crane Transportation Group; Caltrans Manual on Uniform Traffic Control Devices, Revision 3, 2017

Table 6

PROJECT TRIP GENERATION
SAINTSBURY WINERY USE PERMIT MODIFICATION 2018

HARVEST

FRIDAY

	TOTAL	HOURS	TRIPS							
			3-4 PM		4-5 PM		5-6 PM		3:30-4:30 PM*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	1	9:00 AM-5:00 PM	0	0	0	0	0	1	0	0
Admin Employees – Part Time	1	9:00 AM-5:00 PM	0	0	0	0	0	1	0	0
Production Employees – Full Time	0		0	0	0	0	0	0	0	0
Production Employees – Part Time	5	7:00 AM-7:00 PM	0	0	0	0	0	0	0	0
Tours/Testing Employees	2	9:00 AM-5:30 PM	0	0	0	0	0	0	0	0
Visitors	83/day (32 vehicles/day)[(1)]	10:00 AM-5:00 PM	5	8	0	5	0	0	5	8
Grape Delivery Trucks	0/day		0	0	0	0	0	0	0	0
Other Trucks	0/day		0	0	0	0	0	0	0	0
TOTAL			5	8	0	5	0	2	5	8

* Peak traffic hour at the Cuttings Wharf Road and Los Carneros Ave. intersections with SR 12/121.

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

Source: Saintsbury Winery project applicant; Compiled by: Crane Transportation Group

Table 7

PROJECT TRIP GENERATION
SAINTSBURY WINERY USE PERMIT MODIFICATION 2018

HARVEST

SATURDAY

NEW OR ADJUSTED ACTIVITIES	NET NEW	HOURS	TRIPS											
			NOON-1 PM		1-2 PM*		2-3 PM		3-4 PM		4-5 PM		5-6 PM	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	0		0	0	0	0	0	0	0	0	0	0	0	0
Production Employees – Full Time	0		0	0	0	0	0	0	0	0	0	0	0	0
Production Employees – Part Time	5	7:00 AM-7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Tours & Tasting Employees	2	9:00 AM-5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
Visitors	83/day (30 vehicles/day)[(1)]	10:00 AM-5:00 PM	4	3	8	4	7	8	5	7	0	5	0	0
Grape Delivery Trucks	0/day		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL			4	3	8	4	7	8	5	7	0	5	0	0

* Peak traffic hour at the Cuttings Wharf Road and Los Carneros Ave. intersections with SR 12/121.
(1) 2.8 visitors/vehicle average on weekend days per County data.

Source: Saintsbury Winery project applicant; Compiled by: Crane Transportation Group

Table 8

SUMMARY OF SAINTSBURY WINERY USE PERMIT MODIFICATION 2018 TRIP GENERATION

HARVEST

FRIDAY PM PEAK HOUR* (3:15-4:15)		SATURDAY PM PEAK HOUR* (12:30-1:30)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
5	8	8	4

Source: Saintsbury Winery; compiled by Crane Transportation Group

Table 9

SAINTSBURY WINERY EXPANSION
NEW MARKETING EVENT TRAFFIC DETAILS

MARKETING EVENT	STAFF/GUEST CATEGORY	# OF PEOPLE	# OF VEHICLES	TIMES	REGULAR VISITATION ELIMINATED DURING MARKETING EVENT?
Marketing Event #1 #/year _6___	Guests	50	18	10:00 AM-2:30 PM Weekend days	Yes
	Extra winery staff				
	Caterers				
	Entertainers				
	Delivery vehicles		*		
	Other?				
Marketing Event #2 #/year __2___	Guests	100	36	10:00 AM-2:30 PM Weekends	Yes
	Extra winery staff	2	2		
	Caterers		**		
	Entertainers		**		
	Delivery vehicles		*		
	Other?				

* 1 trip day before the event (time varies – during business hours) and 1 trip day after the event (time varies – during business hours).

** 1 hour before and after event.

Source: Saintsbury Winery applicant

Figures

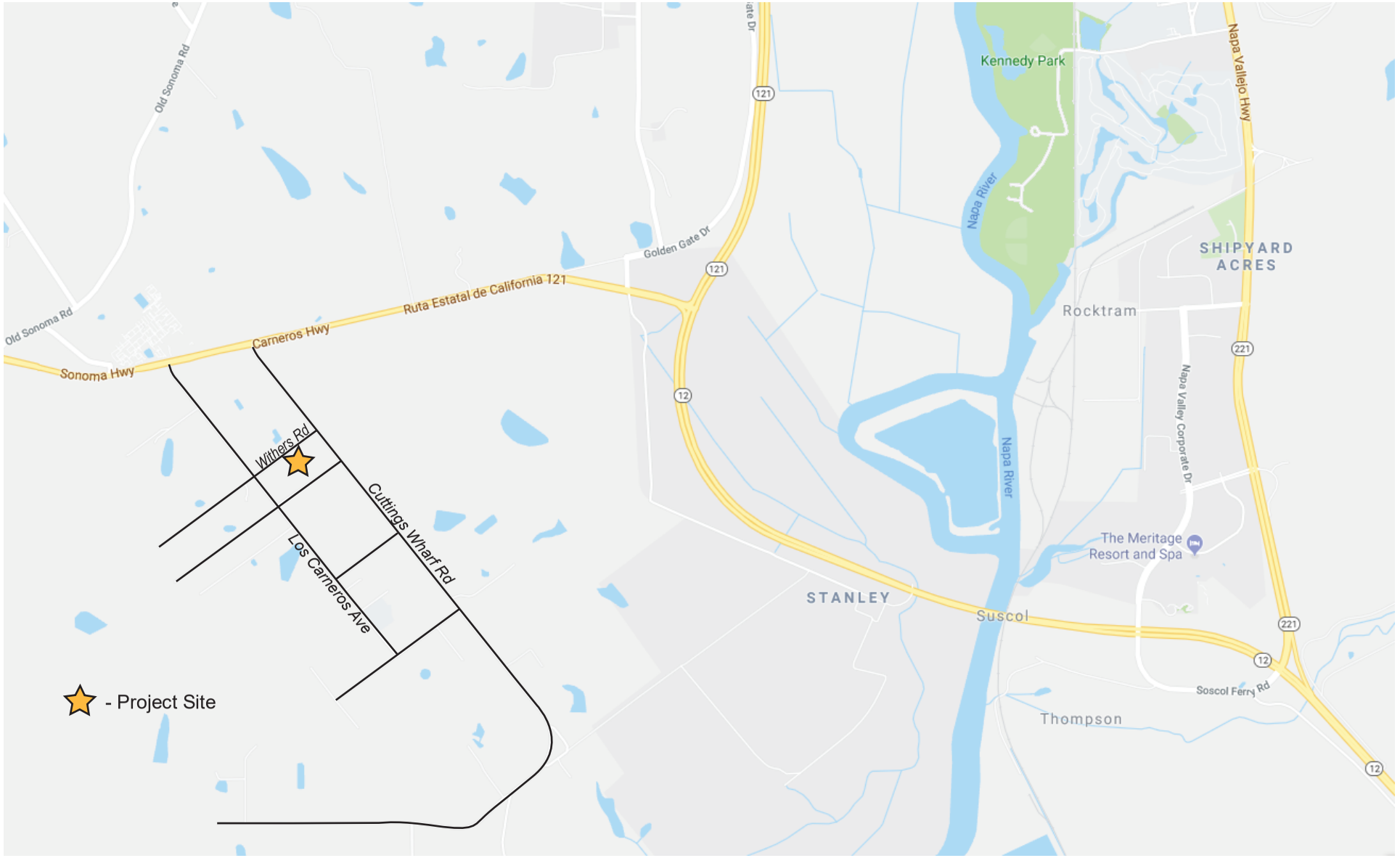

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Figure 1
Area Map

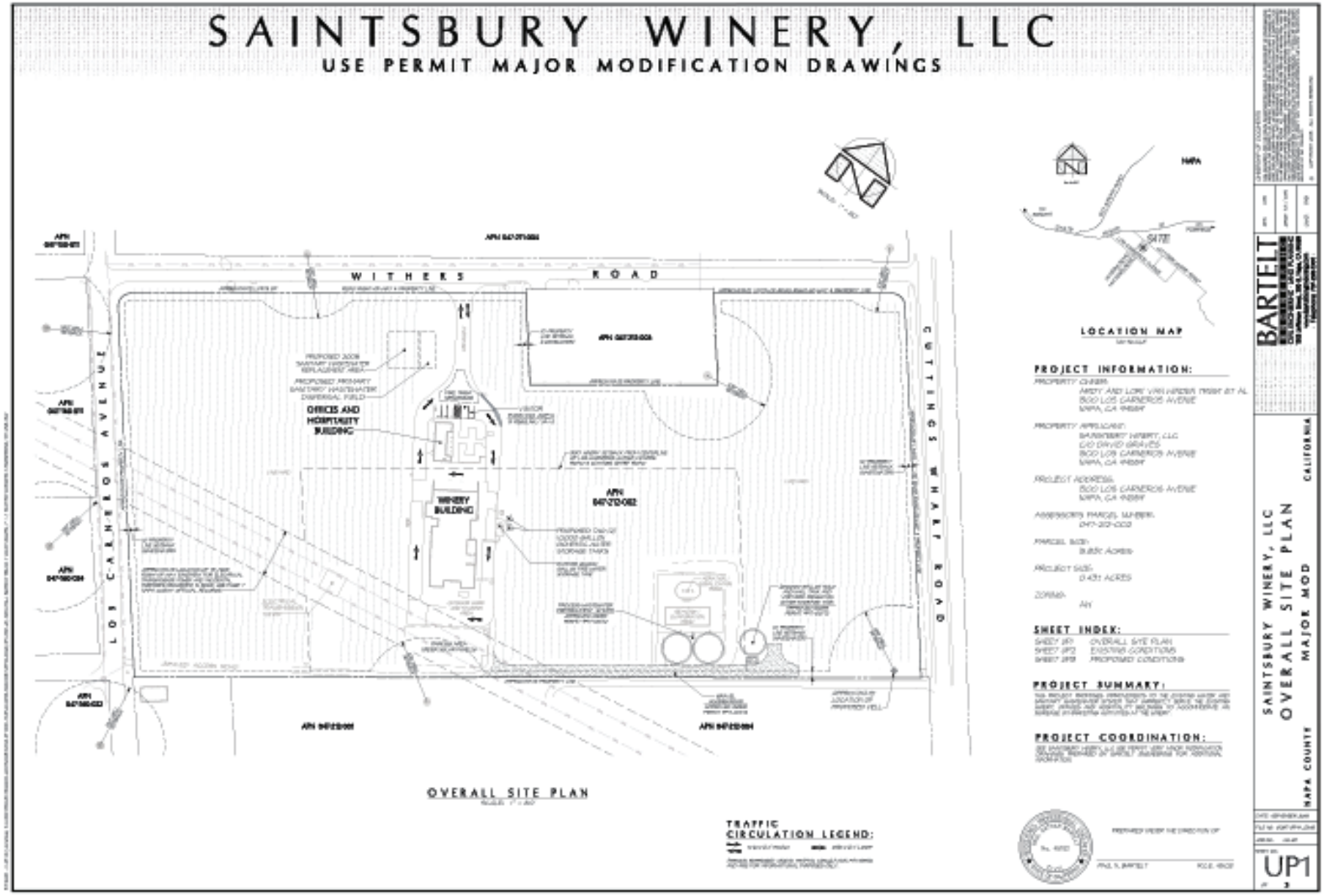

Figure 2

Site Plan

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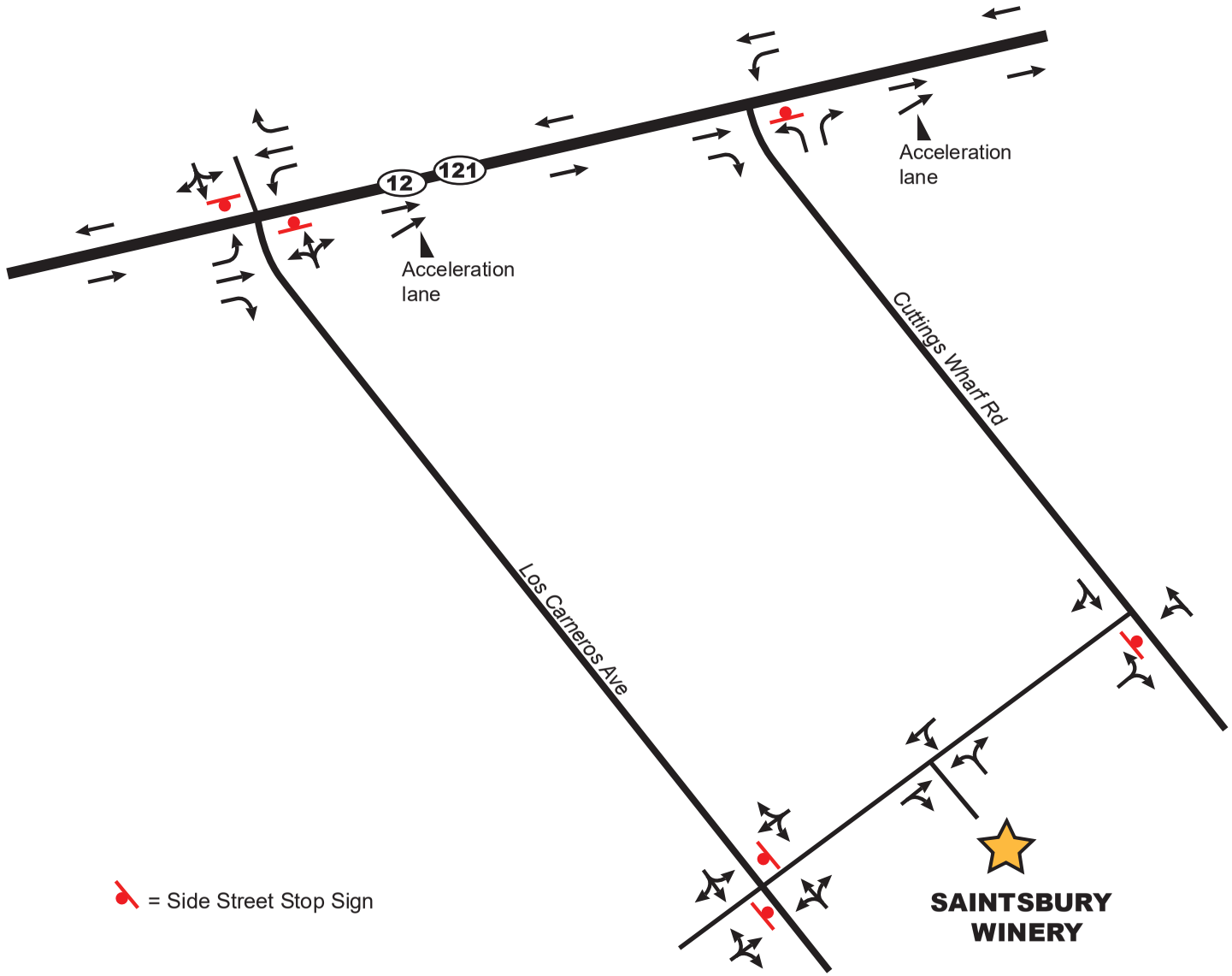

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Figure 3

Existing Lane Geometrics and Intersection Control

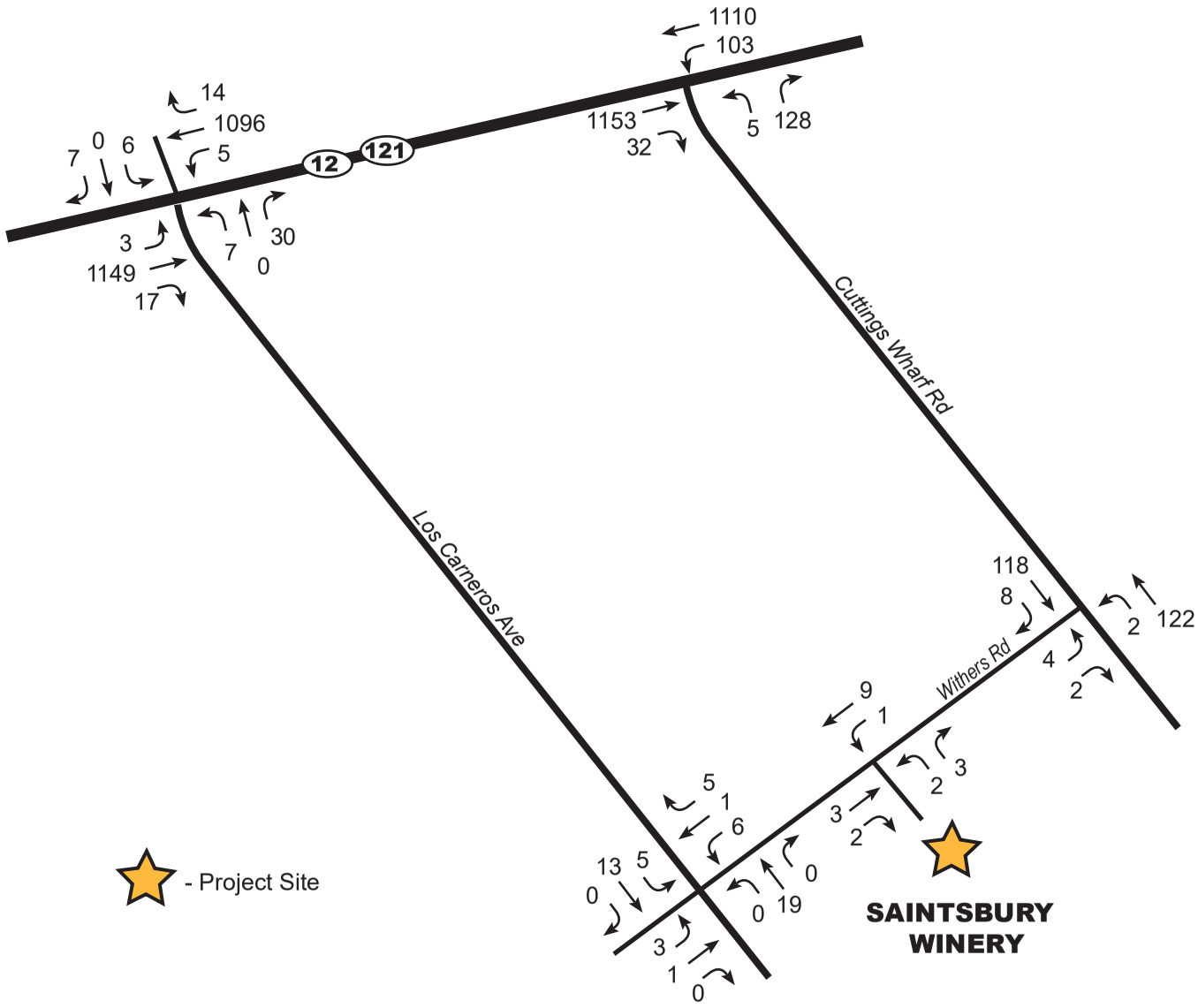

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Figure 4

2018 Harvest (without Project)
Friday PM Peak Hour Volumes

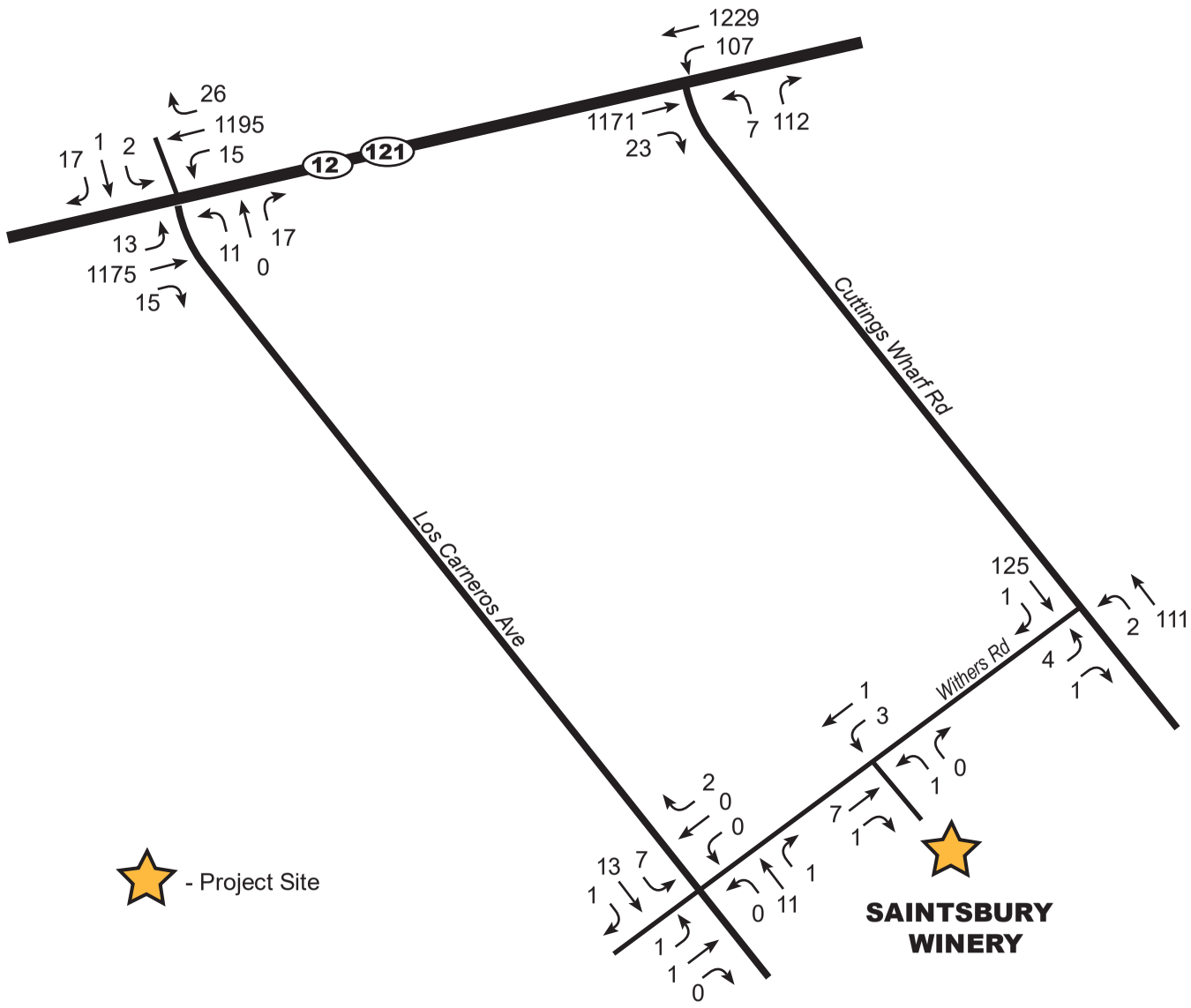

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Figure 5

2018 Harvest (without Project)
Saturday PM Peak Hour Volumes

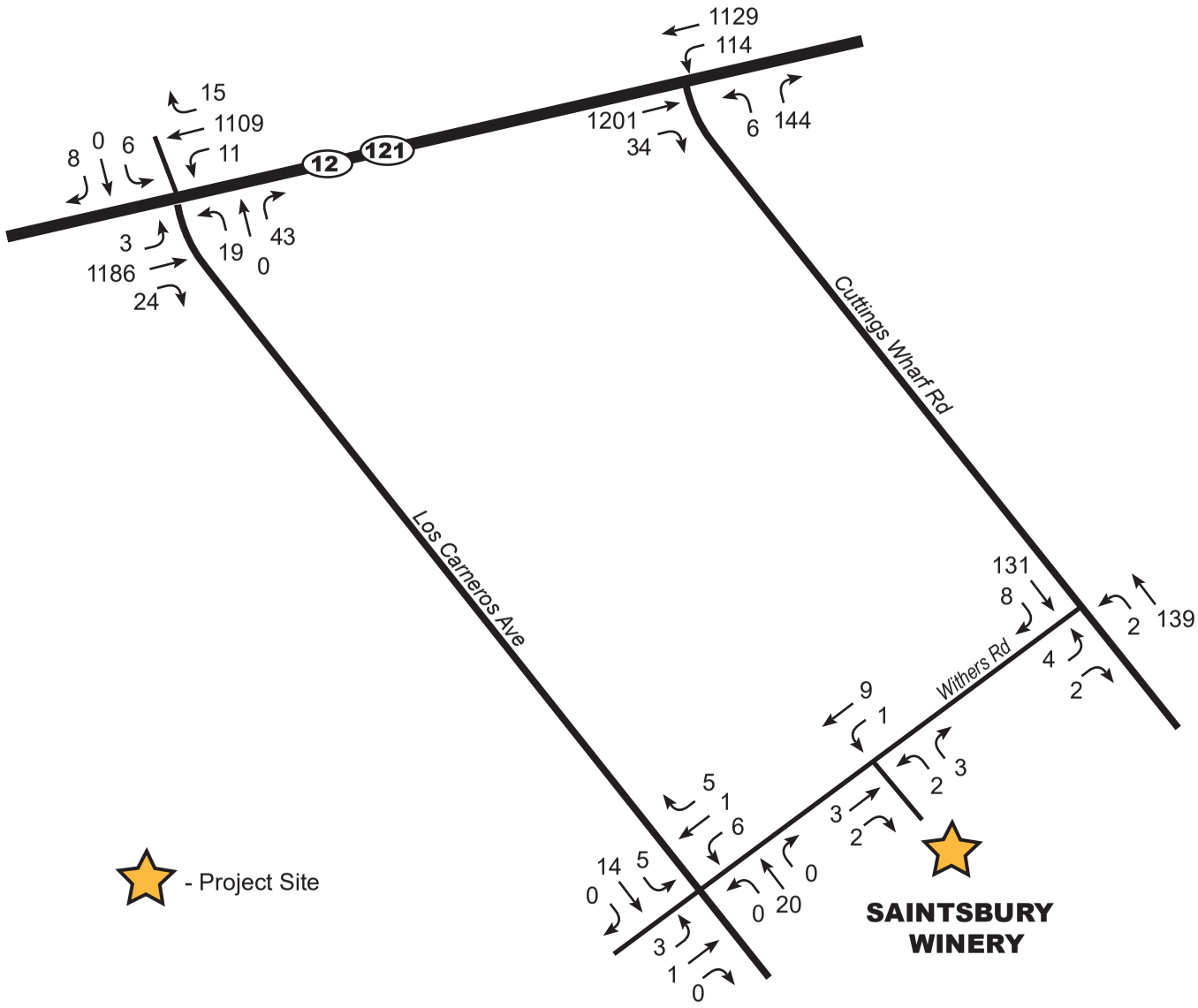

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Figure 6

2020 Harvest (without Project)
Friday PM Peak Hour Volumes

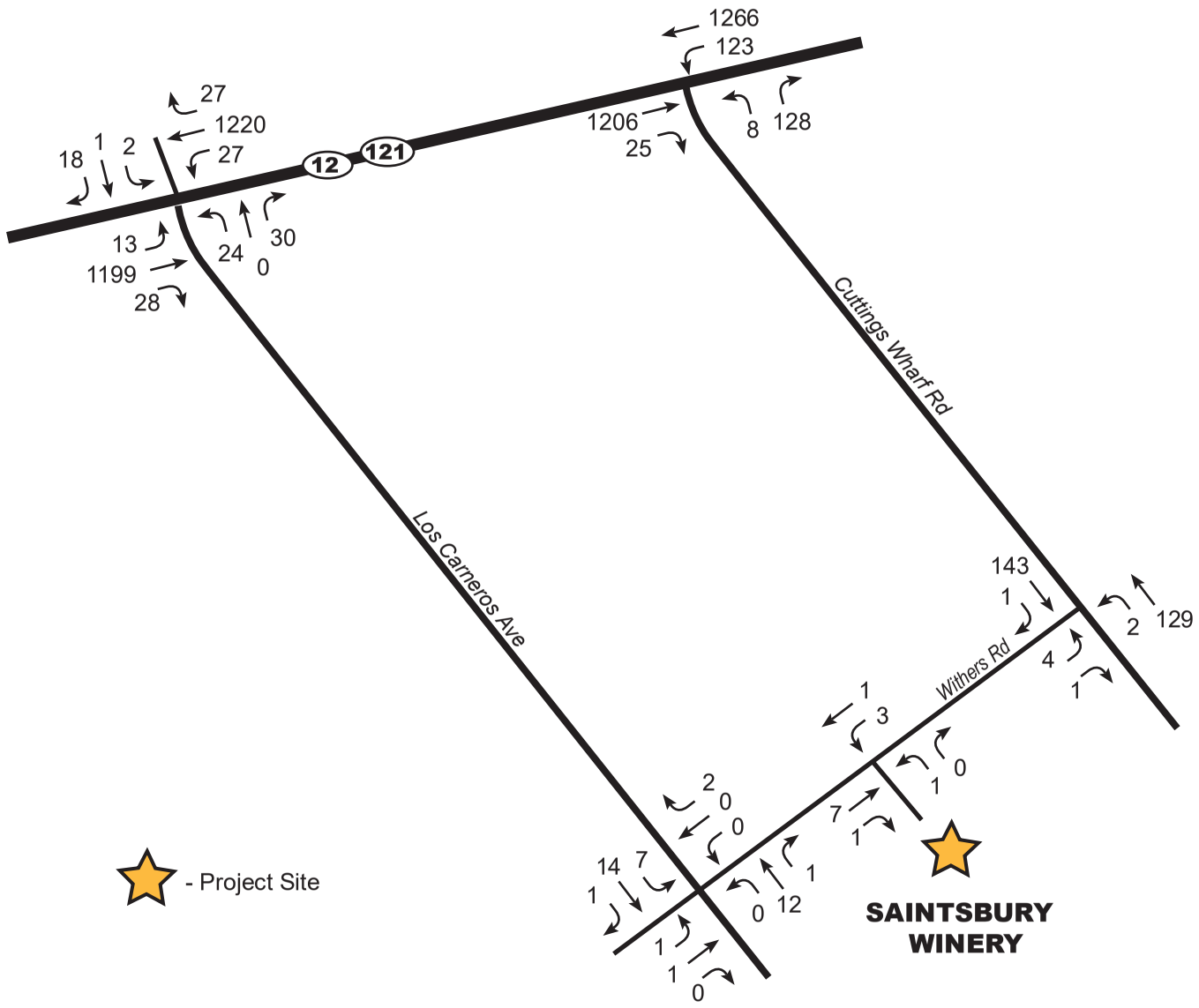

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Figure 7

2020 Harvest (without Project)
Saturday PM Peak Hour Volumes

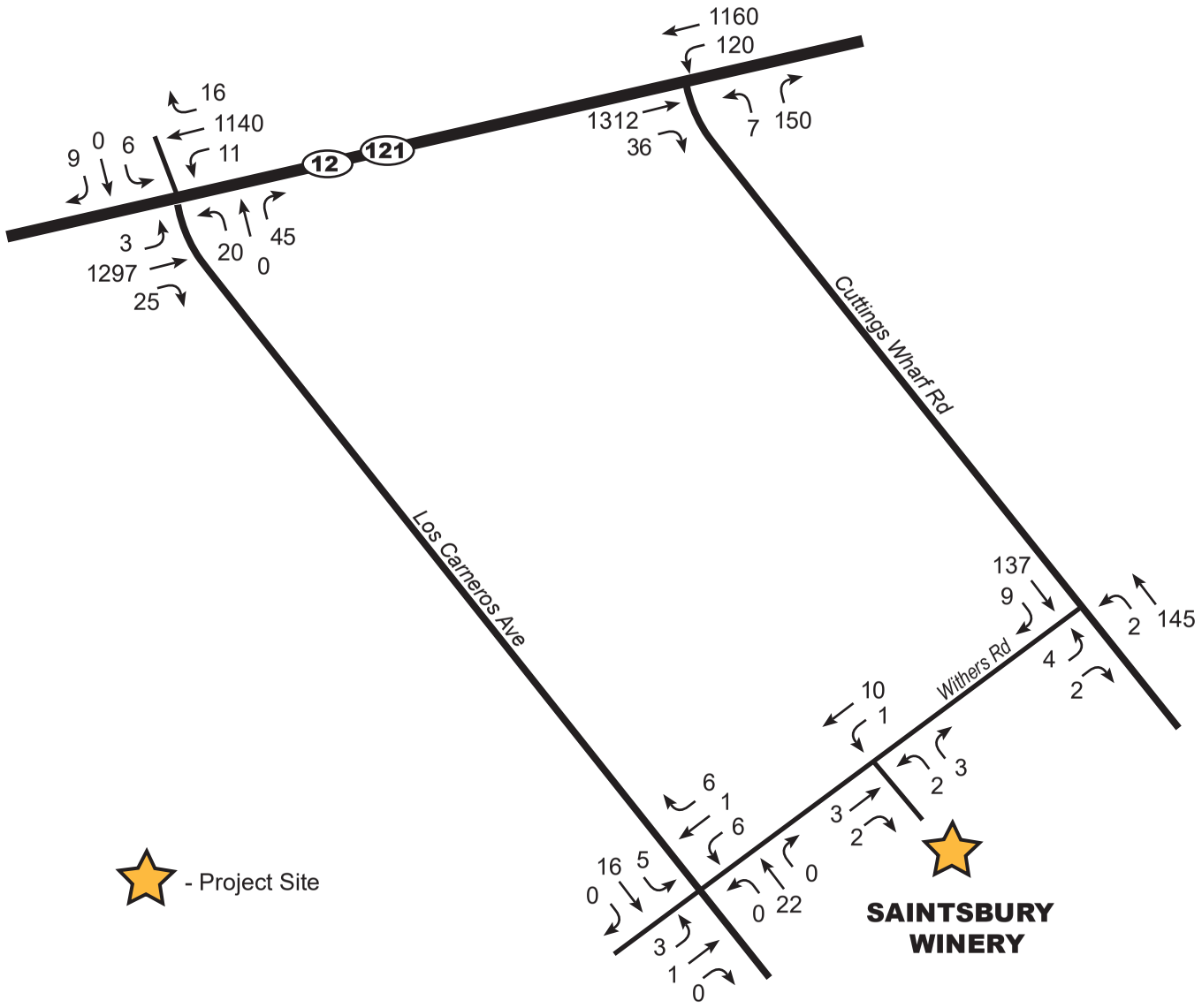

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Figure 8

2030 Harvest (without Project)
Friday PM Peak Hour Volumes

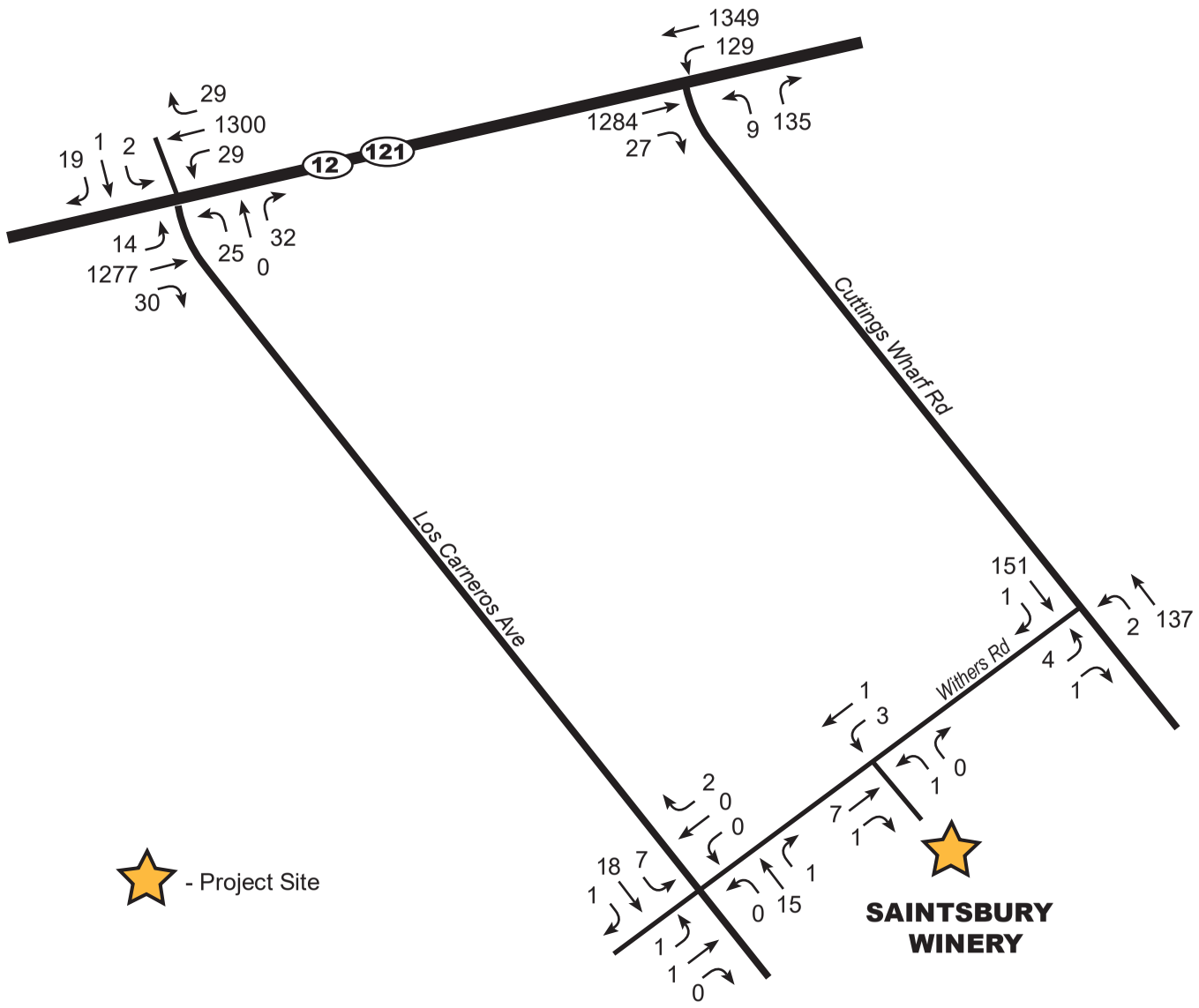

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Figure 9

2030 Harvest (without Project)
Saturday PM Peak Hour Volumes

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Figure 10
Friday PM Peak Hour (3:30-4:30 PM)
Project Increment Volumes

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Figure 11

Saturday PM Peak Hour (1:00-2:00 PM)
Project Increment Volumes

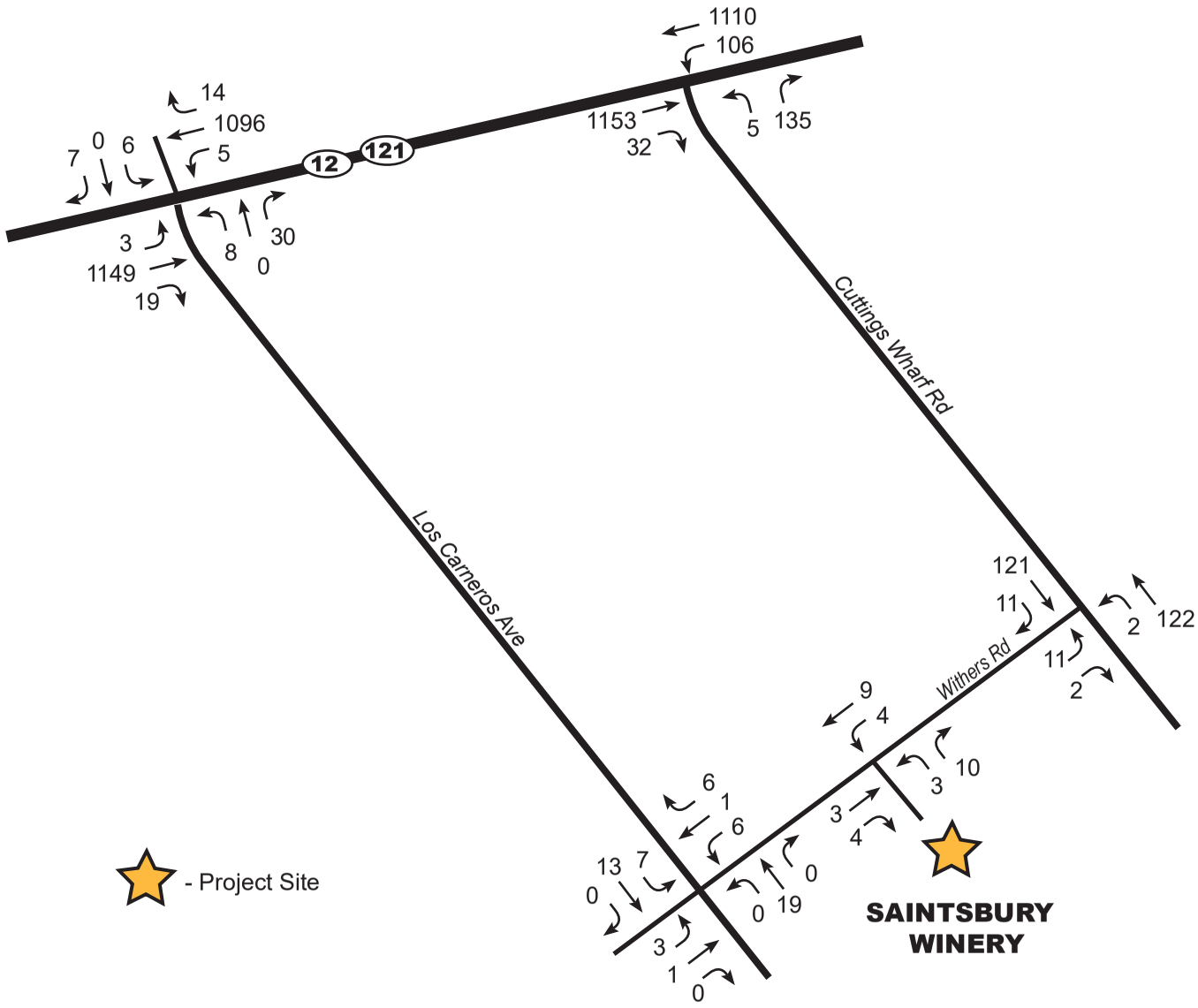

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Figure 12

2018 Harvest (with Project)
Friday PM Peak Hour Volumes

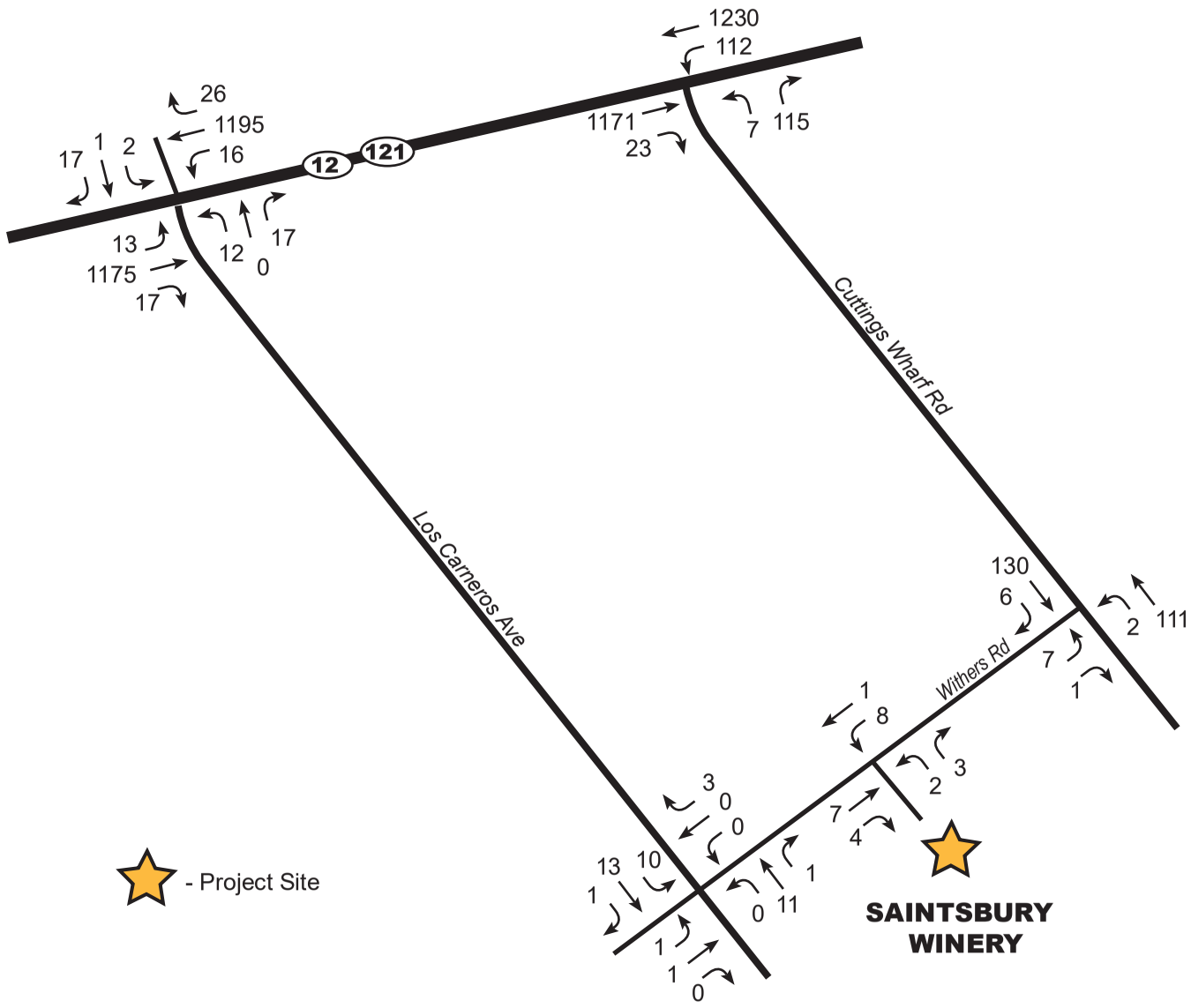

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Figure 13

2018 Harvest (with Project)
Saturday PM Peak Hour Volumes

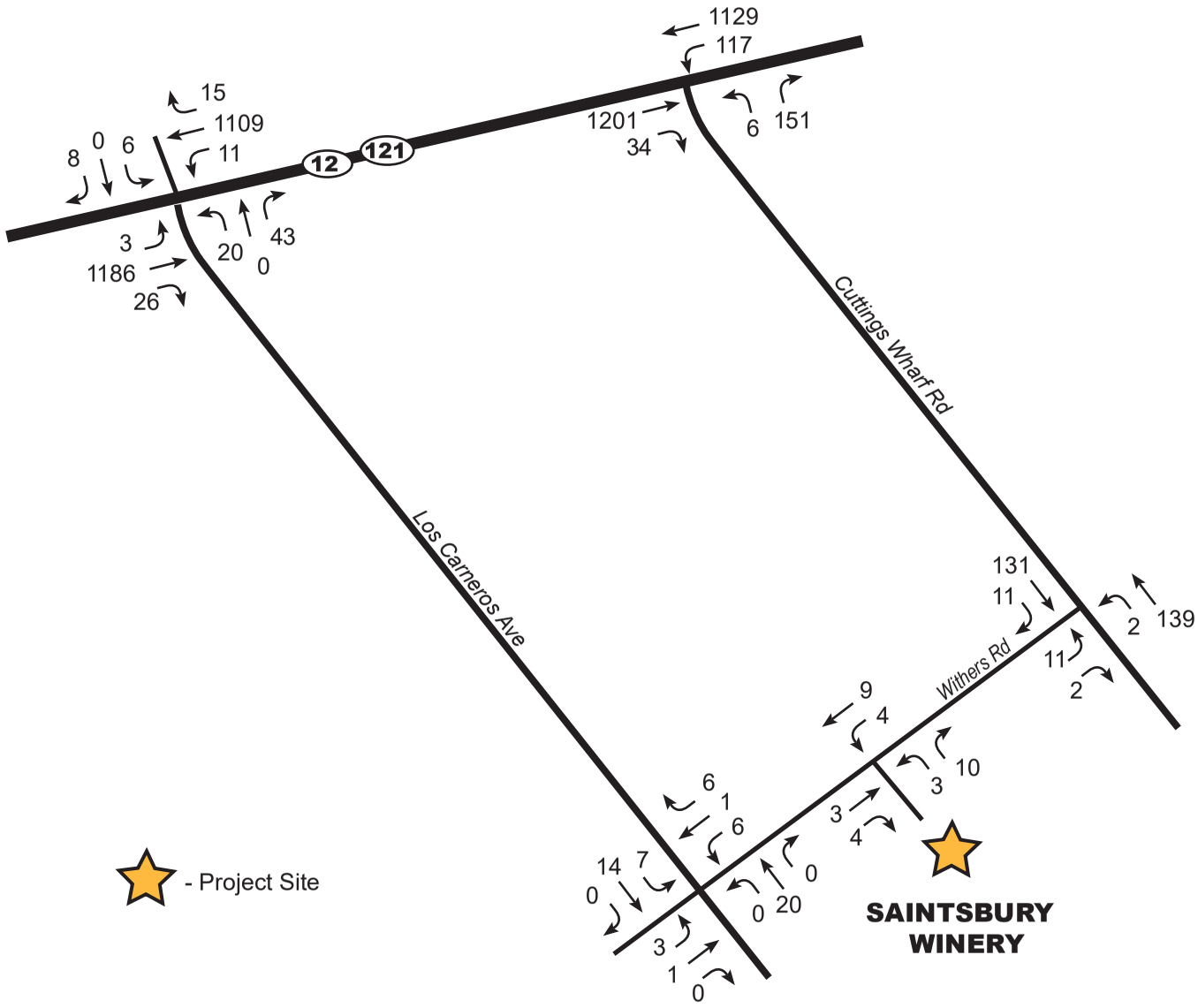

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Figure 14

2020 Harvest (with Project)
Friday PM Peak Hour Volumes

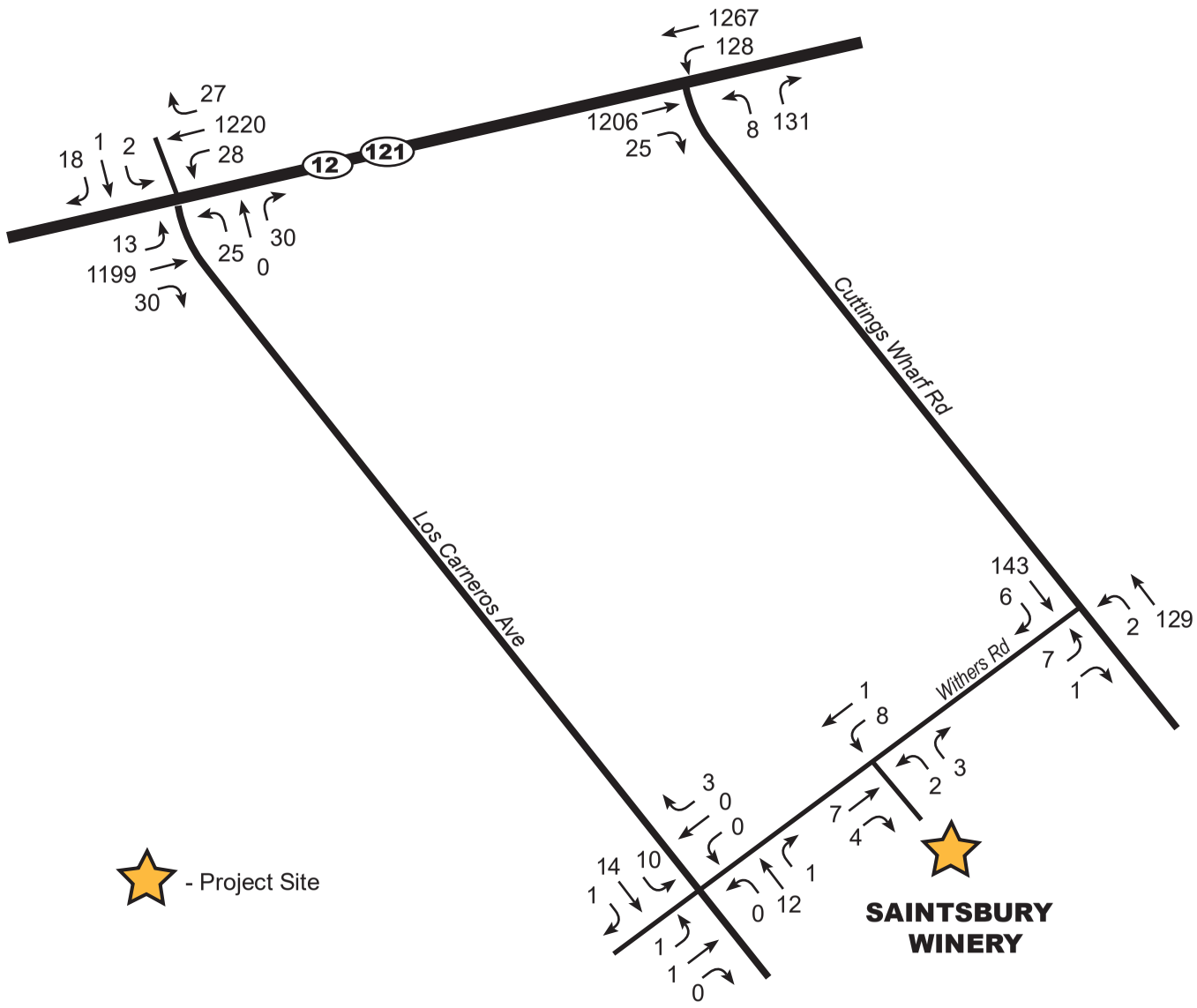

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Figure 15

2020 Harvest (with Project)
Saturday PM Peak Hour Volumes

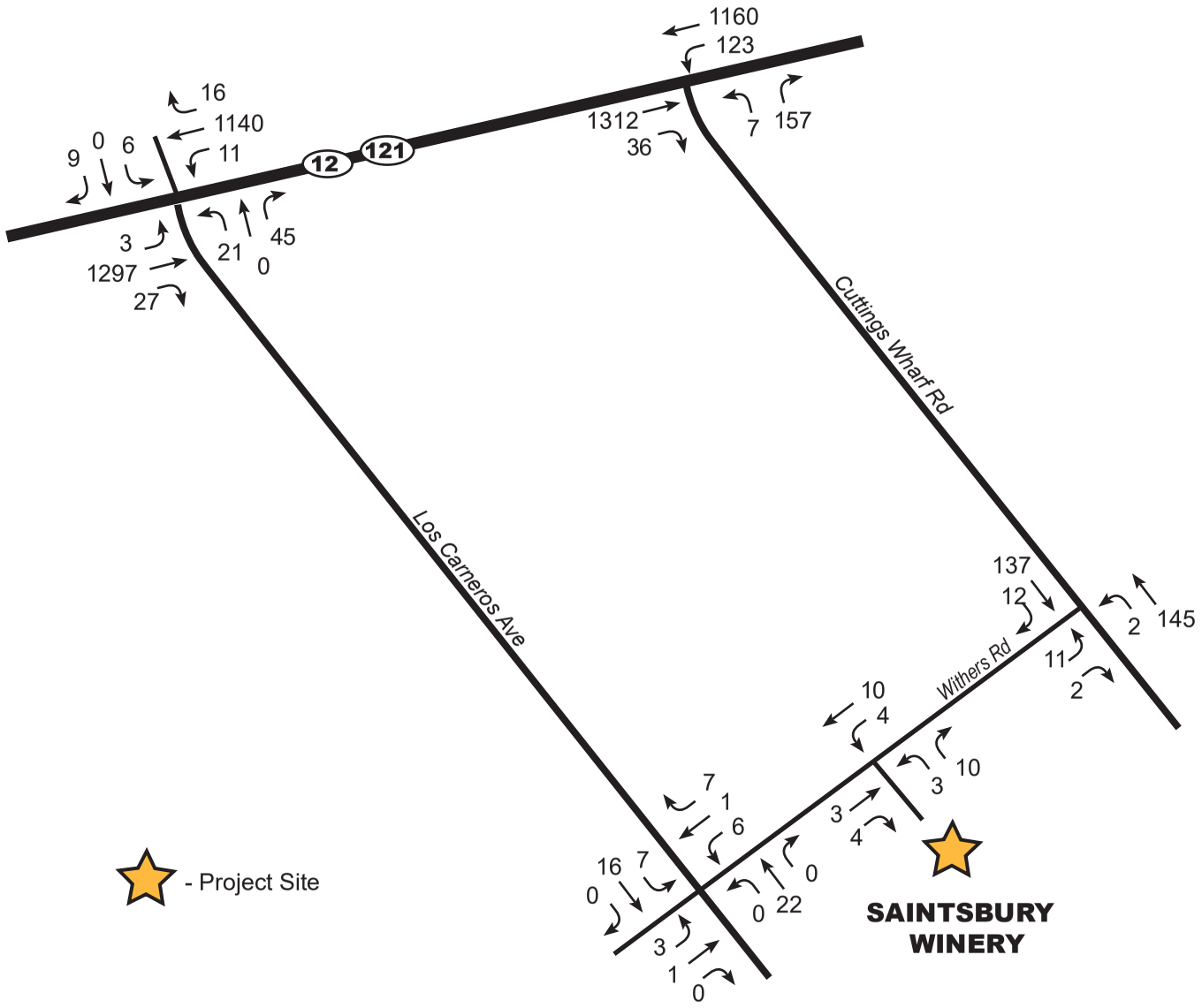

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Figure 16

2030 Harvest (with Project)
Friday PM Peak Hour Volumes

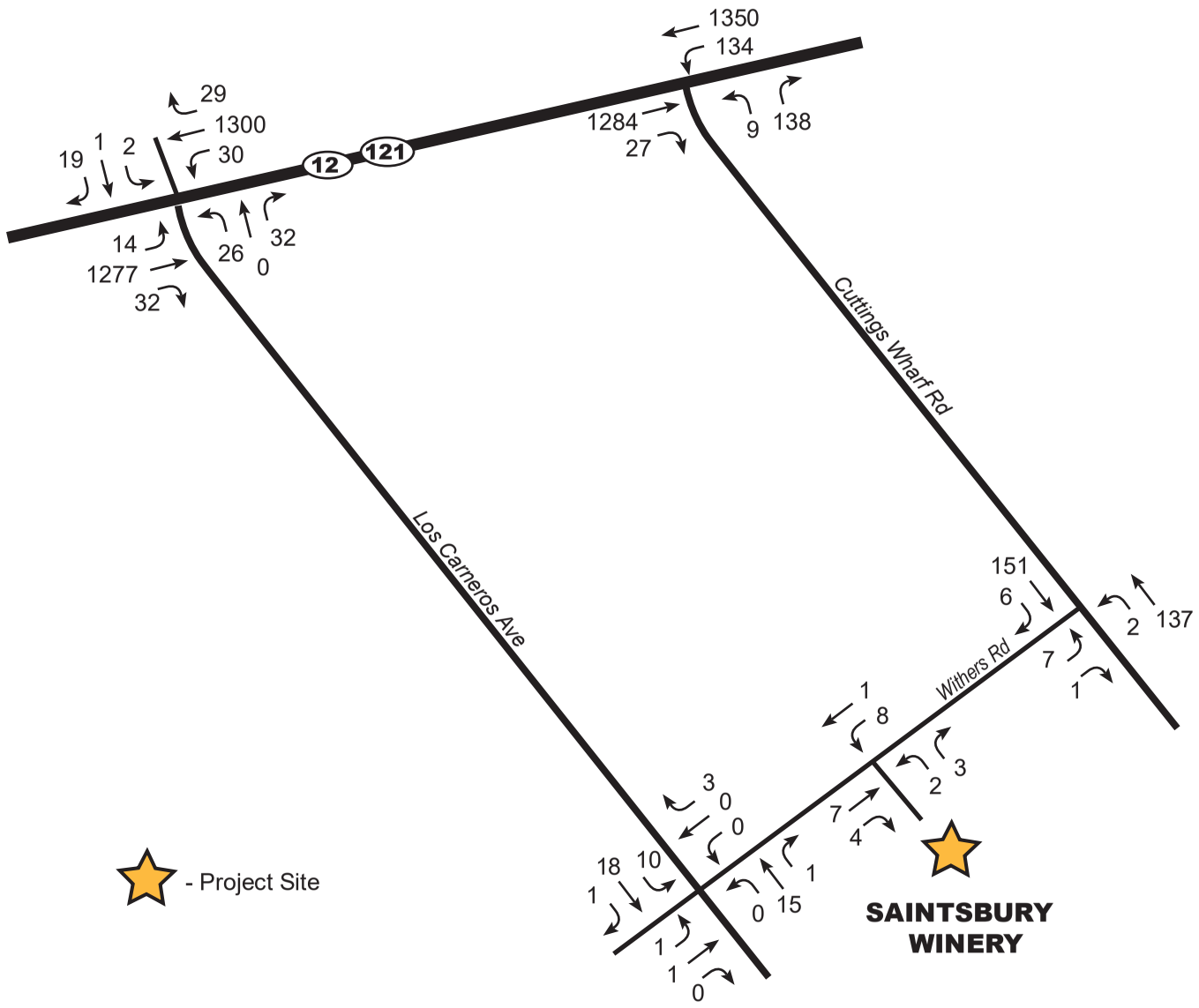

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Figure 17

2030 Harvest (with Project)
Saturday PM Peak Hour Volumes

Appendix

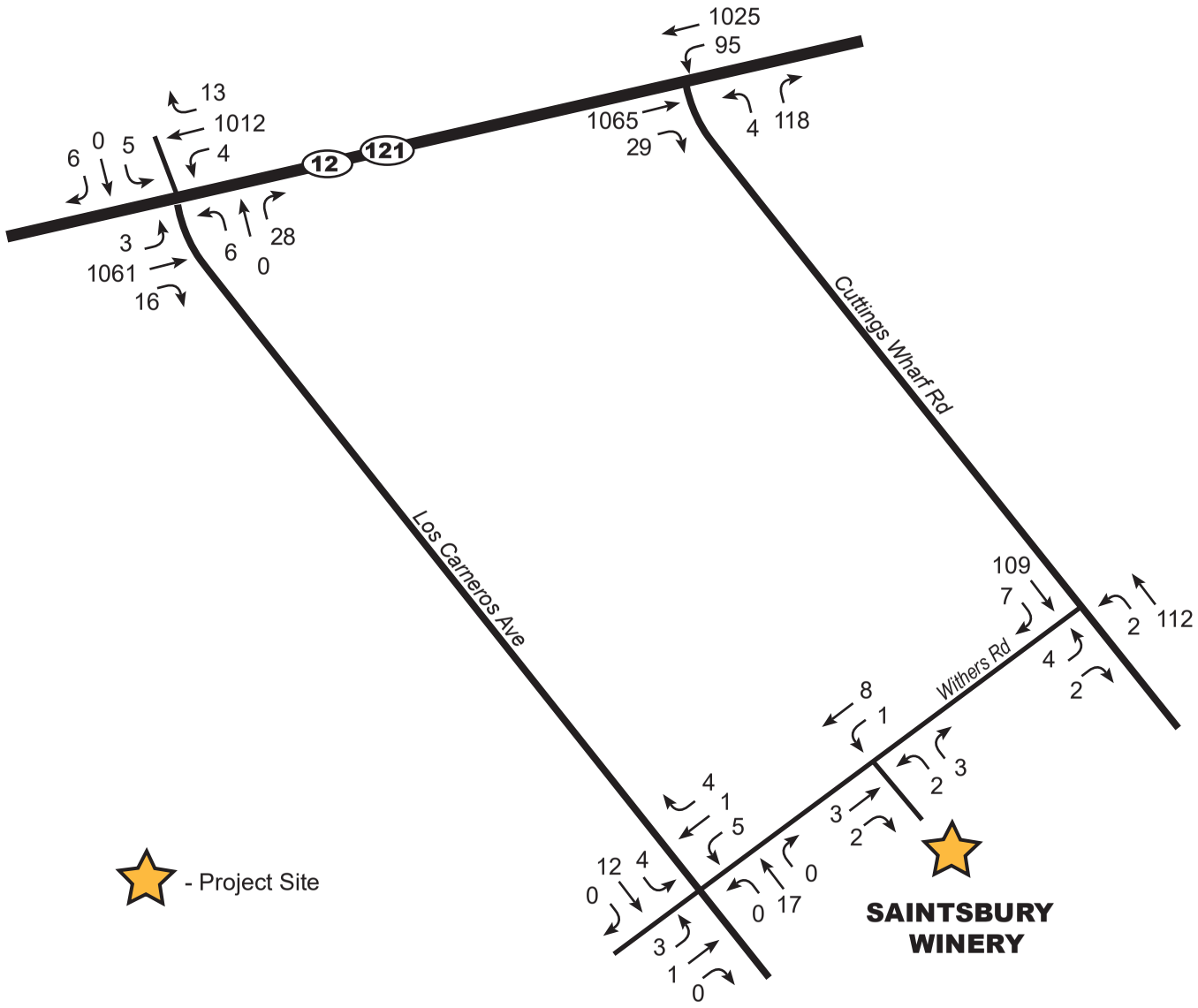

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Figure A-1
Existing Friday
PM Peak Hour Volumes
3:30-4:30 June 8, 2018

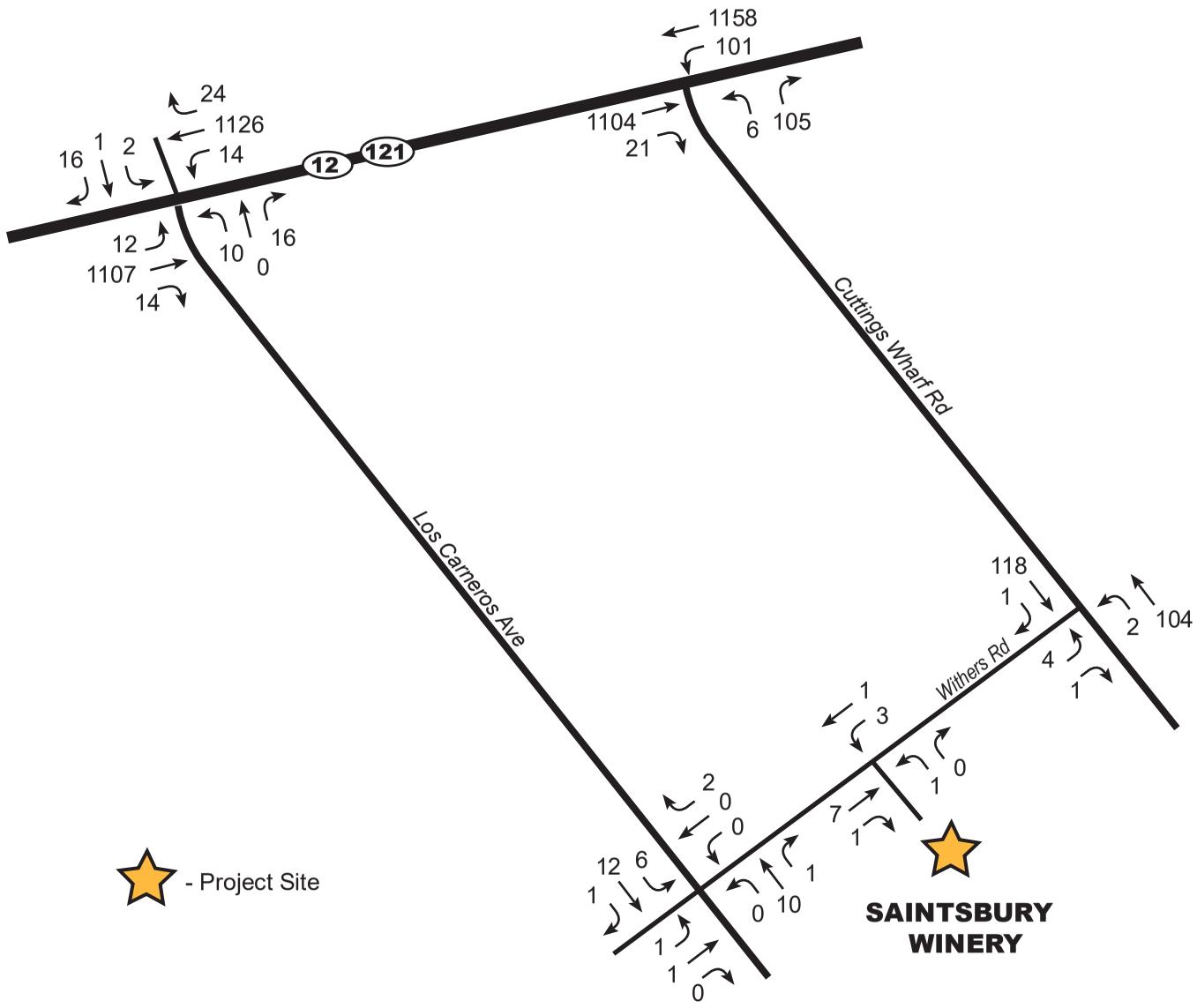

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Figure A-2
Existing Saturday
PM Peak Hour Volumes
1:00-2:00 June 9, 2018

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1149	17	5	1096	14	7	0	30	6	0	7
Future Vol, veh/h	3	1149	17	5	1096	14	7	0	30	6	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1209	18	5	1154	15	7	0	32	6	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1169	0	0	1227	0	0	2390	2394	1209	2404	2397	1154
Stage 1	-	-	-	-	-	-	1215	1215	-	1164	1164	-
Stage 2	-	-	-	-	-	-	1175	1179	-	1240	1233	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	605	-	-	575	-	-	24	34	225	23	34	242
Stage 1	-	-	-	-	-	-	224	256	-	239	271	-
Stage 2	-	-	-	-	-	-	236	267	-	217	251	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	605	-	-	575	-	-	23	34	225	20	34	242
Mov Cap-2 Maneuver	-	-	-	-	-	-	23	34	-	20	34	-
Stage 1	-	-	-	-	-	-	223	255	-	238	269	-
Stage 2	-	-	-	-	-	-	227	265	-	186	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	61.3	127.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	23	225	605	-	-	575	-	-	20	242
HCM Lane V/C Ratio	0.32	0.14	0.005	-	-	0.009	-	-	0.316	0.03
HCM Control Delay (s)	223	23.6	11	-	-	11.3	-	-	253	20.3
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1	0.5	0	-	-	0	-	-	0.9	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	1	0	6	1	5	0	19	0	5	13	0
Future Vol, veh/h	3	1	0	6	1	5	0	19	0	5	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	6	0	22	0	6	15	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	53	49	15	50	49	22	15	0	0	22	0	0
Stage 1	27	27	-	22	22	-	-	-	-	-	-	-
Stage 2	26	22	-	28	27	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	946	843	1065	950	843	1055	1603	-	-	1593	-	-
Stage 1	990	873	-	996	877	-	-	-	-	-	-	-
Stage 2	992	877	-	989	873	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	937	840	1065	946	840	1055	1603	-	-	1593	-	-
Mov Cap-2 Maneuver	937	840	-	946	840	-	-	-	-	-	-	-
Stage 1	990	870	-	996	877	-	-	-	-	-	-	-
Stage 2	985	877	-	984	870	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.7	0	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	911	978	1593	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.014	0.004	-	-
HCM Control Delay (s)	0	-	-	9	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1153	32	103	1110	5	128
Future Vol, veh/h	1153	32	103	1110	5	128
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1201	33	107	1156	5	133

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1234	0	2571	1201
Stage 1	-	-	-	-	1201	-
Stage 2	-	-	-	-	1370	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	565	-	29	225
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	238	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	565	-	24	225
Mov Cap-2 Maneuver	-	-	-	-	87	-
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	238	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	42.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	87	225	-	-	565	-
HCM Lane V/C Ratio	0.06	0.593	-	-	0.19	-
HCM Control Delay (s)	49	41.9	-	-	12.9	-
HCM Lane LOS	E	E	-	-	B	-
HCM 95th %tile Q(veh)	0.2	3.4	-	-	0.7	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	122	118	8
Future Vol, veh/h	4	2	2	122	118	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	2	2	145	140	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	294	145	150	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	149	-	-	-	-	-
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	697	902	1431	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	696	902	1431	-	-	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	879	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	753	-	-
HCM Lane V/C Ratio	0.002	-	0.009	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1175	15	15	1195	26	11	0	17	2	1	17
Future Vol, veh/h	13	1175	15	15	1195	26	11	0	17	2	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	13	1211	15	15	1232	27	11	0	18	2	1	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1259	0	0	1226	0	0	2522	2526	1211	2516	2514	1232
Stage 1	-	-	-	-	-	-	1237	1237	-	1262	1262	-
Stage 2	-	-	-	-	-	-	1285	1289	-	1254	1252	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	559	-	-	576	-	-	19	28	224	19	29	218
Stage 1	-	-	-	-	-	-	217	250	-	210	243	-
Stage 2	-	-	-	-	-	-	204	236	-	213	246	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	559	-	-	576	-	-	16	27	224	17	28	218
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	27	-	17	28	-
Stage 1	-	-	-	-	-	-	212	244	-	205	237	-
Stage 2	-	-	-	-	-	-	182	230	-	192	240	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	186.6	51.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	224	559	-	-	576	-	-	20	218
HCM Lane V/C Ratio	0.709	0.078	0.024	-	-	0.027	-	-	0.155	0.08
HCM Control Delay (s)	$ 440.3	22.4	11.6	-	-	11.4	-	-	215.5	23
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.8	0.3	0.1	-	-	0.1	-	-	0.5	0.3

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	0	0	0	2	0	11	1	7	13	1
Future Vol, veh/h	1	1	0	0	0	2	0	11	1	7	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	2	0	13	1	8	15	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	46	16	46	46	14	16	0	0	14	0	0
Stage 1	32	32	-	14	14	-	-	-	-	-	-	-
Stage 2	15	14	-	32	32	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	954	846	1063	955	846	1066	1602	-	-	1604	-	-
Stage 1	984	868	-	1006	884	-	-	-	-	-	-	-
Stage 2	1005	884	-	984	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	948	842	1063	950	842	1066	1602	-	-	1604	-	-
Mov Cap-2 Maneuver	948	842	-	950	842	-	-	-	-	-	-	-
Stage 1	984	864	-	1006	884	-	-	-	-	-	-	-
Stage 2	1003	884	-	978	864	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.4	0	2.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	892	1066	1604	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.002	0.005	-	-
HCM Control Delay (s)	0	-	-	9	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1171	23	107	1229	7	112
Future Vol, veh/h	1171	23	107	1229	7	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1233	24	113	1294	7	118

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1257	0	2753	1233
Stage 1	-	-	-	-	1233	-
Stage 2	-	-	-	-	1520	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	557	-	22	217
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	201	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	557	-	18	217
Mov Cap-2 Maneuver	-	-	-	-	64	-
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	201	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	41.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	64	217	-	-	557	-
HCM Lane V/C Ratio	0.115	0.543	-	-	0.202	-
HCM Control Delay (s)	68.4	39.7	-	-	13.1	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	0.4	2.9	-	-	0.8	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	2	111	125	1
Future Vol, veh/h	4	1	2	111	125	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	1	2	132	149	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	286	150	150	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	136	-	-	-	-	-
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	704	896	1431	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	703	896	1431	-	-	-
Mov Cap-2 Maneuver	703	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	890	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	735	-	-
HCM Lane V/C Ratio	0.002	-	0.008	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1186	24	11	1109	15	19	0	43	6	0	8
Future Vol, veh/h	3	1186	24	11	1109	15	19	0	43	6	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1248	25	12	1167	16	20	0	45	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1183	0	0	1273	0	0	2457	2461	1248	2480	2470	1167
Stage 1	-	-	-	-	-	-	1254	1254	-	1191	1191	-
Stage 2	-	-	-	-	-	-	1203	1207	-	1289	1279	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	597	-	-	552	-	-	21	31	213	20	31	238
Stage 1	-	-	-	-	-	-	213	246	-	231	263	-
Stage 2	-	-	-	-	-	-	227	259	-	203	239	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	597	-	-	552	-	-	20	30	213	15	30	238
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	30	-	15	30	-
Stage 1	-	-	-	-	-	-	212	245	-	230	257	-
Stage 2	-	-	-	-	-	-	214	253	-	159	238	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	162.2	168.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	20	213	597	-	-	552	-	-	15	238
HCM Lane V/C Ratio	1	0.213	0.005	-	-	0.021	-	-	0.421	0.035
HCM Control Delay (s)	$ 469.6	26.4	11.1	-	-	11.7	-	-	$ 364.6	20.7
HCM Lane LOS	F	D	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	2.7	0.8	0	-	-	0.1	-	-	1.1	0.1

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	1	0	6	1	5	0	20	0	5	14	0
Future Vol, veh/h	3	1	0	6	1	5	0	20	0	5	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	6	0	24	0	6	16	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	56	52	16	53	52	24	16	0	0	24	0	0
Stage 1	28	28	-	24	24	-	-	-	-	-	-	-
Stage 2	28	24	-	29	28	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	941	839	1063	946	839	1052	1602	-	-	1591	-	-
Stage 1	989	872	-	994	875	-	-	-	-	-	-	-
Stage 2	989	875	-	988	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	932	836	1063	942	836	1052	1602	-	-	1591	-	-
Mov Cap-2 Maneuver	932	836	-	942	836	-	-	-	-	-	-	-
Stage 1	989	869	-	994	875	-	-	-	-	-	-	-
Stage 2	982	875	-	983	869	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.8	0	1.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	906	974	1591	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.014	0.004	-	-
HCM Control Delay (s)	0	-	-	9	8.8	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1201	34	114	1129	6	144
Future Vol, veh/h	1201	34	114	1129	6	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1251	35	119	1176	6	150

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1286	0	2665	1251
Stage 1	-	-	-	-	1251	-
Stage 2	-	-	-	-	1414	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	539	-	25	211
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	227	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	539	-	19	211
Mov Cap-2 Maneuver	-	-	-	-	73	-
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	227	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	55.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	73	211	-	-	539	-
HCM Lane V/C Ratio	0.086	0.711	-	-	0.22	-
HCM Control Delay (s)	58.9	55.4	-	-	13.6	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.3	4.6	-	-	0.8	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	139	131	8
Future Vol, veh/h	4	2	2	139	131	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	2	2	165	156	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	330	161	166	0	-	0
Stage 1	161	-	-	-	-	-
Stage 2	169	-	-	-	-	-
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	665	884	1412	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	664	884	1412	-	-	-
Mov Cap-2 Maneuver	664	-	-	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	861	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1412	-	724	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1199	28	27	1220	27	24	0	30	2	1	18
Future Vol, veh/h	13	1199	28	27	1220	27	24	0	30	2	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	13	1236	29	28	1258	28	25	0	31	2	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1286	0	0	1265	0	0	2600	2604	1236	2606	2605	1258
Stage 1	-	-	-	-	-	-	1262	1262	-	1314	1314	-
Stage 2	-	-	-	-	-	-	1338	1342	-	1292	1291	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	546	-	-	556	-	-	~ 17	25	217	17	25	211
Stage 1	-	-	-	-	-	-	210	243	-	197	230	-
Stage 2	-	-	-	-	-	-	190	223	-	202	236	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	546	-	-	556	-	-	~ 14	23	217	14	23	211
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 14	23	-	14	23	-
Stage 1	-	-	-	-	-	-	205	237	-	192	219	-
Stage 2	-	-	-	-	-	-	164	212	-	169	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	$ 421.9	60
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	14	217	546	-	-	556	-	-	16	211
HCM Lane V/C Ratio	1.767	0.143	0.025	-	-	0.05	-	-	0.193	0.088
HCM Control Delay (s)	$ 918.8	24.3	11.8	-	-	11.8	-	-	277.7	23.7
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	3.8	0.5	0.1	-	-	0.2	-	-	0.5	0.3

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

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	0	0	2	0	12	1	7	14	1
Future Vol, veh/h	1	1	0	0	0	2	0	12	1	7	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	2	0	14	1	8	16	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	49	48	17	48	48	15	17	0	0	15	0	0
Stage 1	33	33	-	15	15	-	-	-	-	-	-	-
Stage 2	16	15	-	33	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	951	844	1062	953	844	1065	1600	-	-	1603	-	-
Stage 1	983	868	-	1005	883	-	-	-	-	-	-	-
Stage 2	1004	883	-	983	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	945	840	1062	948	840	1065	1600	-	-	1603	-	-
Mov Cap-2 Maneuver	945	840	-	948	840	-	-	-	-	-	-	-
Stage 1	983	864	-	1005	883	-	-	-	-	-	-	-
Stage 2	1002	883	-	977	864	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.4	0	2.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	889	1065	1603	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.002	0.005	-	-
HCM Control Delay (s)	0	-	-	9.1	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1206	25	123	1266	8	128
Future Vol, veh/h	1206	25	123	1266	8	128
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1269	26	129	1333	8	135

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1295	0	2860	1269
Stage 1	-	-	-	-	1269	-
Stage 2	-	-	-	-	1591	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	539	-	19	206
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	186	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	539	-	14	206
Mov Cap-2 Maneuver	-	-	-	-	45	-
Stage 1	-	-	-	-	203	-
Stage 2	-	-	-	-	186	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	53.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	45	206	-	-	539	-
HCM Lane V/C Ratio	0.187	0.654	-	-	0.24	-
HCM Control Delay (s)	102.6	50.5	-	-	13.8	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.6	3.9	-	-	0.9	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	2	129	143	1
Future Vol, veh/h	4	1	2	129	143	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	1	2	154	170	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	329	171	171	0	-	0
Stage 1	171	-	-	-	-	-
Stage 2	158	-	-	-	-	-
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	665	873	1406	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	664	873	1406	-	-	-
Mov Cap-2 Maneuver	664	-	-	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	871	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1406	-	697	-	-
HCM Lane V/C Ratio	0.002	-	0.009	-	-
HCM Control Delay (s)	7.6	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1297	25	11	1140	16	20	0	45	6	0	9
Future Vol, veh/h	3	1297	25	11	1140	16	20	0	45	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1351	26	11	1188	17	21	0	47	6	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1205	0	0	1377	0	0	2580	2584	1351	2604	2593	1188
Stage 1	-	-	-	-	-	-	1357	1357	-	1210	1210	-
Stage 2	-	-	-	-	-	-	1223	1227	-	1394	1383	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	586	-	-	504	-	-	~ 17	26	186	17	25	231
Stage 1	-	-	-	-	-	-	186	219	-	225	258	-
Stage 2	-	-	-	-	-	-	221	253	-	177	213	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	504	-	-	~ 16	25	186	12	24	231
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	25	-	12	24	-
Stage 1	-	-	-	-	-	-	185	218	-	224	252	-
Stage 2	-	-	-	-	-	-	207	247	-	132	212	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	226.7	206.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	186	586	-	-	504	-	-	12	231
HCM Lane V/C Ratio	1.302	0.252	0.005	-	-	0.023	-	-	0.521	0.041
HCM Control Delay (s)	$ 667.4	30.8	11.2	-	-	12.3	-	-	$ 483.4	21.2
HCM Lane LOS	F	D	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	3.1	1	0	-	-	0.1	-	-	1.2	0.1

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

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	1	0	6	1	6	0	22	0	5	16	0
Future Vol, veh/h	3	1	0	6	1	6	0	22	0	5	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	7	0	26	0	6	19	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	61	57	19	58	57	26	19	0	0	26	0	0
Stage 1	31	31	-	26	26	-	-	-	-	-	-	-
Stage 2	30	26	-	32	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	934	834	1059	939	834	1050	1597	-	-	1588	-	-
Stage 1	986	869	-	992	874	-	-	-	-	-	-	-
Stage 2	987	874	-	984	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	924	831	1059	935	831	1050	1597	-	-	1588	-	-
Mov Cap-2 Maneuver	924	831	-	935	831	-	-	-	-	-	-	-
Stage 1	986	866	-	992	874	-	-	-	-	-	-	-
Stage 2	979	874	-	979	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.8	0	1.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1597	-	-	899	975	1588	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.016	0.004	-	-
HCM Control Delay (s)	0	-	-	9	8.8	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1312	36	120	1160	7	150
Future Vol, veh/h	1312	36	120	1160	7	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1353	37	124	1196	7	155

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1390	0	2797	1353
Stage 1	-	-	-	-	1353	-
Stage 2	-	-	-	-	1444	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	492	-	21	183
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	219	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	492	-	16	183
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	219	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	82.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	63	183	-	-	492	-
HCM Lane V/C Ratio	0.115	0.845	-	-	0.251	-
HCM Control Delay (s)	69.4	83.1	-	-	14.8	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.4	6	-	-	1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	145	137	9
Future Vol, veh/h	4	2	2	145	137	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	2	2	173	163	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	346	169	174	0	-	0
Stage 1	169	-	-	-	-	-
Stage 2	177	-	-	-	-	-
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	651	875	1403	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	875	1403	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	854	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1403	-	711	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-
HCM Control Delay (s)	7.6	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	1277	30	29	1300	29	25	0	32	2	1	19
Future Vol, veh/h	14	1277	30	29	1300	29	25	0	32	2	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	14	1303	31	30	1327	30	26	0	33	2	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1357	0	0	1334	0	0	2743	2748	1303	2750	2749	1327
Stage 1	-	-	-	-	-	-	1331	1331	-	1387	1387	-
Stage 2	-	-	-	-	-	-	1412	1417	-	1363	1362	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	513	-	-	524	-	-	~ 13	20	198	13	20	192
Stage 1	-	-	-	-	-	-	192	226	-	179	212	-
Stage 2	-	-	-	-	-	-	173	205	-	184	218	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	513	-	-	524	-	-	~ 10	18	198	10	18	192
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 10	18	-	10	18	-
Stage 1	-	-	-	-	-	-	187	220	-	174	200	-
Stage 2	-	-	-	-	-	-	146	193	-	149	212	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	$ 649	75.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	10	198	513	-	-	524	-	-	12	192
HCM Lane V/C Ratio	2.551	0.165	0.028	-	-	0.056	-	-	0.255	0.101
HCM Control Delay (s)	$ 1445.5	26.7	12.2	-	-	12.3	-	-	$ 387.5	25.8
HCM Lane LOS	F	D	B	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	4.2	0.6	0.1	-	-	0.2	-	-	0.7	0.3

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

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	0	0	2	0	15	1	7	18	1
Future Vol, veh/h	1	1	0	0	0	2	0	15	1	7	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	2	0	18	1	8	21	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	58	57	22	57	57	19	22	0	0	19	0	0
Stage 1	38	38	-	19	19	-	-	-	-	-	-	-
Stage 2	20	19	-	38	38	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	939	834	1055	940	834	1059	1593	-	-	1597	-	-
Stage 1	977	863	-	1000	880	-	-	-	-	-	-	-
Stage 2	999	880	-	977	863	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	933	830	1055	935	830	1059	1593	-	-	1597	-	-
Mov Cap-2 Maneuver	933	830	-	935	830	-	-	-	-	-	-	-
Stage 1	977	859	-	1000	880	-	-	-	-	-	-	-
Stage 2	997	880	-	971	859	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.4	0	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	878	1059	1597	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.002	0.005	-	-
HCM Control Delay (s)	0	-	-	9.1	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1284	27	129	1349	9	135
Future Vol, veh/h	1284	27	129	1349	9	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1338	28	134	1405	9	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1366	0	3011	1338
Stage 1	-	-	-	-	1338	-
Stage 2	-	-	-	-	1673	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	506	-	15	188
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	169	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	506	-	11	188
Mov Cap-2 Maneuver	-	-	-	-	29	-
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	169	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	72.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	29	188	-	-	506	-
HCM Lane V/C Ratio	0.323	0.748	-	-	0.266	-
HCM Control Delay (s)	180	65.7	-	-	14.7	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	1	4.9	-	-	1.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	2	137	151	1
Future Vol, veh/h	4	1	2	137	151	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	5	1	2	163	180	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	348	181	181	0	-	0
Stage 1	181	-	-	-	-	-
Stage 2	167	-	-	-	-	-
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	649	862	1394	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	648	862	1394	-	-	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1394	-	682	-	-
HCM Lane V/C Ratio	0.002	-	0.009	-	-
HCM Control Delay (s)	7.6	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1149	19	5	1096	14	8	0	30	6	0	7
Future Vol, veh/h	3	1149	19	5	1096	14	8	0	30	6	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1209	20	5	1154	15	8	0	32	6	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1169	0	0	1229	0	0	2390	2394	1209	2405	2399	1154
Stage 1	-	-	-	-	-	-	1215	1215	-	1164	1164	-
Stage 2	-	-	-	-	-	-	1175	1179	-	1241	1235	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	605	-	-	574	-	-	24	34	225	23	34	242
Stage 1	-	-	-	-	-	-	224	256	-	239	271	-
Stage 2	-	-	-	-	-	-	236	267	-	216	251	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	605	-	-	574	-	-	23	34	225	20	34	242
Mov Cap-2 Maneuver	-	-	-	-	-	-	23	34	-	20	34	-
Stage 1	-	-	-	-	-	-	223	255	-	238	269	-
Stage 2	-	-	-	-	-	-	227	265	-	185	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	67.8	127.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	23	225	605	-	-	574	-	-	20	242
HCM Lane V/C Ratio	0.366	0.14	0.005	-	-	0.009	-	-	0.316	0.03
HCM Control Delay (s)	233.7	23.6	11	-	-	11.3	-	-	253	20.3
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.1	0.5	0	-	-	0	-	-	0.9	0.1

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	1	0	6	1	6	0	19	0	7	13	0
Future Vol, veh/h	3	1	0	6	1	6	0	19	0	7	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	7	0	22	0	8	15	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	57	53	15	54	53	22	15	0	0	22	0	0
Stage 1	31	31	-	22	22	-	-	-	-	-	-	-
Stage 2	26	22	-	32	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	940	838	1065	944	838	1055	1603	-	-	1593	-	-
Stage 1	986	869	-	996	877	-	-	-	-	-	-	-
Stage 2	992	877	-	984	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	929	834	1065	939	834	1055	1603	-	-	1593	-	-
Mov Cap-2 Maneuver	929	834	-	939	834	-	-	-	-	-	-	-
Stage 1	986	865	-	996	877	-	-	-	-	-	-	-
Stage 2	984	877	-	978	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.7	0	2.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	903	979	1593	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.016	0.005	-	-
HCM Control Delay (s)	0	-	-	9	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1153	32	106	1110	5	135
Future Vol, veh/h	1153	32	106	1110	5	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1201	33	110	1156	5	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1234	0	2577	1201
Stage 1	-	-	-	-	1201	-
Stage 2	-	-	-	-	1376	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	565	-	29	225
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	237	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	565	-	23	225
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	237	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	44.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	84	225	-	-	565	-
HCM Lane V/C Ratio	0.062	0.625	-	-	0.195	-
HCM Control Delay (s)	50.7	44.4	-	-	12.9	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	0.2	3.7	-	-	0.7	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	2	2	122	118	11
Future Vol, veh/h	11	2	2	122	118	11
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	13	2	2	145	140	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	296	147	153	0	-	0
Stage 1	147	-	-	-	-	-
Stage 2	149	-	-	-	-	-
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	695	900	1428	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	900	1428	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	879	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1428	-	719	-	-
HCM Lane V/C Ratio	0.002	-	0.022	-	-
HCM Control Delay (s)	7.5	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1175	17	16	1195	26	12	0	17	2	1	17
Future Vol, veh/h	13	1175	17	16	1195	26	12	0	17	2	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	13	1211	18	16	1232	27	12	0	18	2	1	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1259	0	0	1229	0	0	2524	2528	1211	2519	2519	1232
Stage 1	-	-	-	-	-	-	1237	1237	-	1264	1264	-
Stage 2	-	-	-	-	-	-	1287	1291	-	1255	1255	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	559	-	-	574	-	-	19	28	224	19	28	218
Stage 1	-	-	-	-	-	-	217	250	-	210	243	-
Stage 2	-	-	-	-	-	-	204	236	-	212	245	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	559	-	-	574	-	-	16	27	224	17	27	218
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	27	-	17	27	-
Stage 1	-	-	-	-	-	-	212	244	-	205	236	-
Stage 2	-	-	-	-	-	-	182	229	-	191	239	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	204.9	53.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	224	559	-	-	574	-	-	19	218
HCM Lane V/C Ratio	0.773	0.078	0.024	-	-	0.029	-	-	0.163	0.08
HCM Control Delay (s)	$ 463.4	22.4	11.6	-	-	11.5	-	-	228.3	23
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.9	0.3	0.1	-	-	0.1	-	-	0.5	0.3

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	0	0	3	0	11	1	10	13	1
Future Vol, veh/h	1	1	0	0	0	3	0	11	1	10	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	4	0	13	1	12	15	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	56	54	16	54	54	14	16	0	0	14	0	0
Stage 1	40	40	-	14	14	-	-	-	-	-	-	-
Stage 2	16	14	-	40	40	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	941	837	1063	944	837	1066	1602	-	-	1604	-	-
Stage 1	975	862	-	1006	884	-	-	-	-	-	-	-
Stage 2	1004	884	-	975	862	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	933	830	1063	937	830	1066	1602	-	-	1604	-	-
Mov Cap-2 Maneuver	933	830	-	937	830	-	-	-	-	-	-	-
Stage 1	975	855	-	1006	884	-	-	-	-	-	-	-
Stage 2	1001	884	-	966	855	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.4	0	3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	878	1066	1604	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.003	0.007	-	-
HCM Control Delay (s)	0	-	-	9.1	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1171	23	112	1229	7	115
Future Vol, veh/h	1171	23	112	1229	7	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1233	24	118	1294	7	121

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1257	0	2763	1233
Stage 1	-	-	-	-	1233	-
Stage 2	-	-	-	-	1530	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	557	-	22	217
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	199	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	557	-	17	217
Mov Cap-2 Maneuver	-	-	-	-	60	-
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	199	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	42.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	60	217	-	-	557	-
HCM Lane V/C Ratio	0.123	0.558	-	-	0.212	-
HCM Control Delay (s)	73.2	40.7	-	-	13.2	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	0.4	3	-	-	0.8	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	1	2	111	125	6
Future Vol, veh/h	7	1	2	111	125	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	8	1	2	132	149	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	289	153	156	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	136	-	-	-	-	-
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	702	893	1424	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	701	893	1424	-	-	-
Mov Cap-2 Maneuver	701	-	-	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	890	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1424	-	720	-	-
HCM Lane V/C Ratio	0.002	-	0.013	-	-
HCM Control Delay (s)	7.5	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1186	26	11	1109	15	20	0	43	6	0	8
Future Vol, veh/h	3	1186	26	11	1109	15	20	0	43	6	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1248	27	12	1167	16	21	0	45	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1183	0	0	1275	0	0	2457	2461	1248	2481	2472	1167
Stage 1	-	-	-	-	-	-	1254	1254	-	1191	1191	-
Stage 2	-	-	-	-	-	-	1203	1207	-	1290	1281	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	597	-	-	551	-	-	~ 21	31	213	20	30	238
Stage 1	-	-	-	-	-	-	213	246	-	231	263	-
Stage 2	-	-	-	-	-	-	227	259	-	203	238	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	597	-	-	551	-	-	~ 20	30	213	15	29	238
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 20	30	-	15	29	-
Stage 1	-	-	-	-	-	-	212	245	-	230	257	-
Stage 2	-	-	-	-	-	-	214	253	-	159	237	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	173.3	168.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	20	213	597	-	-	551	-	-	15	238
HCM Lane V/C Ratio	1.053	0.213	0.005	-	-	0.021	-	-	0.421	0.035
HCM Control Delay (s)	$ 489.1	26.4	11.1	-	-	11.7	-	-	$ 364.6	20.7
HCM Lane LOS	F	D	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	2.9	0.8	0	-	-	0.1	-	-	1.1	0.1

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

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	1	0	6	1	6	0	20	0	7	14	0
Future Vol, veh/h	3	1	0	6	1	6	0	20	0	7	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	7	0	24	0	8	16	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	60	56	16	57	56	24	16	0	0	24	0	0
Stage 1	32	32	-	24	24	-	-	-	-	-	-	-
Stage 2	28	24	-	33	32	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	936	835	1063	940	835	1052	1602	-	-	1591	-	-
Stage 1	984	868	-	994	875	-	-	-	-	-	-	-
Stage 2	989	875	-	983	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	925	831	1063	935	831	1052	1602	-	-	1591	-	-
Mov Cap-2 Maneuver	925	831	-	935	831	-	-	-	-	-	-	-
Stage 1	984	864	-	994	875	-	-	-	-	-	-	-
Stage 2	981	875	-	977	864	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.7	0	2.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	900	976	1591	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.016	0.005	-	-
HCM Control Delay (s)	0	-	-	9	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1201	34	117	1129	6	151
Future Vol, veh/h	1201	34	117	1129	6	151
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1251	35	122	1176	6	157

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1286	0	2671	1251
Stage 1	-	-	-	-	1251	-
Stage 2	-	-	-	-	1420	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	539	-	25	211
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	225	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	539	-	19	211
Mov Cap-2 Maneuver	-	-	-	-	71	-
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	225	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	59.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	71	211	-	-	539	-
HCM Lane V/C Ratio	0.088	0.745	-	-	0.226	-
HCM Control Delay (s)	60.5	59.7	-	-	13.6	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.3	5	-	-	0.9	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	2	2	139	131	11
Future Vol, veh/h	11	2	2	139	131	11
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	13	2	2	165	156	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	332	163	169	0	-	0
Stage 1	163	-	-	-	-	-
Stage 2	169	-	-	-	-	-
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	663	882	1409	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	662	882	1409	-	-	-
Mov Cap-2 Maneuver	662	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1409	-	688	-	-
HCM Lane V/C Ratio	0.002	-	0.022	-	-
HCM Control Delay (s)	7.6	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1199	30	28	1220	27	25	0	30	2	1	18
Future Vol, veh/h	13	1199	30	28	1220	27	25	0	30	2	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	13	1236	31	29	1258	28	26	0	31	2	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1286	0	0	1267	0	0	2602	2606	1236	2609	2609	1258
Stage 1	-	-	-	-	-	-	1262	1262	-	1316	1316	-
Stage 2	-	-	-	-	-	-	1340	1344	-	1293	1293	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	546	-	-	555	-	-	~ 17	25	217	17	25	211
Stage 1	-	-	-	-	-	-	210	243	-	196	229	-
Stage 2	-	-	-	-	-	-	190	222	-	202	235	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	546	-	-	555	-	-	~ 14	23	217	14	23	211
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 14	23	-	14	23	-
Stage 1	-	-	-	-	-	-	205	237	-	191	217	-
Stage 2	-	-	-	-	-	-	163	210	-	169	229	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	$ 445.2	60
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	14	217	546	-	-	555	-	-	16	211
HCM Lane V/C Ratio	1.841	0.143	0.025	-	-	0.052	-	-	0.193	0.088
HCM Control Delay (s)	$ 950.2	24.3	11.8	-	-	11.8	-	-	277.7	23.7
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	3.9	0.5	0.1	-	-	0.2	-	-	0.5	0.3

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

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	0	0	0	3	0	12	1	10	14	1
Future Vol, veh/h	1	1	0	0	0	3	0	12	1	10	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	4	0	14	1	12	16	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	58	56	17	56	56	15	17	0	0	15	0	0
Stage 1	41	41	-	15	15	-	-	-	-	-	-	-
Stage 2	17	15	-	41	41	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	939	835	1062	941	835	1065	1600	-	-	1603	-	-
Stage 1	974	861	-	1005	883	-	-	-	-	-	-	-
Stage 2	1002	883	-	974	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	931	828	1062	934	828	1065	1600	-	-	1603	-	-
Mov Cap-2 Maneuver	931	828	-	934	828	-	-	-	-	-	-	-
Stage 1	974	854	-	1005	883	-	-	-	-	-	-	-
Stage 2	999	883	-	965	854	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.4	0	2.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	876	1065	1603	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.003	0.007	-	-
HCM Control Delay (s)	0	-	-	9.1	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1206	25	128	1266	8	131
Future Vol, veh/h	1206	25	128	1266	8	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1269	26	135	1333	8	138

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1295	0	2872	1269
Stage 1	-	-	-	-	1269	-
Stage 2	-	-	-	-	1603	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	539	-	19	206
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	183	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	539	-	14	206
Mov Cap-2 Maneuver	-	-	-	-	39	-
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	183	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	56
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	39	206	-	-	539	-
HCM Lane V/C Ratio	0.216	0.669	-	-	0.25	-
HCM Control Delay (s)	121.1	52	-	-	13.9	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.7	4.1	-	-	1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	1	2	129	143	6
Future Vol, veh/h	7	1	2	129	143	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	8	1	2	154	170	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	332	174	177	0	-	0
Stage 1	174	-	-	-	-	-
Stage 2	158	-	-	-	-	-
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	663	869	1399	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	662	869	1399	-	-	-
Mov Cap-2 Maneuver	662	-	-	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1399	-	682	-	-
HCM Lane V/C Ratio	0.002	-	0.014	-	-
HCM Control Delay (s)	7.6	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1297	27	11	1140	16	21	0	45	6	0	9
Future Vol, veh/h	3	1297	27	11	1140	16	21	0	45	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	6	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	3	1351	28	11	1188	17	22	0	47	6	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1205	0	0	1379	0	0	2580	2584	1351	2605	2595	1188
Stage 1	-	-	-	-	-	-	1357	1357	-	1210	1210	-
Stage 2	-	-	-	-	-	-	1223	1227	-	1395	1385	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	586	-	-	504	-	-	~ 17	26	186	17	25	231
Stage 1	-	-	-	-	-	-	186	219	-	225	258	-
Stage 2	-	-	-	-	-	-	221	253	-	177	213	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	504	-	-	~ 16	25	186	12	24	231
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	25	-	12	24	-
Stage 1	-	-	-	-	-	-	185	218	-	224	252	-
Stage 2	-	-	-	-	-	-	207	247	-	132	212	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	241.7	206.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	186	586	-	-	504	-	-	12	231
HCM Lane V/C Ratio	1.367	0.252	0.005	-	-	0.023	-	-	0.521	0.041
HCM Control Delay (s)	$ 693.7	30.8	11.2	-	-	12.3	-	-	$ 483.4	21.2
HCM Lane LOS	F	D	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	3.3	1	0	-	-	0.1	-	-	1.2	0.1

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

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	1	0	6	1	7	0	22	0	7	16	0
Future Vol, veh/h	3	1	0	6	1	7	0	22	0	7	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	0	7	1	8	0	26	0	8	19	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	66	61	19	62	61	26	19	0	0	26	0	0
Stage 1	35	35	-	26	26	-	-	-	-	-	-	-
Stage 2	31	26	-	36	35	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	927	830	1059	933	830	1050	1597	-	-	1588	-	-
Stage 1	981	866	-	992	874	-	-	-	-	-	-	-
Stage 2	986	874	-	980	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	826	1059	928	826	1050	1597	-	-	1588	-	-
Mov Cap-2 Maneuver	915	826	-	928	826	-	-	-	-	-	-	-
Stage 1	981	862	-	992	874	-	-	-	-	-	-	-
Stage 2	977	874	-	974	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.8	0	2.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1597	-	-	891	976	1588	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.017	0.005	-	-
HCM Control Delay (s)	0	-	-	9.1	8.8	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1312	36	123	1160	7	157
Future Vol, veh/h	1312	36	123	1160	7	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	2	7	0	2
Mvmt Flow	1353	37	127	1196	7	162

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1390	0	2803	1353
Stage 1	-	-	-	-	1353	-
Stage 2	-	-	-	-	1450	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	492	-	21	183
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	218	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	492	-	16	183
Mov Cap-2 Maneuver	-	-	-	-	62	-
Stage 1	-	-	-	-	180	-
Stage 2	-	-	-	-	218	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	90
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	62	183	-	-	492	-
HCM Lane V/C Ratio	0.116	0.884	-	-	0.258	-
HCM Control Delay (s)	70.6	90.9	-	-	14.8	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	0.4	6.6	-	-	1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	2	2	145	137	12
Future Vol, veh/h	11	2	2	145	137	12
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	13	2	2	173	163	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	347	170	177	0	-	0
Stage 1	170	-	-	-	-	-
Stage 2	177	-	-	-	-	-
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	650	874	1399	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	649	874	1399	-	-	-
Mov Cap-2 Maneuver	649	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1399	-	676	-	-
HCM Lane V/C Ratio	0.002	-	0.023	-	-
HCM Control Delay (s)	7.6	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	15.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	1277	32	30	1300	29	26	0	32	2	1	19
Future Vol, veh/h	14	1277	32	30	1300	29	26	0	32	2	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	100	150	-	150	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	14	1303	33	31	1327	30	27	0	33	2	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1357	0	0	1336	0	0	2745	2750	1303	2753	2753	1327
Stage 1	-	-	-	-	-	-	1331	1331	-	1389	1389	-
Stage 2	-	-	-	-	-	-	1414	1419	-	1364	1364	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	513	-	-	523	-	-	~ 13	20	198	13	20	192
Stage 1	-	-	-	-	-	-	192	226	-	178	212	-
Stage 2	-	-	-	-	-	-	172	205	-	184	218	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	513	-	-	523	-	-	~ 10	18	198	10	18	192
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 10	18	-	10	18	-
Stage 1	-	-	-	-	-	-	187	220	-	173	199	-
Stage 2	-	-	-	-	-	-	145	193	-	149	212	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	$ 683	75.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	10	198	513	-	-	523	-	-	12	192
HCM Lane V/C Ratio	2.653	0.165	0.028	-	-	0.059	-	-	0.255	0.101
HCM Control Delay (s)	$ 1490.7	26.7	12.2	-	-	12.3	-	-	$ 387.5	25.8
HCM Lane LOS	F	D	B	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	4.4	0.6	0.1	-	-	0.2	-	-	0.7	0.3

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

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	0	0	0	3	0	15	1	10	18	1
Future Vol, veh/h	1	1	0	0	0	3	0	15	1	10	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	0	0	4	0	18	1	12	21	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	67	65	22	65	65	19	22	0	0	19	0	0
Stage 1	46	46	-	19	19	-	-	-	-	-	-	-
Stage 2	21	19	-	46	46	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	926	826	1055	929	826	1059	1593	-	-	1597	-	-
Stage 1	968	857	-	1000	880	-	-	-	-	-	-	-
Stage 2	998	880	-	968	857	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	918	819	1055	922	819	1059	1593	-	-	1597	-	-
Mov Cap-2 Maneuver	918	819	-	922	819	-	-	-	-	-	-	-
Stage 1	968	850	-	1000	880	-	-	-	-	-	-	-
Stage 2	995	880	-	959	850	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	8.4	0	2.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	866	1059	1597	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.003	0.007	-	-
HCM Control Delay (s)	0	-	-	9.2	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1284	27	134	1350	9	138
Future Vol, veh/h	1284	27	134	1350	9	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	115	175	-	0	50
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	1338	28	140	1406	9	144

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1366	0	3024	1338
Stage 1	-	-	-	-	1338	-
Stage 2	-	-	-	-	1686	-
Critical Hdwy	-	-	4.11	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.309
Pot Cap-1 Maneuver	-	-	506	-	15	188
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	167	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	506	-	11	188
Mov Cap-2 Maneuver	-	-	-	-	23	-
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	167	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	78.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	23	188	-	-	506	-
HCM Lane V/C Ratio	0.408	0.765	-	-	0.276	-
HCM Control Delay (s)	243.8	68.1	-	-	14.8	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	1.2	5.1	-	-	1.1	-

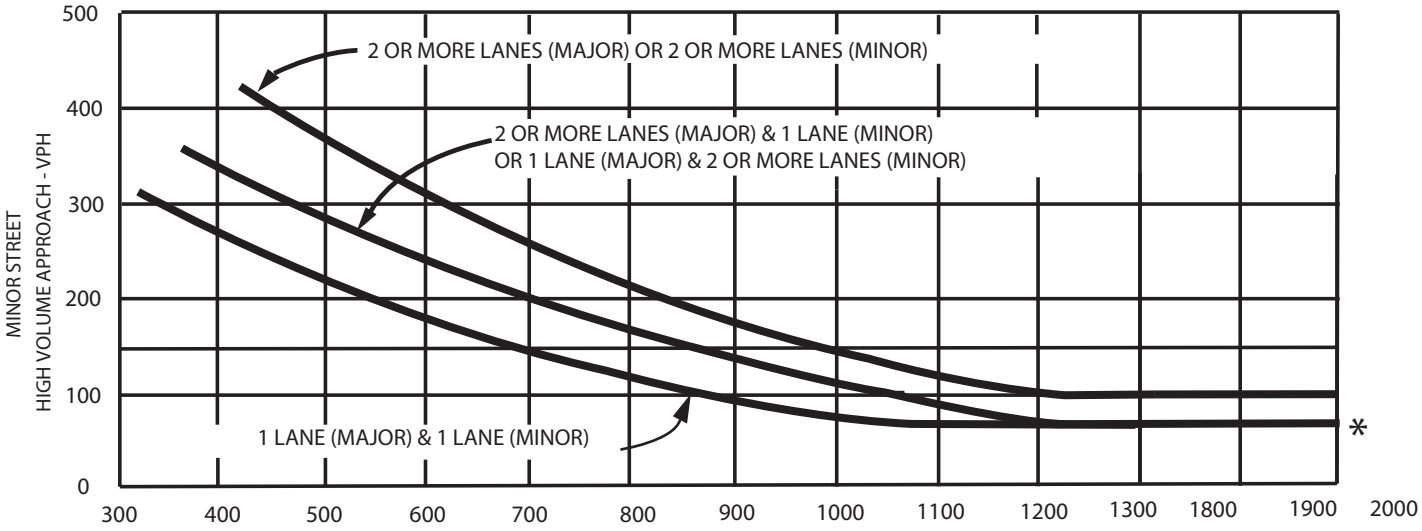
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	1	2	137	151	6
Future Vol, veh/h	7	1	2	137	151	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	8	1	2	163	180	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	351	184	187	0	-	0
Stage 1	184	-	-	-	-	-
Stage 2	167	-	-	-	-	-
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	646	858	1387	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	645	858	1387	-	-	-
Mov Cap-2 Maneuver	645	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1387	-	666	-	-
HCM Lane V/C Ratio	0.002	-	0.014	-	-
HCM Control Delay (s)	7.6	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



* 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

PEAK HOUR VOLUME WARRANT #3
(Rural Area)

PEAK HOUR VOLUME WARRANT #3
(Urban Area)

* NOTE

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND100 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

PEAK HOUR VOLUME WARRANT #3
(Urban Area)

Appendix

SAINTSBURY WINERY EXPANSION
EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

Existing Gallons/Year Production: Permit allows an average of 135,000 gallon over a three-year period. Maximum in any year is 160,000 gallons.

Gallons/Year After Expansion: No increase in proposed; proposed = existing.

1st Year of Expected Full Production: 135,000 gallons

HARVEST

	EXISTING CONDITIONS	PROJECT INCREMENT
A.	**Full-time admin employees** # on Weekdays _4_ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday 9:00 AM to 5:00 PM Saturday N/A Sunday N/A	**Full-time admin employees** # on Weekdays __1__ # on Saturday __0__ # on Sunday ___0_ Work hours: Weekday 9:00 AM to 5:00 PM Saturday N/A Sunday N/A
B.	**Part-time admin employees** # on Weekdays __0__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday N/A Saturday N/A Sunday N/A	**Part-time admin employees** # on Weekdays _1__ # on Saturday _____ # on Sunday _____ Work hours: Weekday 9:00 AM to 5:00 PM Saturday N/A Sunday N/A
C.	**Full-time production employees** # on Weekdays __3__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday 7:00 AM to 7:00 PM Saturday N/A Sunday N/A	**Full-time production employees** # on Weekdays _0__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday N/A Saturday N/A Sunday N/A

SAINTSBURY WINERY EXPANSION
EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

HARVEST

	EXISTING CONDITIONS	PROJECT INCREMENT
D.	**Part-time production employees (Harvest only)** # on Weekdays _0__ # on Saturday __3___ # on Sunday ___3__ Work hours: Weekday N/A Saturday 7:00 AM to 7:00 PM Sunday 7:00 AM to 7:00 PM	**Part-time production employees (Harvest only)** # on Weekdays _5__ # on Saturday __5___ # on Sunday ___5__ Work hours: Weekday 7:00 AM to 7:00 PM Saturday 7:00 AM to 7:00 PM Sunday 7:00 AM to 7:00 PM
E.	**Tours & tasting employees** # on Weekdays __3__ # on Saturday ___3__ # on Sunday ___3__ Work hours: Weekday 9:00 AM to 5:30 PM Saturday 9:00 AM to 5:30 PM Sunday 9:00 AM to 5:30 PM	**Tours & tasting employees** # on Weekdays __2__ # on Saturday __2___ # on Sunday ___2__ Work hours: Weekday 9:00 AM to 5:30 PM Saturday 9:00 AM to 5:30 PM Sunday 9:00 AM to 5:30 PM
F.	**Maximum tours/tasting visitors** # on Weekdays __12__ # on Saturday ___12__ # on Sunday ___12__ Tasting hours: Weekday 10:00 AM to 5:00 PM Saturday 10:00 AM to 5:00 PM Sunday 10:00 AM to 5:00 PM	**Maximum tours/tasting visitors** # on Weekdays __83__ # on Saturday ___83__ # on Sunday ___83__ Tasting hours: Weekday 10:00 AM to 5:00 PM Saturday 10:00 AM to 5:00 PM Sunday 10:00 AM to 5:00 PM
G.	**Grape delivery trucks** # on Weekdays _1 avg & 3 max_ # on Saturday __1___ # on Sunday __1___ Delivery hours: Weekday 5:00 AM to 12:00 Noon Saturday 5:00 AM to 12:00 Noon Sunday N/A # days of grape delivery: _20___	**Grape delivery trucks** # on Weekdays _No change___ # on Saturday _No change__ # on Sunday _No change____ Delivery hours: Weekday _____ to ____ Saturday _____ to ____ Sunday _____ to _____ # days of grape delivery: ____

SAINTSBURY WINERY EXPANSION
EXPECTED PROJECT TRAFFIC ACTIVITY DETAILS

	EXISTING CONDITIONS	PROJECT INCREMENT
H.	**Other trucks** # on Weekdays _1 (30-40 days/year)_ # on Saturday __0___ # on Sunday __0___ Delivery hours: Weekday 8:00 AM to 4:30 PM Saturday N/A Sunday N/A **Please Detail:** Glass & barrel delivery trucks. Shipping bottled product.	**Other trucks** # on Weekdays _Same as existing_ # on Saturday _____ # on Sunday _____ Delivery hours: Weekday _____ to ____ Saturday _____ to ____ Sunday _____ to _____

I. **Grape Source & Trucks**

Percent grapes grown on site for expanded production: 15%

Grapes grown off site – access route to winery entrance
From the west: 60%
From the east: 40%

J. **Existing Marketing Events – To Be Discontinued**

Marketing Event #1 # events/year: 8
maximum # people/event: 25
typical days: Weekend
typical hours: Lunch (11:00 AM to 2:00 PM) or
Dinner (2:00 PM to 5:00 PM)

Marketing Event #2 # events/year: 1
maximum # people/event: 50
typical days: Weekend
typical hours: 10:00 AM to 4:00 PM

K. **Proposed New Marketing Events – To Replace Existing Events**

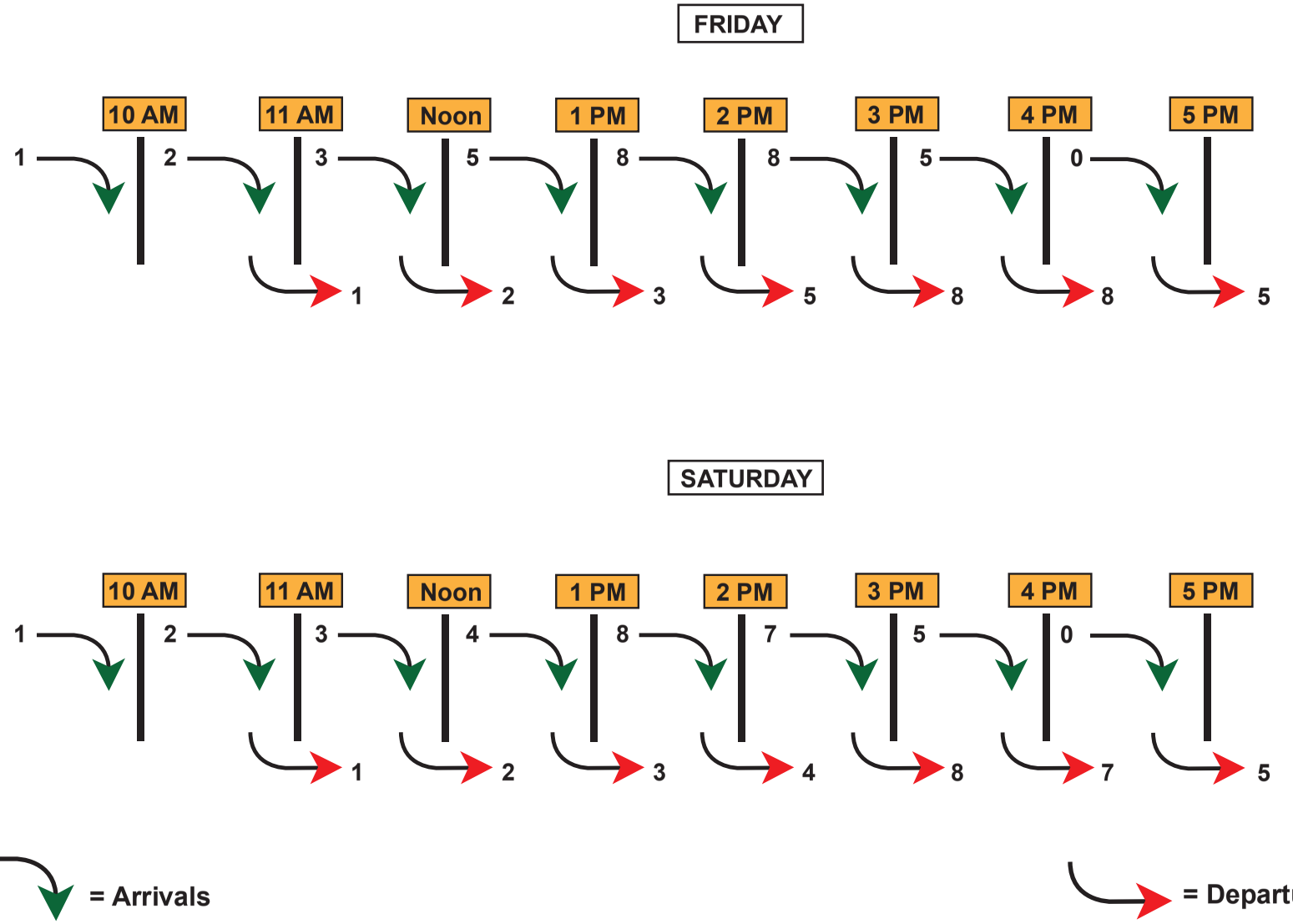
NOTE: The County is now requesting new marketing events avoid adding traffic to the local roadway network between 3:00 and 5:30 PM.

Marketing Event #1	# events/year: 6
Wine Club/	maximum # people/event: 50
Release Event	typical days: Weekend (primarily in March, May, Sept. & Nov.)
	typical hours: 10:00 AM to 2:30 PM
Marketing Event #2	# events/year: 2
Large Event	maximum # people/event: 100 guests + 2 event staff
	typical days: Weekend (one in August and second in November)
	typical hours: 10:00 AM to 2:30 PM

L. **Bottling**

Days of existing on-site bottling per year: 13-15 days
Additional days per year of new on-site bottling due to project: No change

Saintsbury Winery Visitors Traffic



Saintsbury Winery Use Permit Modification 2018 Traffic Study

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Figure A-3

Saintsbury Winery Visitors Traffic

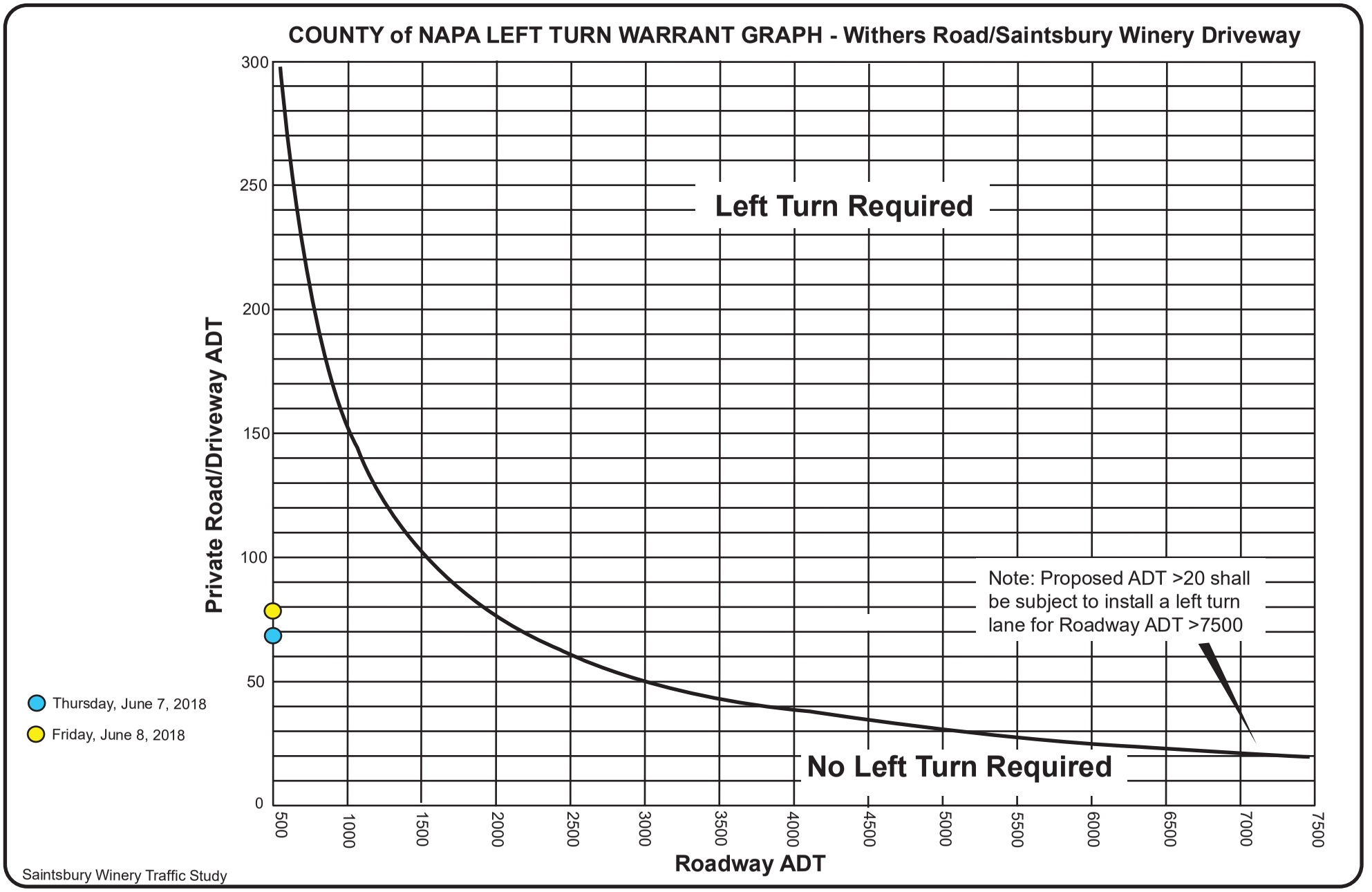

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Figure A-4

COUNTY of NAPA LEFT TURN WARRANT GRAPH

Withers Road/Saintsbury Winery Driveway