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Traffic Impact Study

Nickel & Nickel Winery, Use Permit Major Modification
Application No. P17-00400-MOD
Planning Commission Hearing, September 16, 2020

CRANE TRANSPORTATION GROUP

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MEMORANDUM

TO: Greg Allen (gallen@farniente.com)
Donna Oldford/Plans4Wine (dboldford@aol.com)

FROM: Mark D. Crane, P.E.

DATE: September 26, 2019

RE: **TRAFFIC FLOW TO/FROM 3 MAJOR EVENTS AT NICKEL & NICKEL WINERY**

I. OVERVIEW

At the request of Nickel & Nickel Winery, Crane Transportation Group has projected traffic flow to/from three yearly major marketing events and the expected circulation impacts. They are:

- A 900-person event (322 vehicles) in February.
- A 900-person event (322 vehicles) in April.
- A 1,000-person event (358 vehicles) in August.

Each event would extend from 10:00 AM to 6:00 PM and each guest or group would receive an invitation time to arrive by half hour increments. All events would have free shuttle bus service to/from the Veterans Home in Yountville, although valet parking would be available for guests driving directly to the winery. Valet parking would be on site. The vast majority of guests would be expected to come from south of the Napa Valley and, based upon past experience, would avail themselves of the shuttle bus service in Yountville. Most guests arriving to or departing from the Veterans Home shuttle service would be traveling on the four-lane section of SR 29 south of Yountville.

II. SUMMARY OF FINDINGS

The three major Nickel & Nickel marketing events will occur in separate months (two to four months apart). Therefore, based upon past direction from County Public Works, marketing event circulation system operations is only required if two or more events of the same size occur during the same month, which is not the case with Nickel & Nickel's largest marketing events. In addition, Nickel & Nickel's two 900-guest events and single 1,000-guest event would only result in 5-10 more vehicles per hour on the Nickel & Nickel driveway between 11:00 AM and 5:00 PM than normal winery activities during a harvest Friday or Saturday. This assumes shuttle bus use for most guests and the winery having no other activities during the day. Therefore, there should be no significant difference in hourly traffic operations at the Nickel & Nickel driveway during the three yearly events than during regular Friday or Saturday operations during harvest. It should also be noted that the level of major event hourly traffic on the Nickel & Nickel driveway (three times per year) would be only 20-50 percent of the hourly traffic that is currently using the nearby Robert Mondavi Winery guest driveway on a regular basis.

III. EVENT TRAFFIC DETAILS

A. 900-GUEST EVENT – NICKEL & NICKEL DRIVEWAY VOLUMES

- A 900-person event would result in about 325 guest vehicles (using County auto occupancy factors).

- Inbound event traffic would occur over about eight hours (starting at 9:30 AM and ending about 4:30 PM). Most would arrive from the south and would be expected to use the shuttle service from the Veterans Home. This would result in about 15 inbound vehicles per hour (10 cars & 5 shuttle buses) on the winery driveway.

- Outbound event traffic would also occur over eight hours (starting at about 11:30 AM and ending about 6:30 PM). This would result in about 15 outbound vehicles per hour (10 cars and 5 shuttle buses) on the winery driveway.

- **Figure 1** presents typical steady state traffic flow to/from the Nickel & Nickel Winery during a midday hour (11:00 AM-12:00 noon) during one of the two 900-person events. As shown, the winery driveway would experience about 10 inbound and 10 outbound guest autos, with 5 inbound and 5 outbound shuttle buses traveling to/from the Veterans Home guest parking. Total – about 15 inbound and 15 outbound, or **30 two-way vehicles per hour** on the winery driveway from about 11:00 AM to 5:00 PM.

- In comparison, **Table 1** shows that recent Friday and Saturday (September 13 & 14, 2019) counts at the Nickel & Nickel driveway from 11:00 AM to 6:00 PM are similar to or somewhat lower than the hourly volumes that would be accessing the winery for a 900-guest event. Average hourly volumes now accessing the winery on typical harvest days are about 25 vehicles per hour on a Friday and 20 vehicles per hour on a Saturday.

- **Figure 1** also shows that a 900-guest event would result in about 60 inbound and 60 outbound guest vehicles per hour accessing the Veterans Home parking, with 5 inbound and 5 outbound shuttle buses per hour. Most guest vehicles would be traveling on the four-lane section of SR 29, with a smaller increment to/from local area hotels.

B. MONDAVI WINERY DRIVEWAY VOLUME COMPARISON

- **Table 1** shows the number of vehicles now accessing the Robert Mondavi Winery guest driveway on the west side of SR 29 opposite the Nickel & Nickel Winery during the same September Friday and Saturday. As shown, two-way traffic on the Mondavi guest driveway between 11:00 AM and 6:00 PM ranged from 59-102 vehicles on Friday and from 70-160 vehicles on Saturday. Thus, the two yearly 900-guest special events at the Nickel & Nickel Winery (from 10:00 AM to 6:00 PM) would only result in about 20-50 percent of the hourly traffic that is now occurring on a regular basis on the Mondavi Winery guest driveway.

C. 1,000-GUEST EVENT – NICKEL & NICKEL DRIVEWAY VOLUMES

- The single 1,000-person yearly event would result in about 360 guest vehicles.

- This single day event would also extend from 10:00 AM to 6:00 PM and have shuttle bus service to/from the Veterans Home in Yountville. On average, the Nickel & Nickel Winery driveway may have 11-12 inbound and outbound guest vehicles per hour, with 5-6 inbound and outbound shuttle buses per hour: total about 34-36 two-way vehicles per hour on the winery driveway. Volumes and impacts would be similar to the two 900-person events.

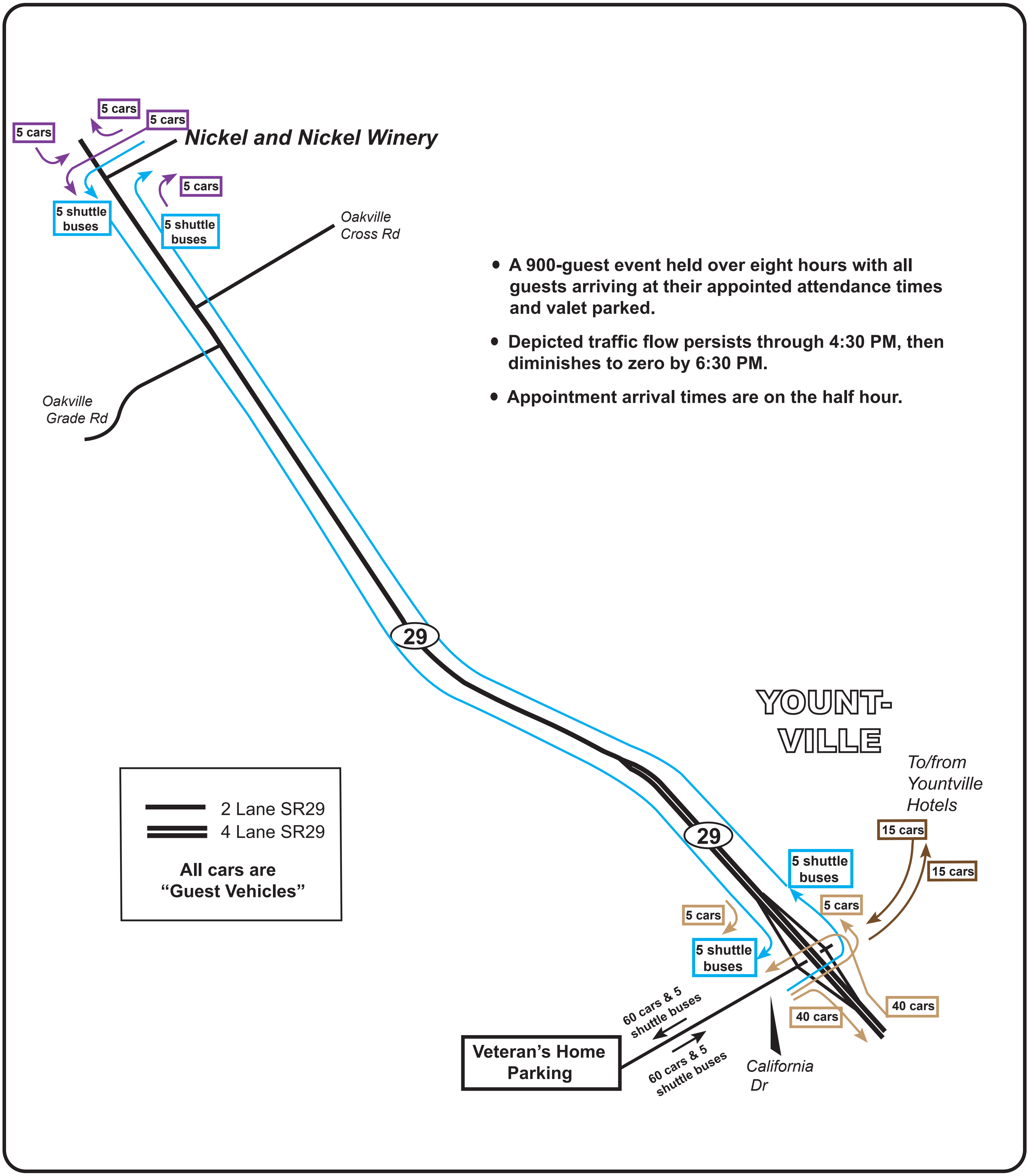

Figure 1

Typical Mid Day & Early Afternoon Hourly Traffic Flow during a 900 Guest Major Marketing Event at Nickel & Nickel Winery

CRANE TRANSPORTATION GROUP

Table 1

MONDAVI AND NICKEL & NICKEL WINERIES TRIP GENERATION COMPARISON

FRIDAY, SEPT. 13, 2019

	ROBERT MONDAVI WINERY (GUEST ENTRANCE)			NICKEL & NICKEL WINERY		
	IN	OUT	TOTAL	IN	OUT	TOTAL
11:00 AM-Noon	72	30	102	14	17	31
Noon-1:00 PM	43	41	84	14	12	26
1:00-2:00 PM	28	31	59	13	7	20
2:00-3:00 PM	52	41	93	12	11	23
3:00-4:00 PM	40	40	80	9	18	27
4:00-5:00 PM	32	69	101	4	9	13
5:00-6:00 PM	26	54	80	18	15	33

SATURDAY, SEPT. 14, 2019

	ROBERT MONDAVI WINERY (GUEST ENTRANCE)			NICKEL & NICKEL WINERY		
	IN	OUT	TOTAL	IN	OUT	TOTAL
11:00 AM-Noon	51	21	72	13	10	23
Noon-1:00 PM	40	30	70	17	14	31
1:00-2:00 PM	48	52	100	6	5	11
2:00-3:00 PM	56	40	96	11	12	23
3:00-4:00 PM	80	80	160	10	6	16
4:00-5:00 PM	45	71	116	8	9	17
5:00-6:00 PM	32	76	108	6	9	15

Source: Crane Transportation Group

FINAL TRAFFIC IMPACT REPORT

NICKEL & NICKEL WINERY EXPANSION ALONG SR 29 IN THE NAPA VALLEY

December 17, 2018

Prepared for: NICKEL & NICKEL WINERY

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Table of Contents

I. INTRODUCTION

This traffic report has been prepared for Nickel & Nickel Winery to determine if traffic from the winery's proposed expanded activities will result in any significant local circulation system impacts along State Route 29 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 to provide analysis that is typically required by the Napa County Public Works Department. 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 along SR 29 and at the SR 29 intersections with Oakville Cross Road, Rutherford Road and the project's main access driveway were evaluated for all analysis scenarios based upon County traffic significance criteria. In addition, sight line adequacy was evaluated at the project's main driveway intersection with SR 29. Significant impacts, if any, were identified and measures listed, if needed, to mitigate all impacts to a less than significant level.

III. SUMMARY OF FINDINGS

A. "WITHOUT PROJECT" OPERATING CONDITIONS

1. Existing Harvest Volumes – September 2017

The SR 29 intersections with Oakville Cross Road and Rutherford Road 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 Oakville Cross Road about 2,410 peak hour vehicles are projected to enter the intersection from 3:00 to 4:00 PM on Saturday versus about 2,385 peak hour vehicles from 3:00 to 4:00 PM on Friday, while at the Rutherford Road intersection about 2,380 vehicles are projected to enter the intersection during the Saturday PM peak hour versus about 2,290 vehicles during the Friday PM peak hour. The main driveway serving the Nickel & Nickel Winery would also be expected to have slightly higher volumes during the Saturday PM peak hour (20 two-way vehicles) versus the Friday PM peak hour (16 two-way vehicles).

2. **Year 2017, Year 2020, and Cumulative (Year 2030) Harvest (Without Project) Circulation System Operation**

- **SR 29 between Rutherford Road and Oakville Cross Road** – unacceptable levels of service in both directions during both the Friday and Saturday PM peak traffic hours.
- **SR 29/Oakville Cross Road unsignalized intersection** – unacceptable levels of service + volumes meet both urban and rural peak hour signal warrant criteria levels during both the Friday and Saturday PM peak traffic hours.
- **SR 29/Rutherford Road unsignalized intersection** – unacceptable levels of service + volumes meet both urban and rural peak hour signal warrant criteria levels during both the Friday and Saturday PM peak traffic hours.

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* (3:00-4:00)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
11	20	10	16

* Peak hour at the SR 29 intersections with Oakville Cross Road and Rutherford Road.
Source: Nickel & Nickel Winery; compiled by Crane Transportation Group

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

2. **Project Site Access to SR 29**
The Nickel & Nickel Winery will continue to have employee and visitor access to SR 29 at the existing winery north driveway connection. A continuous two-way left turn lane is in place along SR 29 in the vicinity of the project driveway. A secondary existing driveway connection at the south end of the site will also remain, but will experience minimal traffic activity and only be used by a few employees.

3. **Year 2017 Harvest + Project Off-Cite Circulation Impacts**
The proposed project would not result in any significant off-site circulation impacts to SR 29 or to the SR 29 intersections with Oakville Cross Road or Rutherford Road, all of which would already be operating unacceptably without project traffic. The increase in

traffic due to the project would be less than 1 percent on SR 29 and less than 2 percent on either the Rutherford Road or Oakville Cross Road approaches to SR 29. These increases would not meet the County's impact significance criteria limit.

4. **Year 2020 Harvest + Project Off-Site Circulation Impacts**
The proposed project would not result in any significant off-site circulation impacts at the SR 29 intersections with Oakville Cross Road or Rutherford Road, both of which would already be operating unacceptably without project traffic. The increase in traffic due to the project would be less than 1 percent on SR 29 and less than 2 percent on the Rutherford Road or Oakville Cross Road approaches to SR 29. These increases would not meet the County's impact significance criteria limit.

5. **Cumulative (Year 2030) Harvest + Project Off-Site Circulation Impacts**
The proposed project would not result in any significant off-site circulation impacts to SR 29 or to the SR 29 intersections with Oakville Cross Road or Rutherford Road, both of which would already be operating unacceptably without project traffic. The increase in traffic due to the project compared to the growth in ambient volumes between Existing and Cumulative conditions would be less than 5 percent on SR 29 and less than 2 percent on the Rutherford Road or Oakville Cross Road approaches to SR 29. These increases would not meet the County's impact significance criteria limits.

6. **Sight Lines at Project Driveway**
Sight lines at the existing Nickel & Nickel Winery employee and visitor driveway connection to SR 29 meet minimum stopping sight distance criteria based upon the Caltrans March 2014 *Highway Design Manual*. Sight lines at the existing driveway at the south end of the site that would be minimally used are also acceptable.

7. **New Marketing Event Scheduling**
No new marketing events are proposed.

C. MITIGATION MEASURES

No circulation system mitigations are required based upon County significance criteria.

D. CONCLUSIONS & RECOMMENDATIONS

The project would result in no significant off-site circulation system operational impacts to SR 29 or to the SR 29 intersections with Oakville Cross Road or Rutherford Road. In addition, a continuous two-way left turn lane is already provided along SR 29 in the project vicinity and sight lines are acceptable at the main project driveway connection to the state highway at the north end of the site as well as at the secondary driveway connection at the south end of the site. No mitigation measures are required.

IV. PROJECT LOCATION & DESCRIPTION

The Nickel & Nickel Winery is located on the east side of SR 29 about a half mile north of the SR 29/Oakville Cross Road intersection (see **Figure 2**). The winery is accessed from SR 29 via a main employee and visitor driveway at the north end of the site and a secondary, minimally used, driveway at the south end of the site.

The proposed Nickel & Nickel Winery expansion will have the following yearly production increase and increased employees, visitation and marketing events.

- 100,000 gallons per year production increase (with a total production of 225,000 gallons).
- 46 new full-time employees.
- New bottling on-site.
- Visitation (by appointment only) will be increased by 185 people/day. Visitation hours will be increased from 10:00 AM to 5:00 PM up to 10:00 AM to 6:00 PM, 7 days per week.
- Average 2 new grape delivery trucks/day for 30 days during harvest.
- 3 additional non-grape truck deliveries/day from 7:00 AM-3:00 PM during harvest.
- No new marketing events are proposed.

V. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

The following locations have been evaluated.

1. **SR 29 just south of Rutherford Road and just north of Oakville Cross Road.**

2. **SR 29/Oakville Cross Road-Walnut Drive intersection. (The Oakville Cross Road and Walnut Drive approaches are stop sign controlled).**

3. **SR 29/Rutherford Road (SR 128) intersection. (The Rutherford Road westbound approach is stop sign controlled.)**

4. **SR 29/Nickel & Nickel 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.

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 September 23 & 24, 2016 at the SR 29 intersections with Oakville Cross Road, Rutherford Road and the Nickel & Nickel driveway. Additional counts were also conducted at the SR 29/Rutherford Road intersection on Friday and Saturday, June 23 & 24, 2017. The PM peak traffic hours were determined to be 3:00-4:00 PM on both Friday and Saturday. Resultant September Friday and Saturday 2016 PM peak hour volumes are presented in **Appendix Figure A-1**, while June Friday and Saturday 2017 PM peak hour volumes at SR 29/Rutherford Road are presented in **Appendix Figure A-2**.

3. SEASONAL ADJUSTMENTS

Seasonal factors to adjust June 2017 counts to reflect September (harvest) conditions were developed using the Caltrans PeMS Friday and Saturday PM peak period count data – see **Appendix Table A-1**. Overall, June 2017 PM peak hour volumes would be expected to increase by about 10 percent on Friday and by almost 8 percent on Saturday to reflect September 2017 harvest conditions. Comparison of the seasonally adjusted June 2017 counts at SR 29/Rutherford Road to those from September 2016 showed that the adjusted June 2017 counts were higher than those taken in September 2016. In order to provide a conservative analysis, the higher 2017 (adjusted June to September) counts were utilized for the SR 29/Rutherford Road intersection. The September 2016 counts at SR 29/Oakville Cross Road were then factored upwards to match the increased 2017 volume levels at Rutherford Road, maintaining the same interrelationship in volumes along SR 29 between Rutherford Road and Oakville Cross Road as found in the 2016

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

counts. Resultant year 2017 harvest Friday and Saturday PM peak hour volumes are presented in **Figure 3**.

C. ROADWAYS

Roadway descriptions are based upon the designation that SR 29 runs in a general north-south direction through the project area while Oakville Cross Road and Rutherford Road run in east-west directions. The project site is along the east side of SR 29 about a half mile north of the Oakville Cross Road intersection. **Figure 2** presents existing intersection geometrics and control.

State Route 29 (SR 29) provides the only major regional access to the west side of the Napa Valley. In the vicinity of the Nickel & Nickel Winery it has two well-paved 12-foot travel lanes, eight-foot-wide paved shoulders and a continuous two-way left turn lane. The posted speed limit is 50 miles per hour and the roadway is level and straight. SR 29 is not controlled on its approaches to Oakville Cross Road or Rutherford Road, but left turn lanes are provided on the approaches to both intersections. The speed limit along SR 29 is reduced to 40 mph in the vicinity of the Rutherford Road intersection. It is also designated SR 128 to the north of Rutherford Road. There are no sidewalks or all weather pedestrian pathways along SR 29 in the project vicinity.

The Nickel & Nickel Winery has a main visitor and employee driveway connection to SR 29 at the north end of the site. The approach to SR 29 has been widened to provide separate left and right turn lanes, each of which has been painted with a stop bar and the word “STOP.” The winery also has a secondary, minimally used driveway connection to SR 29 at the south end of the site with a single lane approach to the state highway. The continuous median turn lane on SR 29 also serves this driveway.

Rutherford Road is a two-lane arterial road extending east of SR 29 to Silverado Trail. It is designated State Route 128. The Rutherford Road single lane westbound approach to SR 29 is stop sign controlled. There is a driveway connecting to the west side of SR 29 just south of Rutherford Road which provides access to the Niebaum-Coppola Winery.

Oakville Cross Road is a two-lane well-paved rural collector road extending east of SR 29 to Silverado Trail. It is stop sign controlled on its two-lane westbound approach to the state highway. The west leg of the SR 29/Oakville Cross Road intersection is a two-lane paved road named Walnut Drive. It crosses the single track of the Napa Wine Train just west of SR 29. There is never more than one train crossing an hour during the afternoon and early evening, currently the only times of regular train activity.

D. ARTERIAL SEGMENT ANALYSIS

1. ANALYSIS METHODOLOGY

Roadway segment operation for SR 29 has been evaluated based upon criteria developed for Napa County roadways as part of the County General Plan Update in 2007: Napa County

General Plan Update EIR – Technical Memorandum for Traffic and Circulation Supporting the Findings and Recommendations by Dowling Associates, February 2007. Table 5 in this report, "Peak Hour Roadway Capacities," shows the following directional capacity limit-level of service relationships for a two-lane rural highway, such as SR 29.

SR 29 ROADWAY SEGMENT CAPACITIES

		LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Rural Highway – SR 29	Maximum Peak Direction Volumes	100	330	620	870	1200
	Volume/Capacity Ratio	(.08)	(.28)	(.52)	(.73)	(1.00)

2. MINIMUM ACCEPTABLE OPERATION

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

E. 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 recently adopted 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.

F. 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 2 (2014 CMUTCD Rev. 2)*. Section 4C of the 2014 CMUTCD Rev. 2 provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the 2014 CMUTCD Rev. 2, 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 **Appendix Figures A-3** and **A-4** for the warrant charts.

G. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study that would improve intersection capacity.[2] However, in 2018 Caltrans will begin a pavement rehabilitation project along SR 29 from Sierra Avenue (PM 13.5) to Mee Lane (PM 25.5) which will extend along the project frontage. This will include provision of Class II bike lane striping from Madison Street to Mee Lane (also along the project frontage).

H. TRANSIT

Napa County Vine Transit Route 10 runs along SR 29 adjacent to the winery. The closest stop is at the Oakville Cross Road intersection about a half mile south of the project site.

VI. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for existing (2017), 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 five new or expanding winery projects already approved but not built in the vicinity of the Nickel & Nickel Winery. The list and the traffic studies used to obtain their projections are as follows

- Caymus Winery – Amended to Caymus Winery Traffic Impact Study by W-Trans, April 2015
- Opus One Winery – Focused Traffic Analysis for the Proposed Opus One Use Modification Project by Omni Means, February 2016
- Frogs Leap Winery – Focused Traffic Analysis for the Proposed Frogs Leap Winery Modifications Project by Omni Means, July 2016
- Swanson Winery Traffic Impact Study by George Nicholson, May 2008
- LMR Rutherford Estate Winery – LMR Rutherford Estate Traffic Study by Crane Transportation Group, January 2014

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 2017 to 2030) is then determined and added to the existing traffic counts to produce 2030 projections.

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

Resultant year 2030 traffic modeling projections were then compared to volumes expected from the five nearby projects. While mainline volume increases along SR 29 appeared reasonable from the model, traffic increases expected from the County's list of five approved nearby projects were greater than increases projected by the model along Rutherford Road and Oakville Cross Road. Cumulative traffic model results were therefore modified to reflect the increases from the list of five projects. After adjustments, cumulative two-way <u>weekday</u> volumes along SR 29 would be expected to grow about 19 to 20 percent from 2017 to 2030. Assuming development of the five nearby projects over the next three years as well as regional growth, there would be about a 7 to 8 percent growth in weekday two-way PM peak hour traffic along SR 29 from 2017 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 29 were increased by similar percentages found for the weekday PM peak hour.

General Plan weekday PM peak hour traffic modeling projections were available for Rutherford Road, but did not fully reflect traffic from the five nearby projects. After inclusion of traffic from these five developments, Rutherford Road would be expected to receive about a 32 percent increase in Friday PM peak hour traffic and about a 50 percent increase in Saturday PM peak hour traffic from 2017 to 2030, while 2017 to 2020 increases would be about 20 percent during a Friday PM peak hour and 37 percent during a Saturday PM peak hour.

General Plan weekday PM peak hour traffic modeling projections were also available for Oakville Cross Roads, but also did not fully reflect traffic from the five nearby projects. After inclusion of traffic from the five specific projects Oakville Cross Road would be expected to receive about a 39 percent increase in Friday PM peak hour traffic and a 77 percent increase in Saturday PM peak hour traffic between 2017 and 2030, while 2017 to 2020 increases would be about 21 percent during a Friday PM peak hour and 49 percent during a Saturday PM peak hour.

Resultant year 2020 harvest "Without Project" Friday and Saturday peak hour volumes are presented in **Figure 4**, while year 2030 (Cumulative) harvest "Without Project" Friday and Saturday peak hour volumes are presented in **Figure 5**.

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

A. YEAR 2017 (WITHOUT PROJECT) OPERATING CONDITIONS

1. ARTERIAL SEGMENTS – Table 3

a. SR 29 South of Rutherford Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS E

b. SR 29 North of Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E or F

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS E

2. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 29/Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

b. SR 29/Rutherford Road

1) Friday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

3. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 29/Oakville Cross 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 29/Rutherford 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. YEAR 2020 (WITHOUT PROJECT) OPERATING CONDITIONS

1. ARTERIAL SEGMENTS – Table 6

a. SR 29 South of Rutherford Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E or F

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS E

b. SR 29 North of Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E or F

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS F

2. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 29/Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

b. SR 29/Rutherford Road

1) Friday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

3. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 29/Oakville Cross 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 29/Rutherford 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.

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

1. ARTERIAL SEGMENTS – Table 7

a. SR 29 South of Rutherford Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E or F

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS F

b. SR 29 North of Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable north and southbound operation: LOS E or F

2) Saturday PM Peak Hour

Unacceptable north and southbound operation: LOS F

2. INTERSECTION LEVEL OF SERVICE – Table 4

a. SR 29/Oakville Cross Road

1) Friday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Oakville Cross Road stop sign controlled approach operation: LOS F

b. SR 29/Rutherford Road

1) Friday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

2) Saturday PM Peak Hour

Unacceptable Rutherford Road stop sign controlled approach operation: LOS F

3. INTERSECTION PEAK HOUR SIGNAL WARRANT EVALUATION – Table 5

a. SR 29/Oakville Cross 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 29/Rutherford 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.

VIII. 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. ARTERIAL SEGMENTS

A project would cause a significant impact requiring mitigation if:

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

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

P***roject Contribution % = Project Trips ÷ Existing Volumes***

B. SIGNALIZED INTERSECTIONS

A project would cause a significant impact requiring mitigation if:

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

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

Project Contribution % = Project Trips ÷ Existing Volumes

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

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

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

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

[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.

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. ARTERIAL SEGMENTS, SIGNALIZED INTERSECTIONS AND UNSIGNALIZED INTERSECTIONS

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

1. The overall amount of expected traffic growth causes conditions to deteriorate such that any of the significance criteria described above for existing conditions are met, and
2. The project's contribution to a significant cumulative impact 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, grape delivery and visitor activities associated with the proposed Nickel & Nickel Winery expansion (see worksheets in the **Appendix**). Results are presented on an hourly basis in **Tables 8** and **9** for harvest Friday and Saturday conditions, while a summary of peak hour trips is presented in **Table 10** and a summary of daily trips is presented in the **Appendix**. A distribution of project visitor traffic is shown in **Appendix Figure A-5** 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 11 inbound and 20 outbound vehicles, while during the harvest Saturday PM peak traffic hour, there would be a projected 10 inbound and 16 outbound vehicles. As shown, during both the Friday and Saturday PM peak hours almost all new trips would be associated with increased visitor traffic.

It should be noted that Nickel & Nickel will be developing a Traffic Demand Management (TDM) plan to reduce travel (and vehicle miles traveled) by employees and visitors. Measures are presented in the **Appendix**. 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 29 in a pattern reflective of existing distribution patterns at the Nickel & Nickel main driveway intersection. During the Friday and Saturday PM peak hours the majority of inbound project traffic on SR 29 would be expected to come from the south, while a slight majority of outbound traffic would be expected to turn to the south on the state highway.

The harvest Friday and Saturday PM peak hour project traffic increments expected on SR 29 during the times of ambient peak traffic flows are presented in **Figure 6**. Friday and Saturday Existing "With Project" PM peak hour harvest volumes are presented in **Figure 7**; Year 2020 "With Project" PM peak hour harvest volumes are presented in **Figure 8**, and Cumulative (year 2030) "With Project" PM peak hour harvest volumes are presented in **Figure 9**.

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]

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

IX. PROJECT OFF-SITE IMPACTS

A. YEAR 2017 HARVEST (WITH PROJECT) CONDITIONS

1. SUMMARY

Project traffic would not result in any significant level of service impact to SR 29 or to any level of service or signal warrant impacts to the SR 29 intersections with Oakville Cross Road or Rutherford Road during either the Friday or Saturday PM peak traffic hours. ***Less than Significant***.

2. ARTERIAL SEGMENTS – TABLE 3

a) SR 29 SOUTH OF RUTHERFORD ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 1 percent or greater increase in traffic to result in a significant impact. During the Friday PM peak hour the project would result in a 0.8 percent increase in northbound traffic and a 0.4 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.3 percent increase in southbound traffic. ***Less than Significant.***

b) SR 29 NORTH OF OAKVILLE CROSS ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 1 percent or greater increase in traffic to result in a significant impact. During the Friday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.9 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.8 percent increase in southbound traffic. ***Less than Significant.***

3. INTERSECTION LEVEL OF SERVICE – TABLE 4

a) SR 29/OAKVILLE CROSS ROAD

The SR 29/Oakville Cross 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 0.8 percent increase in traffic on the Oakville Cross Road intersection approach, while during the

Saturday PM peak hour the project would result in a 1.1 percent increase in traffic on the Oakville Cross Road intersection approach. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford 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 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 both the Friday and Saturday PM peak hours the project would result in less than a 1 percent increase in traffic on the Rutherford Road intersection approach. ***Less than Significant.***

4. SIGNALIZATION NEEDS – TABLE 5

a) SR 29/OAKVILLE CROSS 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 0.7 percent increase during the Friday PM peak hour and a 0.9 percent increase during the Saturday PM peak hour. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford 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 0.6 percent increase during the Friday PM peak hour and a 0.7 percent increase during the Saturday PM peak hour. ***Less than Significant.***

B. YEAR 2020 HARVEST (WITH PROJECT) CONDITIONS

1. SUMMARY

Project traffic would not result in any significant level of service impact to SR 29 or to any level of service or signal warrant impacts to the SR 29 intersections with Oakville Cross Road or Rutherford Road during any Friday or Saturday PM peak traffic hours. ***Less than Significant***.

2. ARTERIAL SEGMENTS – TABLE 6

a) SR 29 SOUTH OF RUTHERFORD ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 1 percent or greater increase in traffic to result in a significant impact. During the Friday PM peak hour the project would result in a 0.8 percent increase in northbound traffic and a 0.4 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.3 percent increase in southbound traffic. ***Less than Significant.***

b) SR 29 NORTH OF OAKVILLE CROSS ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 1 percent or greater increase in traffic to result in a significant impact. During the Friday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.9 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 0.6 percent increase in northbound traffic and a 0.7 percent increase in southbound traffic. ***Less than Significant.***

3. INTERSECTION LEVEL OF SERVICE – TABLE 4

a) SR 29/OAKVILLE CROSS ROAD

The SR 29/Oakville Cross 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 both the Friday and Saturday PM peak hours the project would result in a 0.7 percent increase in traffic on the Oakville Cross Road intersection approach. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford 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 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 both the Friday and Saturday PM peak hours the project would result in less than a 1 percent increase in traffic on the Rutherford Road intersection approach. ***Less than Significant.***

4. SIGNALIZATION NEEDS – TABLE 5

a) SR 29/OAKVILLE CROSS 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 0.7 percent increase during the Friday PM peak hour and 0.8 percent increase during the Saturday PM peak hour. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford 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 0.5

percent increase during the Friday PM peak hour and 0.6 percent increase during the Saturday PM peak hour. ***Less than Significant.***

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

1. SUMMARY

Project traffic would not result in any significant level of service impact to SR 29 or to any level of service or signal warrant impacts to the SR 29 intersections with Oakville Cross Road or Rutherford Road during any Friday or Saturday PM peak traffic hours. ***Less than Significant***.

2. ARTERIAL SEGMENTS – TABLE 7

a) SR 29 SOUTH OF RUTHERFORD ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 between Existing and Cumulative conditions to result in a significant impact. During the Friday PM peak hour the project would result in a 3.8 percent increase in northbound traffic and a 2.0 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 3.3 percent increase in northbound traffic and a 1.4 percent increase in southbound traffic. ***Less than Significant.***

b) SR 29 NORTH OF OAKVILLE CROSS ROAD

North and southbound SR 29 would maintain unacceptable Friday and Saturday PM peak hour north and southbound 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 between Existing and Cumulative conditions to result in a significant impact. During the Friday PM peak hour the project would result in a 3.4 percent increase in northbound traffic and a 4.8 percent increase in southbound traffic, while during the Saturday PM peak hour the project would result in a 3.3 percent increase in northbound traffic and a 4.0 percent increase in southbound traffic. ***Less than Significant.***

3. INTERSECTION LEVEL OF SERVICE – TABLE 4

a) SR 29/OAKVILLE CROSS ROAD

The SR 29/Oakville Cross 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 5 percent or greater increase in the growth of traffic between existing and cumulative horizons 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 1.8 percent increase in traffic on the Oakville Cross Road intersection approach, while during the Saturday PM peak hour the project would result in a 1.3 percent increase in traffic entering the intersection and less than a 1 percent increase in traffic on the Oakville Cross Road intersection approach. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford 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 recently-adopted traffic impact significance criteria requiring a 5 percent or greater increase in the growth of traffic between existing and cumulative horizons on the stop sign controlled intersection approach in order to result in a significant impact. During both the Friday and Saturday PM peak hours the project would result in less than a 1 percent increase in traffic on the Rutherford Road intersection approach. ***Less than Significant.***

4. SIGNALIZATION NEEDS – TABLE 5

a) SR 29/OAKVILLE CROSS ROAD

The SR 29/Oakville Cross Road intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding 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 0.6 percent increase during the Friday PM peak hour and a 0.7 percent increase during the Saturday PM peak hour. ***Less than Significant.***

b) SR 29/RUTHERFORD ROAD

The SR 29/Rutherford Road intersection would already have ambient Friday and Saturday PM peak hour volumes exceeding 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 0.5 percent increase during the Friday PM peak hour and a 0.6 percent increase during the Saturday PM peak hour. ***Less than Significant.***

X. OPERATING CONDITIONS AT THE SR 29 INTERSECTIONS WITH THE NICKEL & NICKEL MAIN DRIVEWAY AND THE OFFSET DRIVEWAY SERVING THE MONDAVI WINERY PRODUCTION FACILITY

The Nickel & Nickel main driveway at the north end of the project site (on the east side of SR 29) has its centerline offset by about 60 feet to the south of the Mondavi Winery production facility driveway (on the west side of SR 29). A median continuous two-way left turn lane is in place along SR 29 and services both driveways. The existing offset of driveways was approved by Caltrans when the Nickel & Nickel Winery was built in 2003. The Mondavi Winery production facility driveway was already constructed at that time. The Nickel & Nickel driveway approach to SR 29 has two lanes while the Mondavi Winery driveway approach has a single lane.

Friday and Saturday PM peak hour turn movements to/from each driveway for 2017, 2020 and 2030 (cumulative) conditions are presented in the study for "with" and "without" project conditions (see **Figures 3** to **9**). During the 2017 harvest Friday PM peak hour there were 3 southbound left turns into the Nickel & Nickel driveway and 2 northbound left turns into the Mondavi driveway, while during the Saturday PM peak hour there were 2 southbound left turns into the Nickel & Nickel driveway and 6 northbound left turns into the Mondavi production driveway. Based upon the number of right turns exiting the Mondavi production driveway during both PM peak hours it would be expected that during an AM peak commute hour there could be 25-30 vehicles making a northbound left turn into the Mondavi driveway, but 5 or less southbound left turns into the Nickel & Nickel driveway.

As shown in **Table 11** for "without" project conditions, with the two driveway connections to SR 29 treated as two "Tee" intersections, left turns into both driveways will operate acceptably at LOS B during both the Friday and Saturday PM peak hours in 2017, 2020 and 2030. Left turns from both the Nickel & Nickel and Mondavi driveways will operate at either LOS D or C during both peak hours in 2017 and 2020. By the 2030 (cumulative) horizon, left turns out of the Nickel & Nickel driveway will be operating at LOS E during both evaluated peak hours, while left turns out of the Mondavi driveway will be operating at LOS E during the Friday PM peak hour and LOS D during the Saturday PM peak hour.

Also as shown in **Table 11**, with the addition of project traffic the average delay for southbound left turns into the Nickel & Nickel driveway would be increased by, at most, one tenth of a second for all three analysis horizon years for either the Friday or Saturday PM peak hours, while there would be no increase in delay for northbound left turns into the Mondavi production driveway. For left turns out of the Nickel & Nickel driveway, the addition of project traffic would increase average delays by 1 to 2 seconds during either peak hour in 2017, by about 2 seconds during either peak hour in 2020, and by about 3 seconds (on Friday) and 4 seconds (on Saturday) for cumulative conditions in 2030. Outbound left turn operation would be LOS D or E in 2020 and LOS E in 2030. Some drivers making left turns out of either the Nickel & Nickel or Mondavi Winery production facility driveways would be taking advantage of the median refuge area, particularly employees familiar with its use.

The 60-foot section of the SR 29 median refuge area between the offset driveways would be used by drivers turning both north into the Mondavi Winery production facility driveway as well as south into the Nickel & Nickel main driveway. There is a very small probability that there may be 2 vehicles traveling in opposite directions along SR 29 desiring to turn left into both driveways at the same time. For situations such as this, use of the continuous two-way left turn lane between these driveways will be on a first come, first served basis with the driver traveling in the opposite direction (and not in the turn lane) needing to slow significantly to enter the turn lane immediately after passing the vehicle already in the turn lane. This would result in slowing of the second vehicle to enter the turn lane that could momentarily disrupt the flow of through traffic going in the same direction. It should also be noted that the vast majority of the northbound drivers turning left into the Mondavi Winery production facility will be employees or delivery people familiar with the operation of the offset driveways and use of the continuous turn lane. ***Less than Significant.***

XI. PROJECT ACCESS IMPACTS

A. SIGHT LINE ADEQUACY AT SR 29/NICKEL & NICKEL WINERY DRIVEWAY INTERSECTION

Sight lines at the SR 29/Nickel & Nickel Winery main driveway intersection are acceptable to the north and south along SR 29. Existing sight lines are as follows for a driver exiting the site.

Sight line to the north along SR 29 (to see southbound vehicles) > 1,000 feet
Sight line to the south along SR 29 (to see northbound 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
50 mph	430 feet
60 mph	580 feet

Source: Caltrans Highway Design Manual, March 2014

The posted speed limit at the project entrance is 50 miles per hour, although some vehicles were observed traveling 5 to 10 mph higher than the posted limit during a field survey by Crane Transportation Group. However, based upon either the 50 or 60 mile per hour criteria, there are adequate sight lines to both the north and south along SR 29 for a driver exiting the winery main driveway. Also, sight lines at the winery secondary driveway connection to the state highway at the south end of the site are the same as at the main driveway connection, and are acceptable. ***Less than Significant***.

B. PROJECT ENTRANCE LEFT TURN LANE REQUIREMENT

A continuous two-way left turn lane is already in place in the median along SR 29 both at the winery's main driveway connection near the north end of the site as well as at the secondary driveway connection near the south end of the site. ***Less than Significant.***

XII. MARKETING EVENTS

No new marketing events are proposed.

XIII. CONCLUSIONS & RECOMMENDATIONS

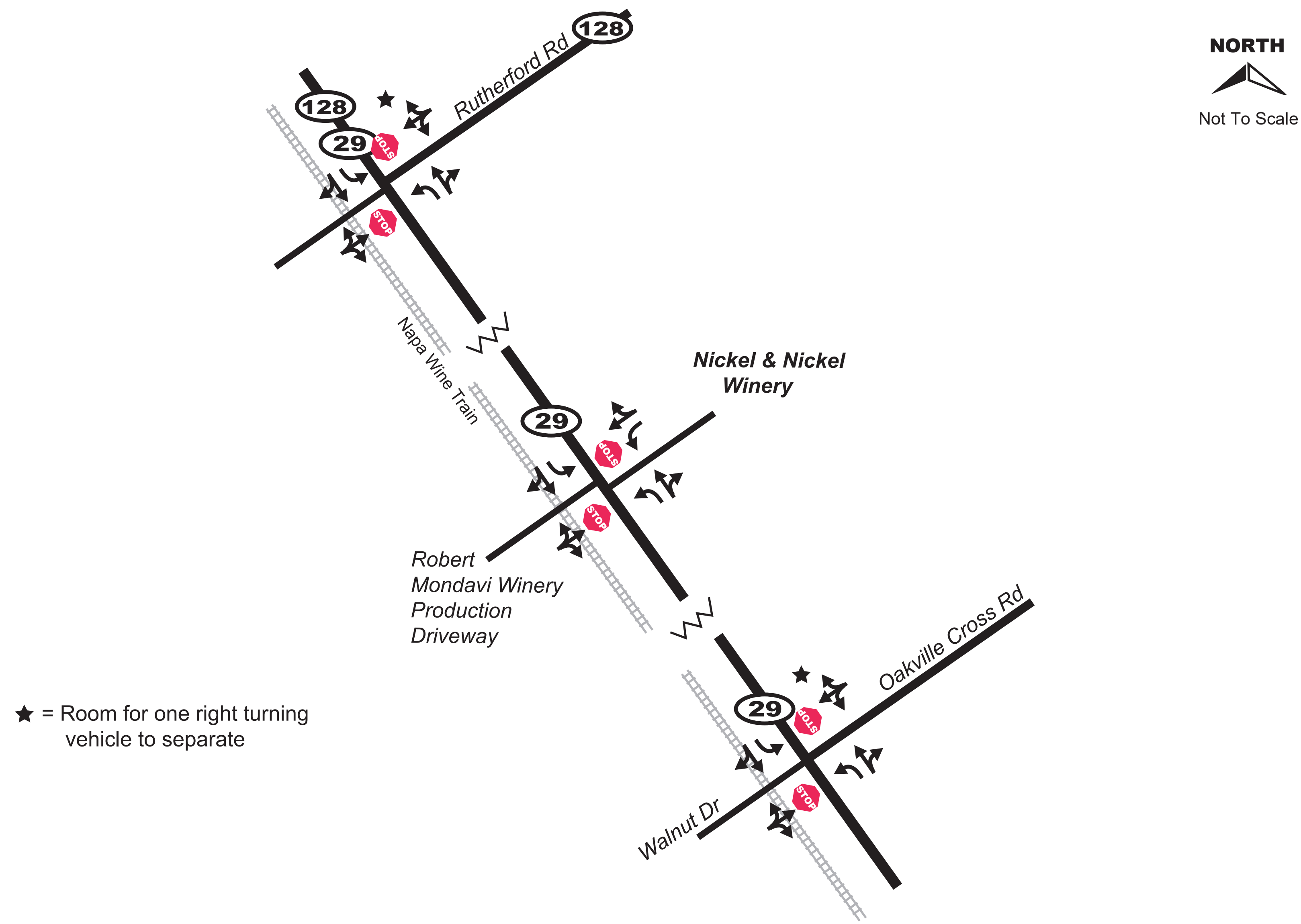
The project would result in no significant off-site circulation system operational impacts to SR 29 or to the SR 29 intersections with Oakville Cross Road or Rutherford Road. In addition, a continuous two-way left turn lane is already provided along SR 29 in the project vicinity and sight lines are acceptable at both the main project driveway connection to the state highway at the north end of the site as well as at the secondary driveway connection at the south end of the site. No mitigation measures are required.

Figures

Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

Figure 1
Area Map

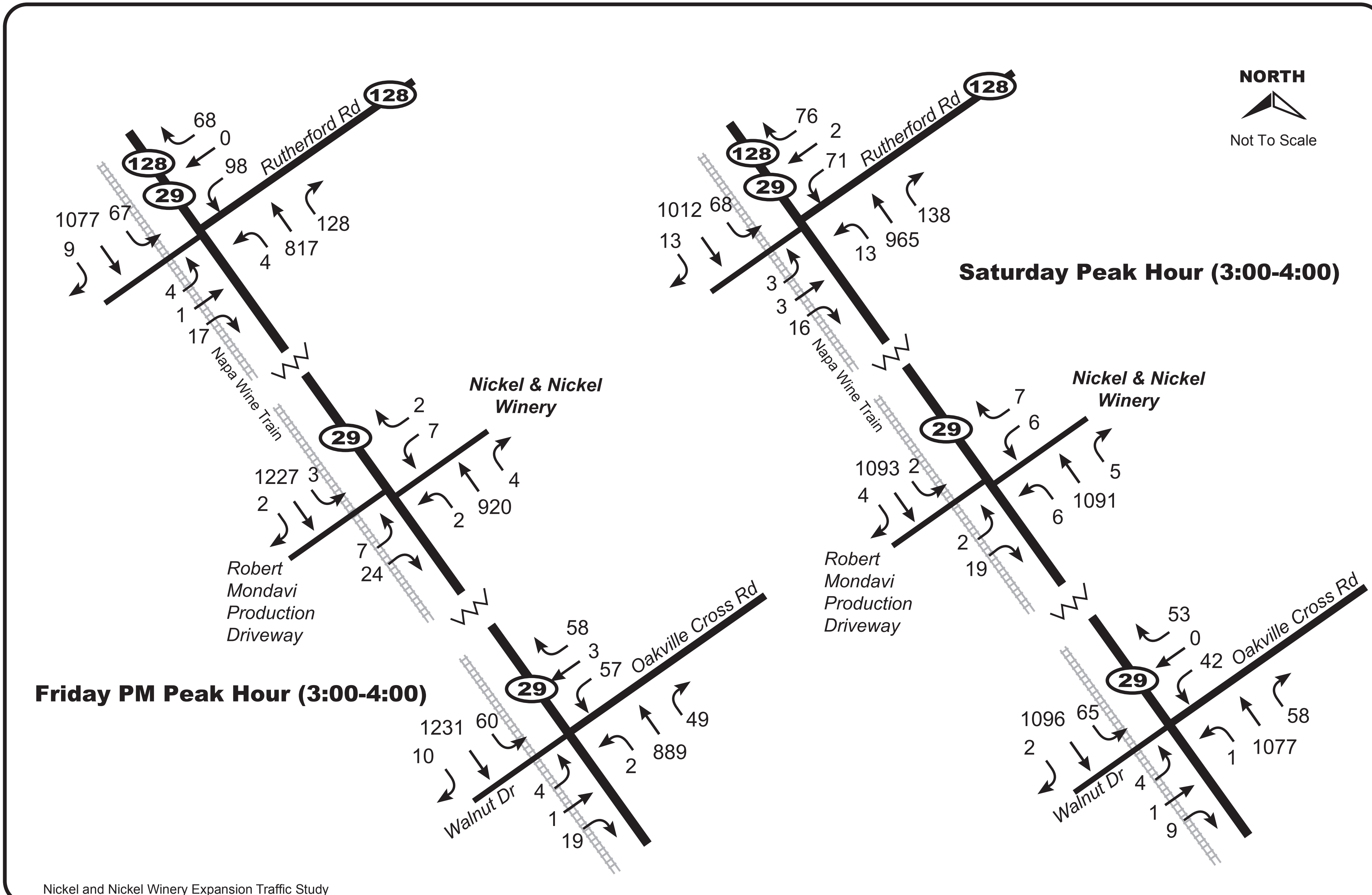


Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

Figure 2

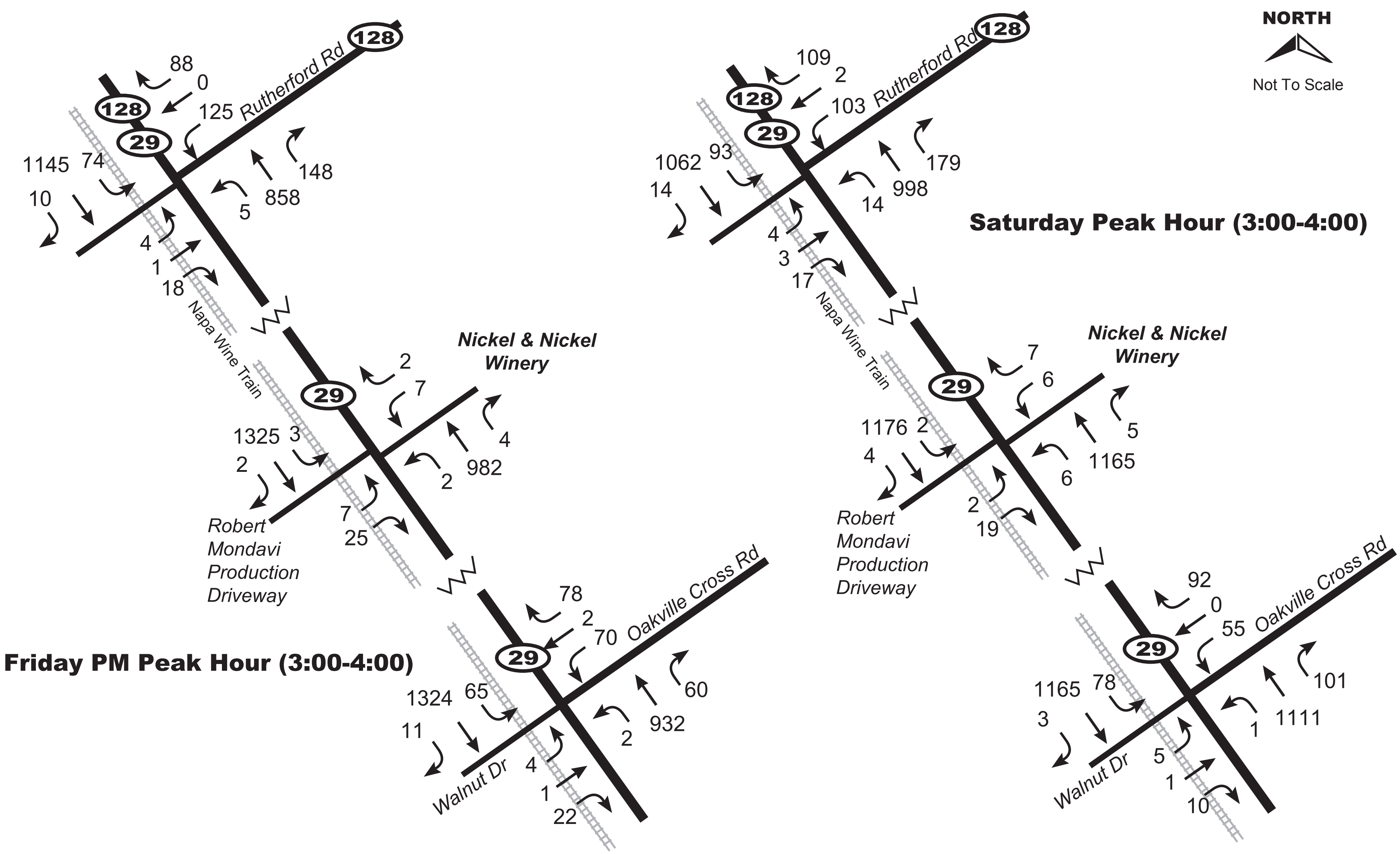
Existing Lane Geometrics and Intersection Control



CRANE TRANSPORTATION GROUP

Figure 3

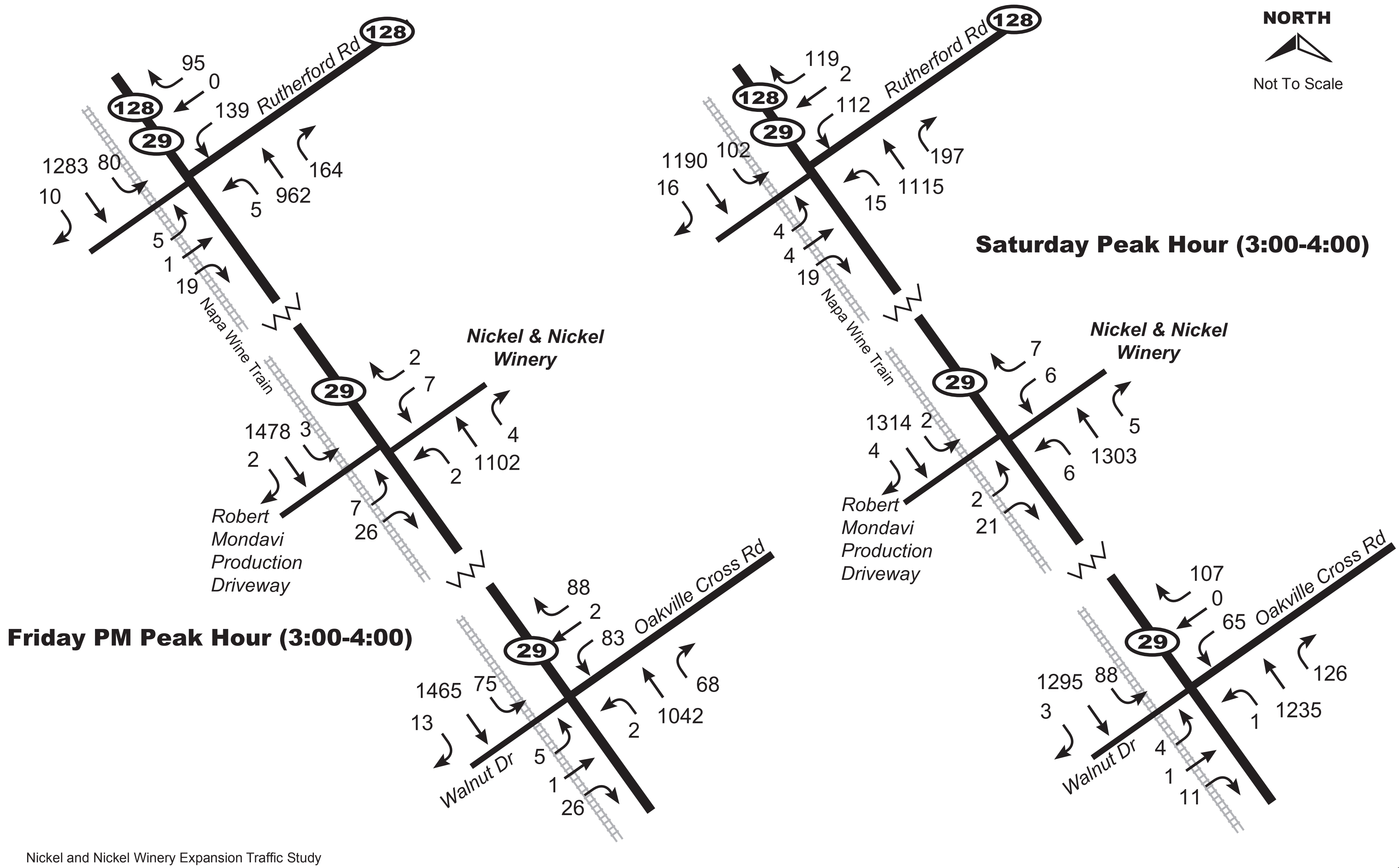
Existing (2017) without Project Harvest Friday & Saturday PM Peak Hour Traffic Volumes



Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

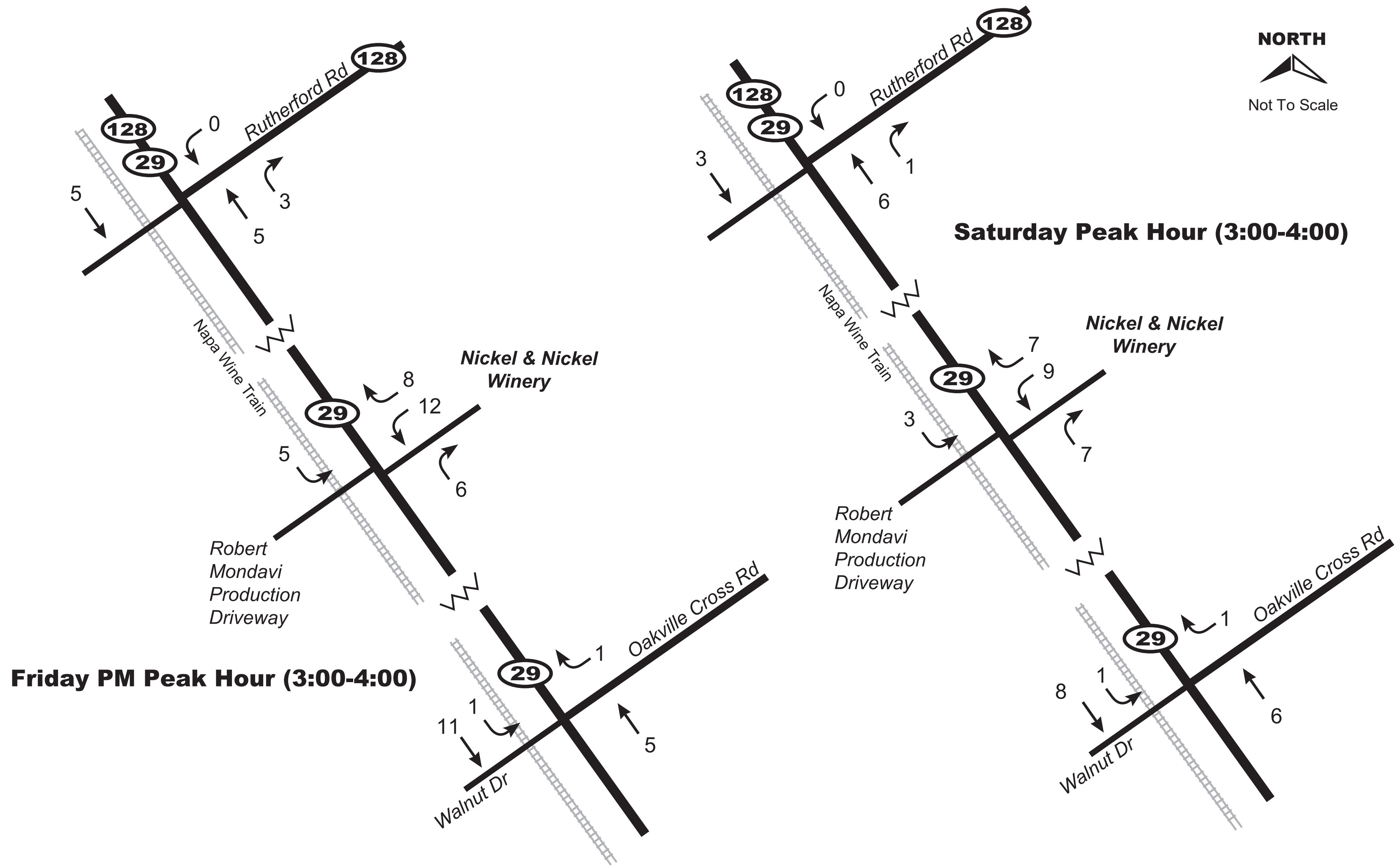
Figure 4
Year 2020 without Project Harvest Friday & Saturday PM Peak Hour Traffic Volumes



CRANE TRANSPORTATION GROUP

Figure 5

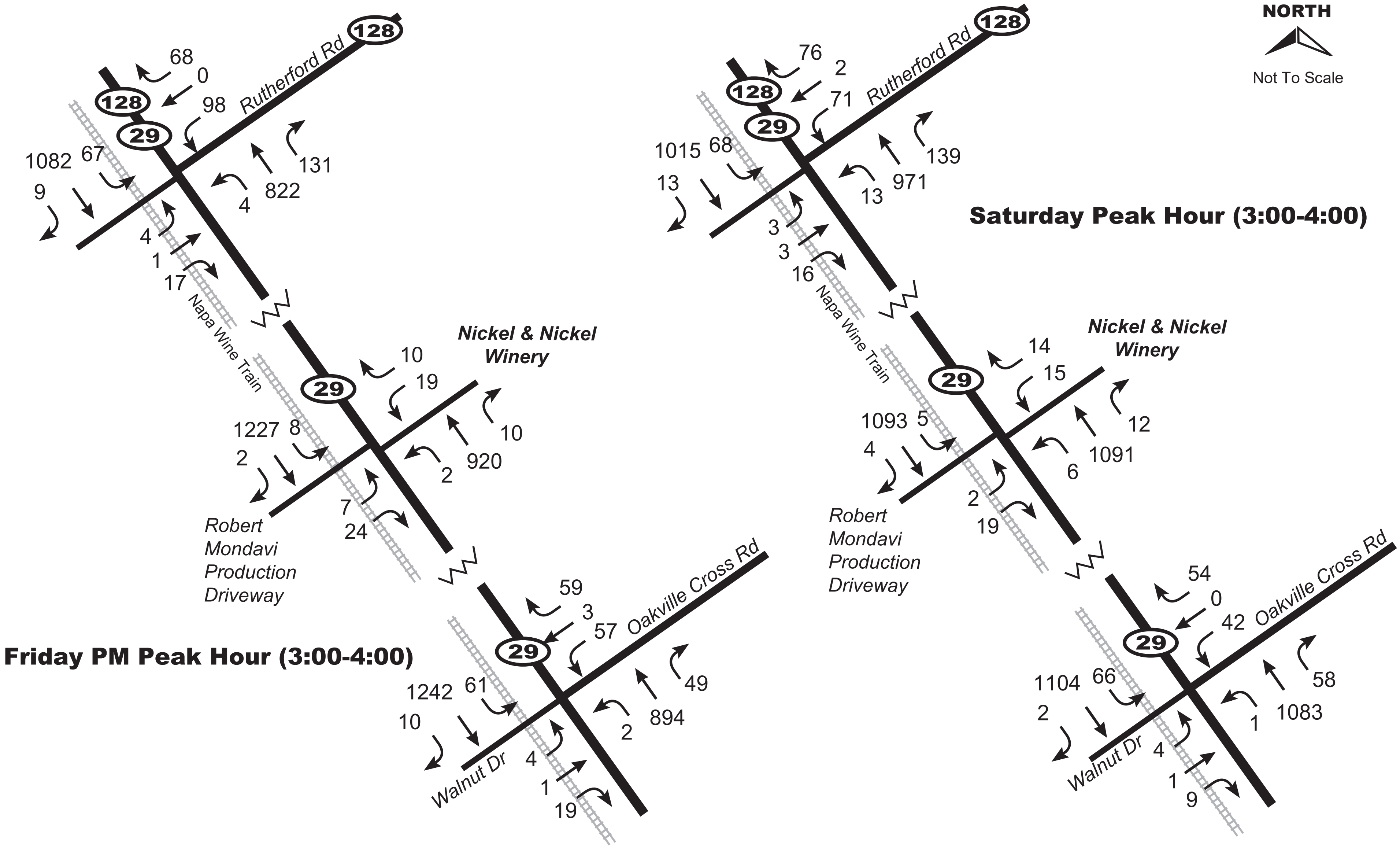
Year 2030 (Cumulative) without Project Harvest Friday & Saturday PM Peak Hour Traffic Volumes



Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

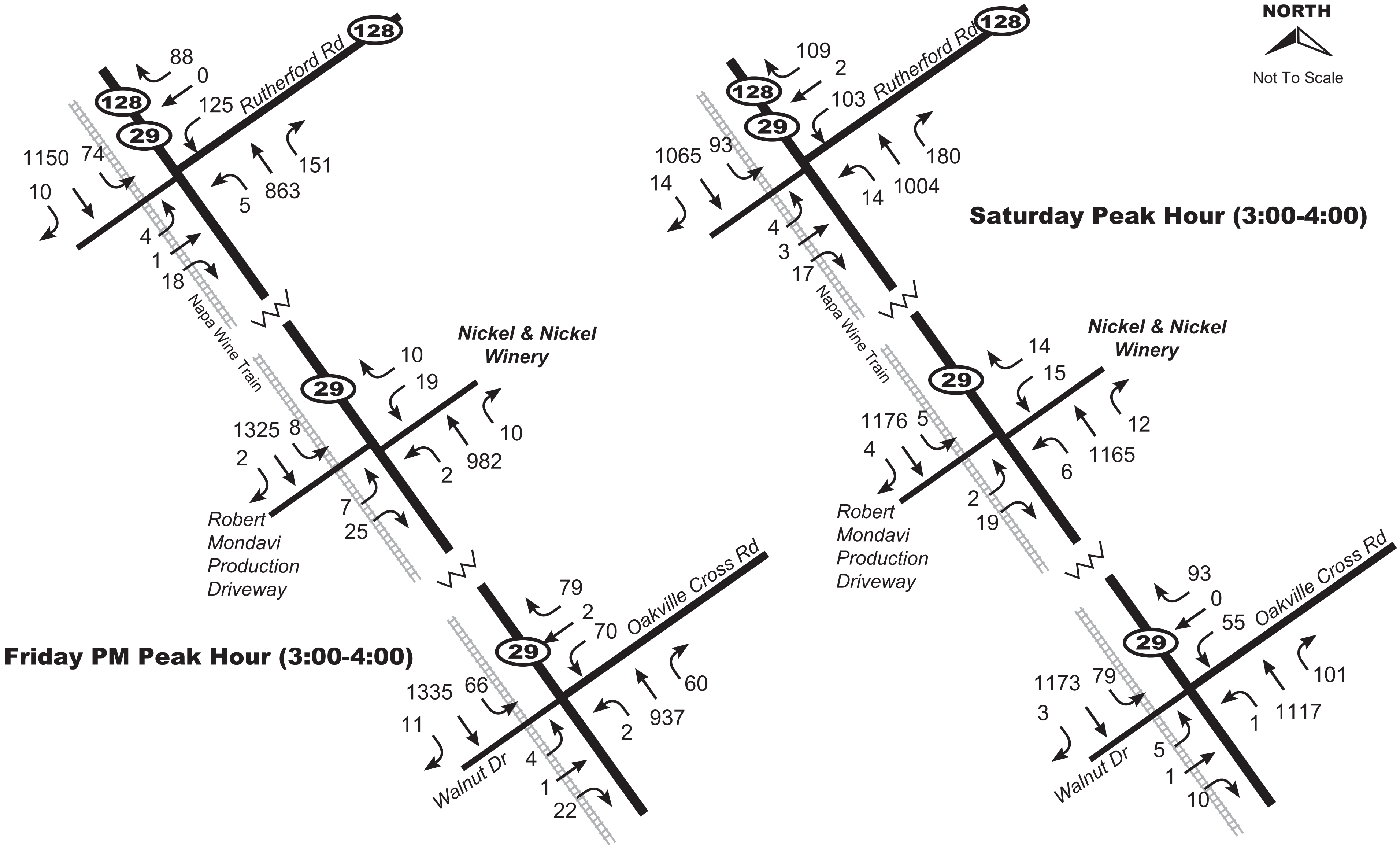
Figure 6
Harvest Friday & Saturday PM Peak Hour
Project Increments



Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

Figure 7
Existing (2017) with Project Harvest Friday & Saturday PM Peak Hour Traffic Volumes



Nickel and Nickel Winery Expansion Traffic Study

CRANE TRANSPORTATION GROUP

Figure 8
Year 2020 with Project Harvest Friday & Saturday PM Peak Hour Traffic Volumes

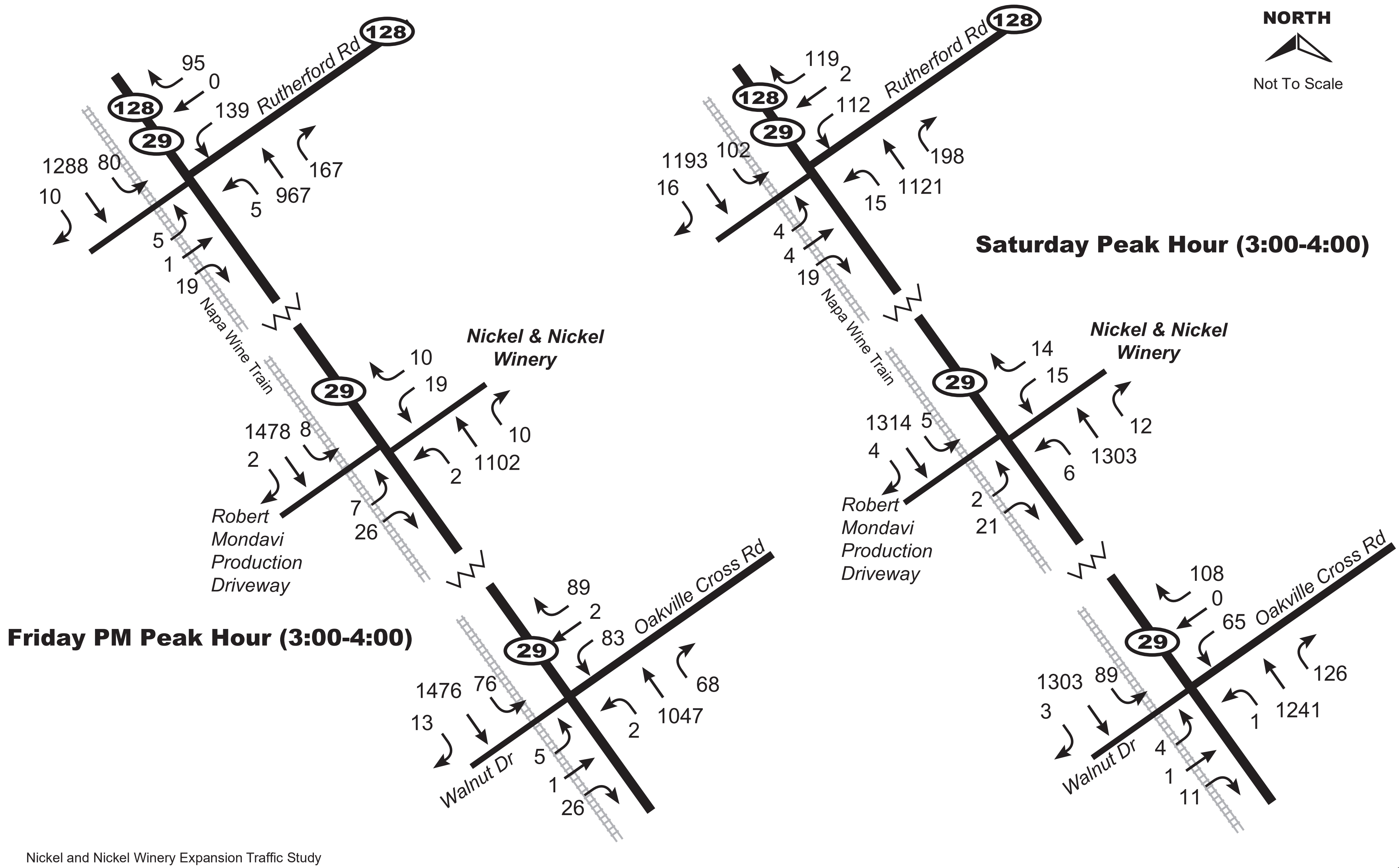


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Figure 9

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

Tables

Table 1

SIGNALIZED INTERSECTION LOS CRITERIA

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

Source: 2017 Highway Capacity Manual Version 6 (Transportation Research Board).

Table 2

UNSIGNALIZED INTERSECTION LOS CRITERIA

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

Source: 2017 Highway Capacity Manual Version 6 (Transportation Research Board).

Table 3

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29 NORTH OF OAKVILLE CROSS ROAD & SOUTH OF RUTHERFORD ROAD

YEAR 2017

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL[(1)]	LOS[(2)]	VOL	LOS	VOL	LOS	VOL	LOS
SR 29 South of Rutherford Road	NB	1200	949	E	957	E [0.8%]	1116	E	1123	E [0.6%]
	SB	1200	1192	E	1197	E [0.4%]	1099	E	1102	E [0.3%]
SR 29 North of Oakville Cross Road	NB	1200	959	E	965	E [0.6%]	1134	E	1141	E [0.6%]
	SB	1200	1301	F	1313	F [0.9%]	1163	E	1172	E [0.8%]

(1) VOL = volume
(2) LOS = level of service
[ ] = % growth in traffic due to the project.
Bolded results = significant impact (any increase 1% or greater).

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

Compiled by: Crane Transportation Group

Table 4

INTERSECTION LEVEL OF SERVICE

EXISTING – 2017 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	FRIDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT
SR 29/Oakville Cross Road	F-*(1)	F-* [0.7%](3)	F-*	F-* [0.8%](3)
SR 29/Rutherford Road	F-*(2)	F-* [0.6%](3)	F-*	F-* [0.6%](3)

YEAR 2020 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	FRIDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT
SR 29/Oakville Cross Road	F-*(1)	F-* [0.7%](3)	F-*	F-* [0.7%](3)
SR 29/Rutherford Road	F-*(2)	F-* [0.5%](3)	F-*	F-* [0.6%](3)

CUMULATIVE (YEAR 2030) HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	FRIDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) W/O PROJECT	SATURDAY PM PEAK HOUR (3:00-4:00 PM) WITH PROJECT
SR 29/Oakville Cross Road	F-*(1)	F-* [0.6%](4)	F-*	F-* [0.6%](4)
SR 29/Rutherford Road	F-*(2)	F-* [0.5%](4)	F-*	F-* [0.5%](4)

(1) Unsignalized level of service – control delay in seconds for the stop sign controlled Oakville Cross Road approach.
(2) Unsignalized level of service – control delay in seconds for the stop sign controlled Rutherford Road approach.
(3) [xx%] – Percentage project traffic of total traffic on the westbound intersection approach.
(4) [yy%] – Percentage project traffic of the growth in traffic from Existing to Cumulative conditions on the westbound intersection approach.

A 10% or greater increase in traffic due to the project is considered significant for Existing and 2020 conditions.
A 5% or greater increase in the growth in traffic from Existing to Cumulative horizons due to the project is considered significant for Cumulative conditions.

* - Westbound Approach Delay is greater than 180 seconds.

Year 2017 Highway Capacity Manual Version 6 (HCM) Analysis Methodology – individual approach or turn movement results
Source: Crane Transportation Group

Table 5

INTERSECTION SIGNAL WARRANT EVALUATION

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

EXISTING – 2017 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM)		SATURDAY PM PEAK HOUR (3:00-4:00 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Oakville Cross Road	Yes	Yes R, U [.7%]	Yes	Yes R, U [.9%]
SR 29/Rutherford Road	Yes	Yes R, U [.6%]	Yes	Yes R, U [.7%]

YEAR 2020 HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM)		SATURDAY PM PEAK HOUR (3:00-4:00 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Oakville Cross Road	Yes	Yes R, U [.7%]	Yes	Yes [.8%]
SR 29/Rutherford Road	Yes	Yes R, U [.5%]	Yes	Yes [.6%]

CUMULATIVE (YEAR 2030) HARVEST

LOCATION	FRIDAY PM PEAK HOUR (3:00-4:00 PM)		SATURDAY PM PEAK HOUR (3:00-4:00 PM)	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Oakville Cross Road	Yes	Yes R, U [.6%]	Yes	Yes R, U [.7%]
SR 29/Rutherford Road	Yes	Yes R, U [.5%]	Yes	Yes R, U [.6%]

[Percent project traffic entering intersection.] Less than a 1% increase is not considered a significant impact.
*R = Rural criteria, U = Urban criteria

Source: Crane Transportation Group

Table 6

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29 NORTH OF OAKVILLE CROSS ROAD & SOUTH OF RUTHERFORD ROAD

YEAR 2020

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL[1]	LOS[2]	VOL	LOS	VOL	LOS	VOL	LOS
SR 29 South of Rutherford Road	NB	1200	1011	E	1019	E [0.8%]	1191	E	1198	E [0.6%]
	SB	1200	1288	F	1293	F [0.4%]	1182	E	1185	E [0.3%]
SR 29 North of Oakville Cross Road	NB	1200	1014	E	1020	E [0.6%]	1208	F	1215	F [0.6%]
	SB	1200	1400	F	1412	F [0.9%]	1246	F	1255	F [0.7%]

(1) VOL = volume
(2) LOS = level of service

[ ] = % growth in traffic due to the project.
Bolded results = significant impact (any increase 1% or greater).

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

Compiled by: Crane Transportation Group

Table 7

ROADWAY SEGMENT LEVEL OF SERVICE

SR 29 NORTH OF OAKVILLE CROSS ROAD & SOUTH OF RUTHERFORD ROAD

CUMULATIVE (YEAR 2030)

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL[1]	LOS[2]	VOL	LOS	VOL	LOS	VOL	LOS
SR 29 South of Rutherford Road	NB	1200	1131 (182)	E	1139	E [3.8%]	1327 (211)	F	1334	F [3.3%]
	SB	1200	1441 (249)	F	1446	F [2.0%]	1321 (222)	F	1324	F [1.4%]
SR 29 North of Oakville Cross Road	NB	1200	1135 (176)	E	1141	E [3.4%]	1346 (212)	F	1353	F [3.3%]
	SB	1200	1553 (252)	F	1565	F [4.8%]	1386 (223)	F	1395	F [4.0%]

(1) VOL = volume
(2) LOS = level of service

( ) = "without project" growth in traffic between Existing and Cumulative conditions.
[ ] = % project traffic increment added to the growth in traffic between Existing and Cumulative conditions.
Bolded results = significant impact (any increase 5% or greater).

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

Compiled by: Crane Transportation Group

Table 8

PROJECT TRIP GENERATION
NICKEL & NICKEL WINERY EXPANSION

HARVEST

FRIDAY

	TOTAL	HOURS	TRIPS					
			3-4 PM*		4-5 PM		5-6 PM	
			IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	15	8:00 AM-4:30 PM	0	0	0	15	0	0
Production Employees – Full Time	11	6:00 AM-6:00 PM	0	0	0	0	0	0
Landscaping	2	7:00 AM-3:30 PM	0	2	0	0	0	0
Tours/Tasting Employees	18	8:00 AM-6:30 PM	0	0	0	0	0	0
Grape Delivery Trucks 30 days/year	2	5:00 AM-3:00 PM	0	0	0	0	0	0
Other Trucks (Bottle Supply/Case Pickup)	3	7:00 AM-3:00 PM	0	0	0	0	0	0
Visitors	185 = 72 cars(1)	10:00 AM= 6:00 PM	11	18	9	11	0	9
TOTAL			11	20	9	26	0	9

* Peak traffic hour at SR 29/Oakville Cross Road and SR 29/Rutherford Road intersections.
(1) 2.6 visitors/vehicle average on weekdays per County data.

Source: Nickel & Nickel Winery project applicant; Compiled by: Crane Transportation Group

Table 9

PROJECT TRIP GENERATION
NICKEL & NICKEL WINERY EXPANSION

HARVEST

SATURDAY

	TOTAL	HOURS	TRIPS 2-3 PM IN		3-4 PM* IN		4-5 PM IN		5-6 PM IN	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees – Full Time	0	–	0	0	0	0	0	0	0	0
Production Employees – Full Time	11	6:00 AM- 6:00 PM	0	0	0	0	0	0	0	0
Tours/Tasting Employees	18	9:00 AM - 6:30 PM	0	0	0	0	0	0	0	0
Grape Delivery Trucks 30 days/year	2 max.	5:00 AM- 3:00 PM	0	0	0	0	0	0	0	0
Visitors	185 = 66 cars(1)	10:00 AM- 6:00 PM	16	17	10	16	8	10	0	8
TOTAL			16	17	10	16	8	10	0	8

* Peak traffic hour at SR 29/Oakville Cross Road and SR 29/Rutherford Road intersections.
(1) 2.8 visitors/vehicle average on weekdays per County data.

Source: Nickel & Nickel Winery project applicant; Compiled by: Crane Transportation Group

Table 10

PROJECT PEAK HOUR TRIP GENERATION SUMMARY

HARVEST

FRIDAY PM PEAK HOUR* (3:00-4:00)		SATURDAY PM PEAK HOUR* (3:00-4:00)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
11	20	10	16

* Peak hour at the SR 29/Oakville Cross Road and SR 29/Rutherford Road intersections.
Source: Nickel & Nickel Winery; compiled by Crane Transportation Group

Table 11

INTERSECTION LEVELS OF SERVICE SR 29/NICKEL & NICKEL MAIN DRIVEWAY AND SR 29/MONDAVI WINERY PRODUCTION FACILITY DRIVEWAY "TEE" INTERSECTIONS

EXISTING – 2017 HARVEST

LOCATION	FRIDAY PM PEAK HOUR 3-4 PM		SATURDAY PM PEAK HOUR 3-4 PM	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Nickel & Nickel Driveway	D-29.8/B-10.1(1)	D-31.7/B-10.2	D-29.7/B-10.9	D-30.4/B-10.9
SR 29/Mondavi Driveway	D-26.8/B-11.8(2)	D-26.8/B-11.8	C-21.6/B-10.9	C-21.6/B-10.9

YEAR 2020 HARVEST

LOCATION	FRIDAY PM PEAK HOUR 3-4 PM		SATURDAY PM PEAK HOUR 3-4 PM	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Nickel & Nickel Driveway	D-33.2/B-10.4(1)	D-35.4/B-10.5	D-33.0/B-11.3	E-35.2/B-11.4
SR 29/Mondavi Driveway	D-30.5/B-12.4(2)	D-30.8/B-12.4	C-23.8/B-11.4	C-24.0/B-11.4

YEAR 2030 HARVEST

LOCATION	FRIDAY PM PEAK HOUR 3-4 PM		SATURDAY PM PEAK HOUR 3-4 PM	
	W/O PROJECT	WITH PROJECT	W/O PROJECT	WITH PROJECT
SR 29/Nickel & Nickel Driveway	E-37.6/B-10.8(1)	E-40.6/B-10.9	E-40.0/B-12.1	E-43.7/C-12.2
SR 29/Mondavi Driveway	E-35.4/B-13.2(2)	E-35.4/B-13.2	D-28.5/B-12.2	D-28.5/B-12.2

(1) Unsignalized level of service – control delay in seconds for the stop sign controlled Nickel & Nickel Main Driveway approach to SR 29/Southbound left turn from SR 29 into Nickel & Nickel driveway.

(2) Unsignalized level of service – control delay in seconds for the stop sign controlled Mondavi Driveway approach to SR 29/Northbound left turn from SR 29 into Mondavi Driveway.

6th Edition Highway Capacity Manual (HCM) Analysis Methodology – individual approach or turn movement results
Source: Crane Transportation Group

Appendix

Appendix

Nickel & Nickel

Winery Traffic Information / Trip Generation Sheet

Traffic during a Typical Weekday

Number of FT employees: 67 x 3.05 one-way trips per employee	=	204	daily trips.
Number of PT employees: 6 x 1.90 one-way trips per employee	=	11	daily trips.
Average number of weekday visitors: 205 / 2.6 visitors per vehicle x 2 one-say trips	=	158	daily trips.
Gallons of production: 225,000 1,000 x .009 truck trips daily[3] x 2 one-way trips	=	4	daily trips.
Total	=	377	daily trips.
Number of total weekday trips X .38	=	143	PM peak trips.

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 67 x 3.05 one-way trips per employee	=	204	daily trips.
Number of PT employees (on Saturdays): 6 x 1.90 one-way trips per employee	=	11	daily trips.
Average number of Saturday visitors: 260 / 2.8 visitors per vehicle x 2 one-say trips	=	92	daily trips.
Total	=	307	daily trips.
Number of total Saturday trips X .57	=	175	PM peak trips.

Traffic during a Crush Saturday

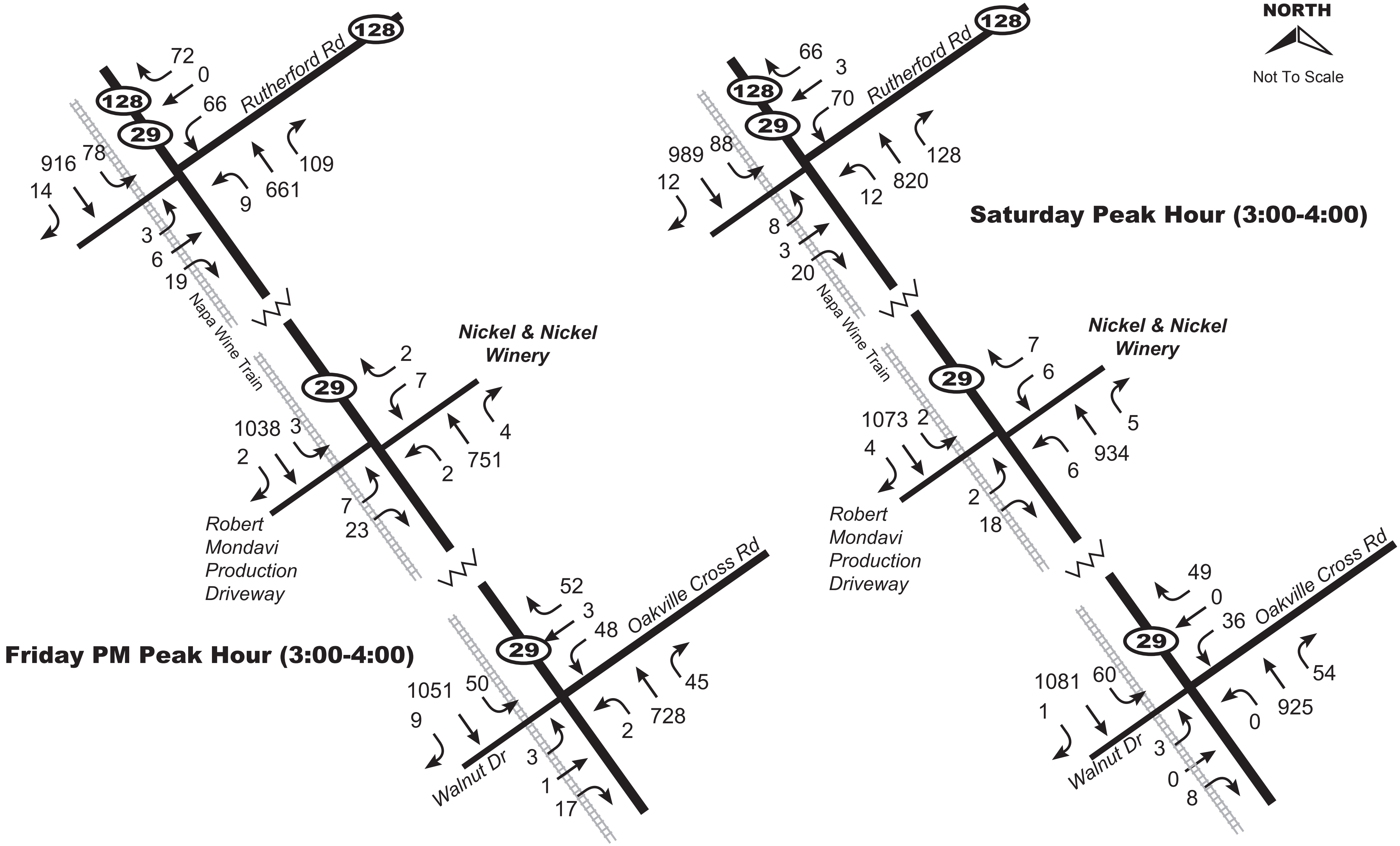
Number of FT employees (during crush): 67 x 3.05 one-way trips per employee	=	204	daily trips.
Number of PT employees (during crush): 6 x 1.90 one-way trips per employee	=	11	daily trips.
Average number of Saturday visitors: 260 / 2.8 visitors per vehicle x 2 one-say trips	=	92	daily trips.
Gallons of production: 225,000 / 1,000 x .009 truck trips daily x 2 one-way trips	=	4	daily trips.
Avg. annual tons of grape on-haul: 417 x.11 truck trips daily [4] x 2 one-way trips	=	366	daily trips
Total	=	677	daily trips.
Number of total Saturday trips X .57	=	386	PM peak trips

Largest Marketing Event – Additional Traffic

Number of event staff (largest event): 25 x 2 one-way trips per staff person	=	50	trips.
Number of visitors (largest event): 250 / 2.8 visitors per vehicle x 2 one-way trips	=	180	trips.
Number of special event truck trips (largest event): 10 x 2 one-way trips	=	20	trips.

----

[3]Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).
[4]Assume 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).



Nickel and Nickel Winery Expansion Traffic Study

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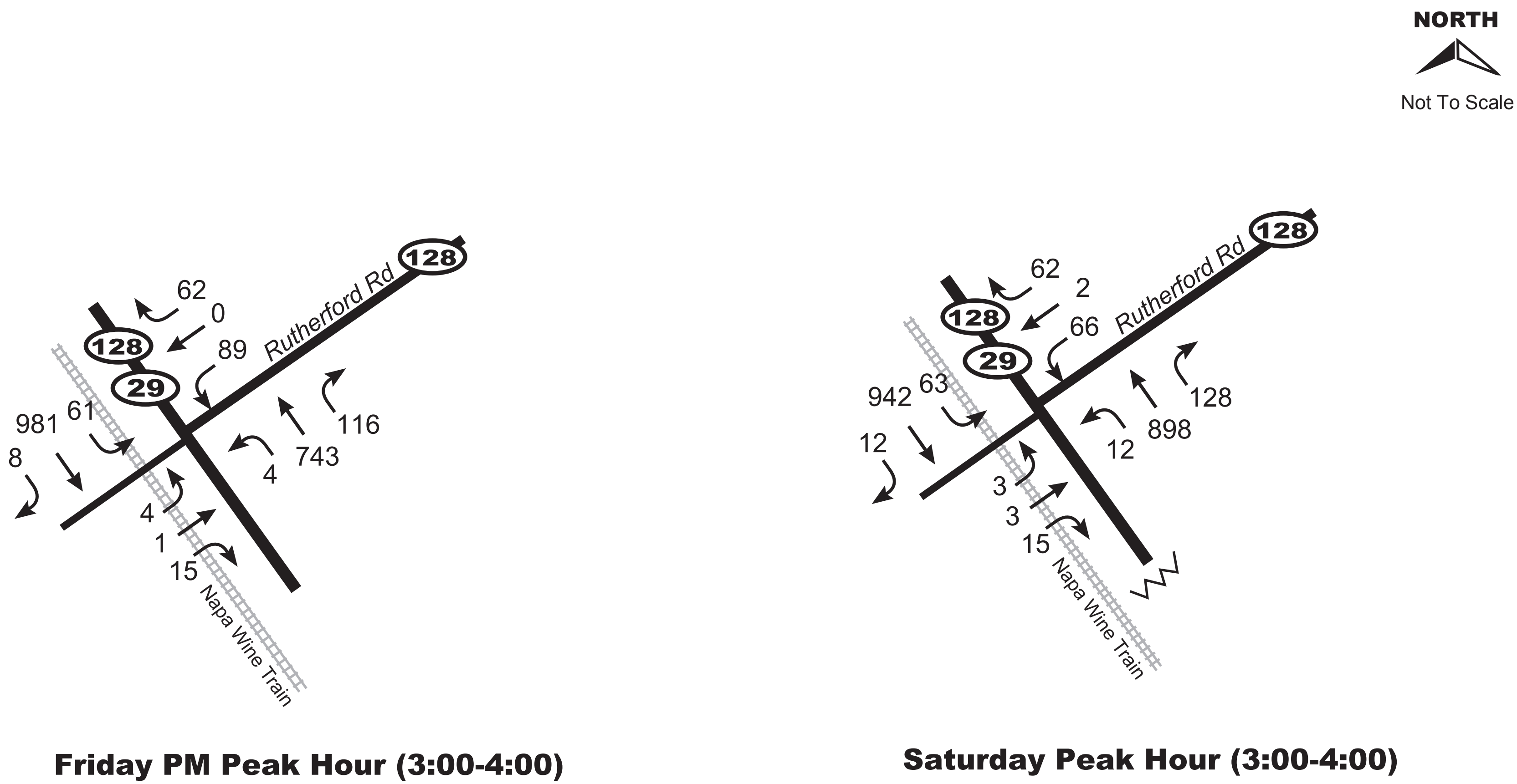
Figure A-1
Friday & Saturday PM Peak Hour Traffic Volumes
September 23 & 24, 2016



Nickel and Nickel Winery Expansion Traffic Study

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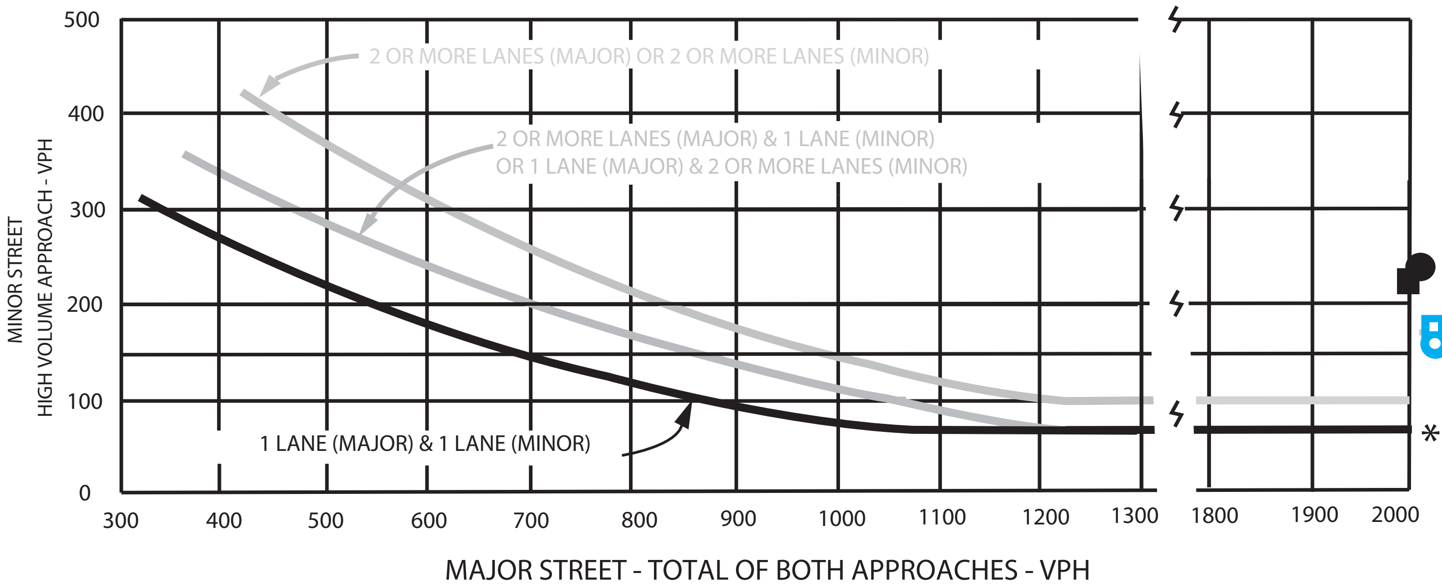
Figure A-2
Friday & Saturday PM Peak Hour Traffic Volumes
SR29/128/Rutherford Rd
June 23, 24 - 2017

State Route 29/Rutherford Rd (SR128) and State Route 29/Walnut Dr/Oakville Cross Rd

PEAK HOUR VOLUME WARRANT #3 (Rural Area)



Friday PM Peak Hour (3:00-4:00) and Saturday PM Peak Hour (3:00-4:00)

● = existing Friday PM Peak Hour - SR29/Rutherford Rd (SR 128)
■ = existing Saturday Peak Hour - SR29/Rutherford Rd (SR 128)
○ = existing Friday PM Peak Hour - SR29/Walnut Dr/Oakville Cross Rd
□ = existing Saturday PM Peak Hour - SR29/Walnut Dr/Oakville Cross Rd

* 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

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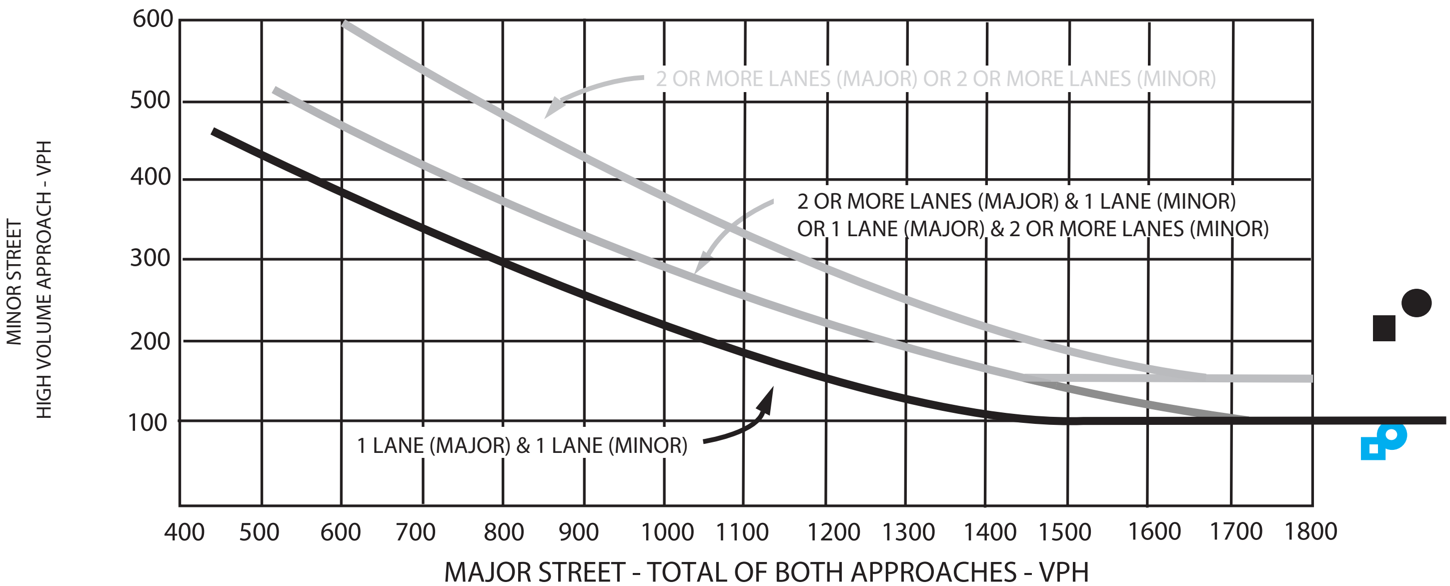
Figure A-3
Existing (without Project) Friday and Saturday PM Peak Hour Rural Signal Warrant #3
State Route 29/Rutherford Rd (SR128) and State Route 29/Walnut Dr/Oakville Cross Rd

State Route 29/Rutherford Rd (SR128) and State Route 29/Walnut Dr/Oakville Cross Rd

PEAK HOUR VOLUME WARRANT #3
(Urban Area)



Friday PM Peak Hour (3:00-4:00) and Saturday PM Peak Hour (3:00-4:00)

- ● = existing Friday PM Peak Hour - SR29/Rutherford Rd (SR 128)
- ■ = existing Saturday Peak Hour - SR29/Rutherford Rd (SR 128)
- ○ = existing Friday PM Peak Hour - SR29/Walnut Dr/Oakville Cross Rd
- □ = existing Saturday PM Peak Hour - SR29/Walnut Dr/Oakville Cross Rd

* 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

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Figure A-4

Existing (without Project) Friday and Saturday PM Peak Hour Urban Signal Warrant #3 State Route 29/Rutherford Rd (SR128) and State Route 29/Walnut Dr/Oakville Cross Rd

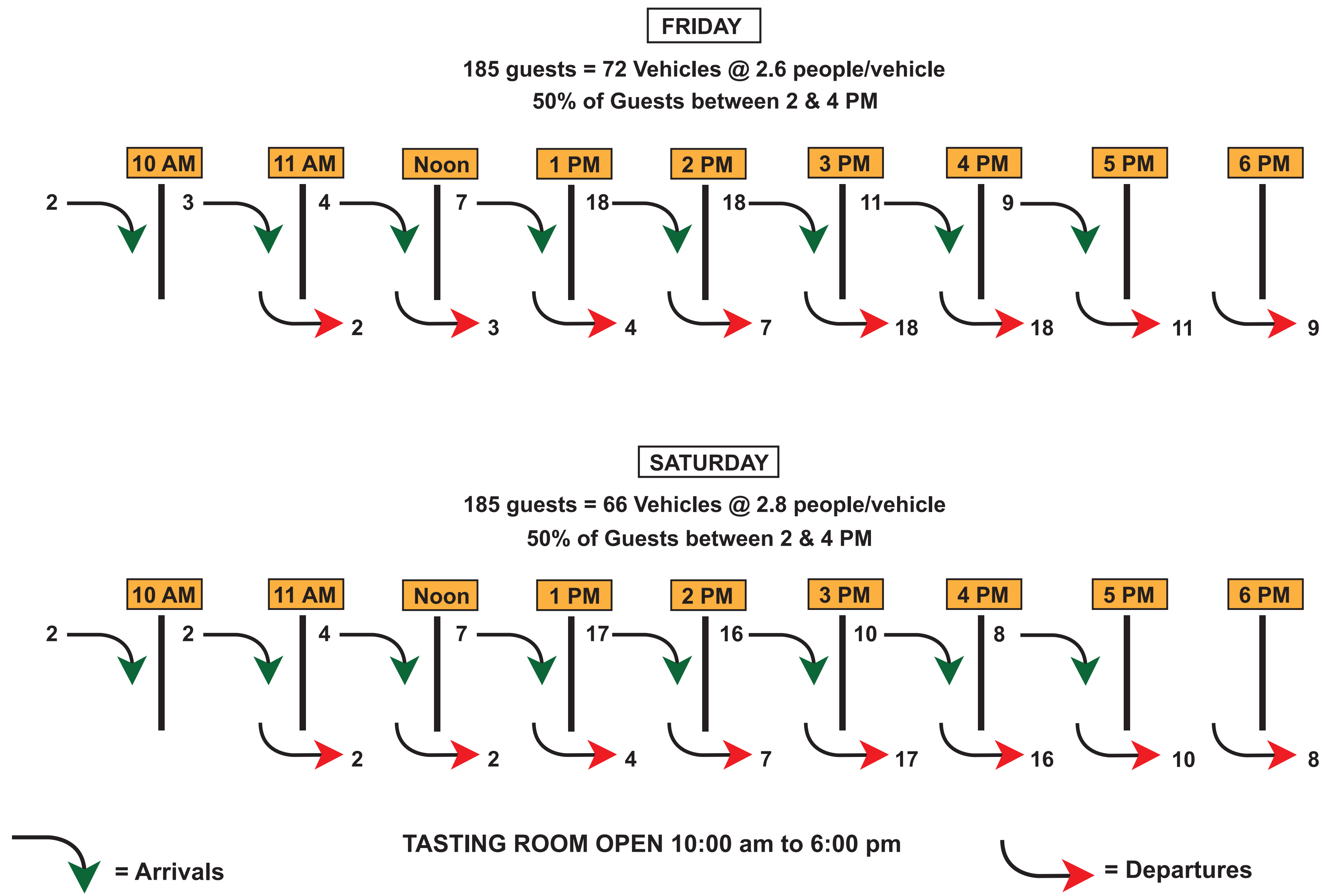

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Figure A-5

Nickel and Nickel Winery
Distribution of New Guests by Appointment

Appendix Table A-1

NAPA VALLEY SEASONAL TRAFFIC ADJUSTMENT FACTORS FOR SR 29 AND SILVERADO TRAIL TO REFLECT SEPTEMBER (HARVEST) CONDITIONS

BASED UPON CALTRANS PeMS MONTHLY VOLUMES FOR FRIDAY 3:00-6:00 PM AND SATURDAY 2:00-6:00 PM ON SR 29 NORTH OF TRANCAS STREET

2015 + 2016	NB	SB	Total	# of Days	Total/Day	% of high	Conversion Factor
Fridays							
JAN	31436	37294	68730	9	7637	0.882	1.134
FEB	28807	33416	62223	8	7778	0.898	1.114
MAR	30554	33656	64210	8	8026	0.927	1.079
APR	35960	39187	75147	9	8350	0.964	1.037
MAY	35842	39270	75112	9	8346	0.963	1.038
JUN	30306	32702	63008	8	7876	0.909	1.1
JUL	34873	38296	73169	9	8130	0.939	1.065
AUG	31978	33541	65519	8	8190	0.945	1.058
SEP	39290	38667	77957	9	8662	1	1
OCT	37562	36654	74216	9	8246	0.952	1.05
NOV	25621	23810	49431	6	8239	0.951	1.051
DEC	27310	30147	57457	8	7182	0.829	1.206
Saturdays							
JAN	41188	48541	89729	10	8973	0.809	1.236
FEB	36232	43264	79496	8	9937	0.896	1.116
MAR	35742	42153	77895	8	9737	0.878	1.139
APR	42159	50903	93062	9	10340	0.932	1.072
MAY	43651	50763	94414	9	10490	0.946	1.057
JUN	38635	43954	82589	8	10324	0.931	1.074
JUL	45953	48890	94843	9	10538	0.95	1.052
AUG	41188	43241	84429	8	10554	0.952	1.051
SEP	44597	44115	88712	8	11089	1	1
OCT	47806	47978	95784	9	10643	0.96	1.042
NOV	30620	33155	63775	6	10629	0.959	1.043
DEC	40459	44511	84970	9	9441	0.851	1.175

Source: Caltrans PeMS
Compiled by: Crane Transportation Group

Appendix

NICKEL & NICKEL WINERY EXPANSION
TRAFFIC ACTIVITY DETAILS – HARVEST

Existing Gallons/Year Production: 125,000
Project Increment Gallons/Year: 100,000/year: Total 225,000/year max.
1st Year of Expected Full Production After Project Completion: 2023

	EXISTING	PROJECT INCREMENT
A.	**Full-time admin employees** # on Weekdays _8__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday 8:00 AM to 4:30 PM Saturday N/A Sunday N/A	**New Full-time admin employees** # on Weekdays _15__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday 8:00 AM to 4:30 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	**New part-time admin employees** # on Weekdays _0__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday N/A Saturday N/A Sunday N/A
C.	**Full-time production employees** # on Weekdays _6__ # on Saturday __6__ # on Sunday __0__ Work hours: Weekday 6:00 AM to 6:00 PM Saturday 6:00 AM to 6:00 PM Sunday N/A	**New full-time production employees** # on Weekdays _11__ # on Saturday __11__ # on Sunday __0__ Work hours: Weekday 6:00 AM to 6:00 PM Saturday 6:00 AM to 6:00 PM Sunday N/A
D.	**Part-time production employees** # on Weekdays _6_ # on Saturday __6__ # on Sunday __0__ Work hours: Weekday 6:00 AM to 3:30 PM Saturday N/A Sunday N/A	**New part-time production employees** # on Weekdays _0__ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday N/A Saturday N/A Sunday N/A

Appendix

NICKEL & NICKEL WINERY EXPANSION
TRAFFIC ACTIVITY DETAILS – HARVEST

	EXISTING	PROJECT INCREMENT
E.	**Tours & tasting employees** # on Weekdays _4_ # on Saturday __4__ # on Sunday __4__ Work hours: Weekday 8:00 AM to 5:30 PM Saturday 9:00 AM to 5:30 PM Sunday 9:00 AM to 5:30 PM	**New tours & tasting employees** # on Weekdays _18_ # on Saturday __18__ # on Sunday __18__ Work hours: Weekday 9:00 AM to 6:30 PM Saturday 9:00 AM to 6:30 PM Sunday 9:00 AM to 6:30 PM
F.	**Landscaping** # on Weekdays _3_ # on Saturday __2__ # on Sunday __2__ Work hours: Weekday 7:00 AM to 3:30 PM Saturday 7:00 AM to 11:30 PM Sunday 7:00 AM to 11:30 PM	**New landscaping** # on Weekdays _2_ # on Saturday __0__ # on Sunday __0__ Work hours: Weekday 7:00 AM to 3:30 PM Saturday N/A Sunday N/A
G.	**Maximum tours/tasting visitors** # on Weekdays _75_ # on Saturday __75__ # on Sunday __75__ 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	**New maximum tours/tasting visitors** # on Weekdays _185_ # on Saturday __185__ # on Sunday __185__ Tasting hours: Weekday 10:00 AM to 6:00 PM Saturday 10:00 AM to 6:00 PM Sunday 10:00 AM to 6:00 PM
H.	**Grape delivery trucks avg. (max)** # on Weekdays _2 (5)_ # on Saturday __2 (5)__ # on Sunday __2 (5)__ Delivery hours: Weekday 5:00 AM to 3:00 PM Saturday 5:00 AM to 3:00 PM Sunday 5:00 AM to 3:00 PM # days of grape delivery: 30	**New grape delivery trucks avg.** # on Weekdays _2_ # on Saturday __2__ # on Sunday __2__ Delivery hours: Weekday 5:00 AM to 3:00 PM Saturday 5:00 AM to 3:00 PM Sunday 5:00 AM to 3:00 PM # days of grape delivery: 30

Appendix

NICKEL & NICKEL WINERY EXPANSION
TRAFFIC ACTIVITY DETAILS – HARVEST

	EXISTING	PROJECT INCREMENT
I.	**Other trucks** # on Weekdays _3__ # on Saturday __0__ # on Sunday __0__ Delivery hours: Weekday 7:00 AM to 3:00 PM Saturday N/A Sunday N/A	**New other trucks** # on Weekdays _3__ # on Saturday __0__ # on Sunday __0__ Delivery hours: Weekday 7:00 AM to 3:00 PM Saturday N/A Sunday N/A

J. **Grape Source & Truck Routes for Any New Grape Delivery**

Percent grapes grown on site for expanded production: 11%

Grapes grown off site for expanded production – access route to winery entrance
From the north on SR 29: 46%
From the south on SR 29: 43%

Appendix

NICKEL & NICKEL WINERY EXPANSION
TRAFFIC ACTIVITY DETAILS – HARVEST

K. **Marketing Events (excludes large special events for which the winery obtains a special permit)**

EXISTING	NEW EVENTS
# events/year: 156 maximum # people/event: 25 typical days: Monday-Sunday typical hours: 11:00 AM to 9:00 PM (lunch or dinner, not both)	No new events planned.
# events/year: 4 maximum # people/event: 100 typical days: Saturday typical hours: 10:00 AM to 5:00 PM	No new events planned.
# events/year: 1 maximum # people/event: 250 typical days: Saturday or Sunday typical hours: 6:00 PM to 10:00 PM	No new events planned.

L. **Bottling**

On-site bottling assumed for expanded production.
Days of existing on-site bottling per year: 17
Additional days per year of new on-site bottling: 35

Nickel & Nickel Single Vineyard Wines

Nickel & Nickel Winery

Transportation Demand Management Plan

March 3, 2018

Winery management presents the following Transportation Demand Management (TDM) plan. Individually or altogether, these actionable, meaningful and measurable initiatives are proposed with Nickel & Nickel's use permit modification with the intent of reducing Vehicle Miles Traveled (VMT) to/from the winery facility. In some instances, elements of this TDM plan are already established as standard business policy.

The TDM program will be administered by winery human resources manager, Bertha Rodriguez, reporting to winery president, Bruce Mooers.

- The winery will continue its current program to incentivize employee carpooling by providing the driver with a fuel and maintenance stipend.
    - The winery offers a $3 daily stipend for those employees who carpool.
    - All employees including temporary are eligible to participate after 90 days of employment.
    - Monthly participation rates are typically around 8-10 winery employees.
    - The winery will continue to participate in the emergency/guaranteed ride home program, ensuring peace of mind that all commuters can get home in the event of an emergency.
- The winery implemented the Bay Area Commuter Benefits Program in 2014.
- The winery will continue to utilize its current practice of hiring a contracted shuttle service to bring guests from pickup points in Yountville, close to hotels, to our larger events.
    - Pure Luxury Transportation, Napa Valley Tours & Transportation, and Napa Valley Limousine are vendors commonly hired by the winery

- The winery will continue to offer compressed workweek schedules for employees (Monday through Thursday) during all seasons, except for production staff during harvest.
- The winery will continue to offer work-at-home or remote-work opportunities when possible.
    - Currently two employees work in this capacity.
- The winery will continue its current practice of renting SUV's for staff to shuttle groups from local hotels for selected business meetings.
    - Note that business meetings, as defined in Napa County Board of Supervisors Resolution 2010-48 (Guidance on winery marketing activities) will be counted as a subset of marketing events, with instances replacing one-for-one existing approved marketing events in agreement with winery entitlements.
- The winery will install bike racks, or make secured space available for bike storage, to encourage that mode of transportation to both employees and visitors.
- The winery will install electric car charging stations, as depicted on the proposed site plan.
- The winery will incentivize employee usage of public transportation with a reimbursement program.
    - Access to public transportation is nearby at the Oakville bus stop, which is convenient and within walking distance.
- The winery recognizes that total employee growth to satisfy projected business operations may warrant moving some employees to offsite offices. As winery staffing levels grow towards the entitlement, management will evaluate permanently moving selected staff to newly leased or winery-owned offices in the cities of Napa or St. Helena. The location(s) of offsite offices will be determined, in part, by consideration of minimizing employee commute distance (i.e., VMT).

TECHNICAL APPENDIX

Capacity Worksheets

Intersection	
Int Delay, s/veh	38.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	19	57	3	58	2	889	49	60	1231	10
Future Vol, veh/h	4	1	19	57	3	58	2	889	49	60	1231	10
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	4	1	20	59	3	60	2	926	51	63	1282	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2400	2394	1287	2380	2374	952	1292	0	0	977	0	0
Stage 1	1413	1413	-	956	956	-	-	-	-	-	-	-
Stage 2	987	981	-	1424	1418	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	23	34	195	~ 23	35	298	543	-	-	675	-	-
Stage 1	173	206	-	301	339	-	-	-	-	-	-	-
Stage 2	300	330	-	162	205	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	16	31	195	~ 19	32	298	543	-	-	675	-	-
Mov Cap-2 Maneuver	16	31	-	~ 19	32	-	-	-	-	-	-	-
Stage 1	172	187	-	300	338	-	-	-	-	-	-	-
Stage 2	236	329	-	131	186	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	95.6	$ 746.4	0	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	543	-	-	63	19	298	675	-	-
HCM Lane V/C Ratio	0.004	-	-	0.397	3.289	0.203	0.093	-	-
HCM Control Delay (s)	11.7	-	-	95.6	$ 1448.4	20.1	10.9	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	8.3	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	24	7	0	2	2	920	4	3	1227	2
Future Vol, veh/h	7	0	24	7	0	2	2	920	4	3	1227	2
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	0	-	0	0	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	92	92	94	94
Heavy Vehicles, %	0	2	0	2	2	2	0	7	2	2	5	0
Mvmt Flow	7	0	26	7	0	2	2	979	4	3	1305	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2298	-	1306	2310	-	981	1307	0	0	983	0	0
Stage 1	1312	-	-	985	-	-	-	-	-	-	-	-
Stage 2	986	-	-	1325	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	28	0	197	27	0	303	536	-	-	703	-	-
Stage 1	197	0	-	299	0	-	-	-	-	-	-	-
Stage 2	301	0	-	192	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	28	-	197	23	-	303	536	-	-	703	-	-
Mov Cap-2 Maneuver	120	-	-	106	-	-	-	-	-	-	-	-
Stage 1	196	-	-	298	-	-	-	-	-	-	-	-
Stage 2	298	-	-	166	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.5	36.1	0	0
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	536	-	-	120	197	106	303	703	-	-
HCM Lane V/C Ratio	0.004	-	-	0.062	0.13	0.07	0.007	0.005	-	-
HCM Control Delay (s)	11.7	-	-	37	26	41.5	17	10.1	-	-
HCM Lane LOS	B	-	-	E	D	E	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	57.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	17	98	0	68	4	817	128	67	1077	9
Future Vol, veh/h	4	1	17	98	0	68	4	817	128	67	1077	9
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	4	1	17	99	0	69	4	825	129	68	1088	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2161	2191	1093	2136	2131	890	1097	0	0	954	0	0
Stage 1	1229	1229	-	898	898	-	-	-	-	-	-	-
Stage 2	932	962	-	1238	1233	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	35	46	263	~ 35	50	342	644	-	-	716	-	-
Stage 1	220	252	-	333	361	-	-	-	-	-	-	-
Stage 2	322	337	-	214	251	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	26	41	263	~ 30	45	342	644	-	-	716	-	-
Mov Cap-2 Maneuver	26	41	-	~ 30	45	-	-	-	-	-	-	-
Stage 1	219	228	-	331	359	-	-	-	-	-	-	-
Stage 2	256	335	-	180	227	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	56.9	$ 780.9	0	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	644	-	-	91	30	342	716	-	-
HCM Lane V/C Ratio	0.006	-	-	0.244	3.3	0.201	0.095	-	-
HCM Control Delay (s)	10.6	-	-	56.9	$ 1310.2	18.2	10.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	11.8	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	24	2	922	1230	2
Future Vol, veh/h	7	24	2	922	1230	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	26	2	981	1309	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2295	1310	1311	0	-	0
Stage 1	1310	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	43	196	534	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	43	196	534	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	534	-	155	196	-	-
HCM Lane V/C Ratio	0.004	-	0.048	0.13	-	-
HCM Control Delay (s)	11.8	-	29.4	26.1	-	-
HCM Lane LOS	B	-	D	D	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.4	-	-

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	2	922	4	3	1251
Future Vol, veh/h	7	2	922	4	3	1251
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	7	2	981	4	3	1331

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2320	983	0	0	985	0
Stage 1	983	-	-	-	-	-
Stage 2	1337	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	38	202	-	-	709	-
Stage 1	345	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	202	-	-	709	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	231	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	142	202	709	-
HCM Lane V/C Ratio	-	-	0.052	0.011	0.005	-
HCM Control Delay (s)	-	-	31.8	23	10.1	-
HCM Lane LOS	-	-	D	C	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	19.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	9	42	0	53	1	1077	58	65	1096	2
Future Vol, veh/h	4	1	9	42	0	53	1	1077	58	65	1096	2
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	4	1	9	44	0	55	1	1122	60	68	1142	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2461	2463	1143	2438	2434	1152	1144	0	0	1182	0	0
Stage 1	1279	1279	-	1154	1154	-	-	-	-	-	-	-
Stage 2	1182	1184	-	1284	1280	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	15	31	246	~ 22	32	236	618	-	-	577	-	-
Stage 1	163	239	-	240	274	-	-	-	-	-	-	-
Stage 2	186	265	-	202	239	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	27	246	~ 19	28	236	618	-	-	577	-	-
Mov Cap-2 Maneuver	10	27	-	~ 19	28	-	-	-	-	-	-	-
Stage 1	163	211	-	240	273	-	-	-	-	-	-	-
Stage 2	142	264	-	171	211	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	208.4	$ 464.3	0	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	618	-	-	30	19	236	577	-	-
HCM Lane V/C Ratio	0.002	-	-	0.486	2.303	0.234	0.117	-	-
HCM Control Delay (s)	10.8	-	-	208.4	$ 1018.8	24.9	12.1	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.6	5.9	0.9	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	19	6	0	7	6	1091	5	2	1093	4
Future Vol, veh/h	2	0	19	6	0	7	6	1091	5	2	1093	4
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	0	-	0	0	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	92	96	92	92	92	96	96	92	92	96	96
Heavy Vehicles, %	0	2	0	2	2	2	0	7	2	2	5	0
Mvmt Flow	2	0	20	7	0	8	6	1136	5	2	1139	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2300	-	1141	2306	-	1139	1143	0	0	1141	0	0
Stage 1	1145	-	-	1151	-	-	-	-	-	-	-	-
Stage 2	1155	-	-	1155	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	28	0	247	27	0	245	619	-	-	612	-	-
Stage 1	245	0	-	241	0	-	-	-	-	-	-	-
Stage 2	242	0	-	240	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	-	247	25	-	245	619	-	-	612	-	-
Mov Cap-2 Maneuver	120	-	-	114	-	-	-	-	-	-	-	-
Stage 1	243	-	-	239	-	-	-	-	-	-	-	-
Stage 2	232	-	-	220	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.2	28.6	0.1	0
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	619	-	-	120	247	114	245	612	-	-
HCM Lane V/C Ratio	0.01	-	-	0.017	0.08	0.057	0.031	0.004	-	-
HCM Control Delay (s)	10.9	-	-	35.5	20.8	38.5	20.2	10.9	-	-
HCM Lane LOS	B	-	-	E	C	E	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	52.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	16	71	2	76	13	965	138	68	1012	13
Future Vol, veh/h	3	3	16	71	2	76	13	965	138	68	1012	13
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	3	3	17	74	2	79	14	1005	144	71	1054	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2349	2380	1061	2318	2315	1077	1068	0	0	1149	0	0
Stage 1	1203	1203	-	1105	1105	-	-	-	-	-	-	-
Stage 2	1146	1177	-	1213	1210	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	25	35	268	~ 26	38	265	660	-	-	590	-	-
Stage 1	227	260	-	253	289	-	-	-	-	-	-	-
Stage 2	245	267	-	220	258	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	30	268	~ 20	33	265	660	-	-	590	-	-
Mov Cap-2 Maneuver	15	30	-	~ 20	33	-	-	-	-	-	-	-
Stage 1	222	229	-	248	283	-	-	-	-	-	-	-
Stage 2	167	261	-	179	227	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	95.9	$ 823.4	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	660	-	-	61	20	265	590	-	-
HCM Lane V/C Ratio	0.021	-	-	0.376	3.802	0.299	0.12	-	-
HCM Control Delay (s)	10.6	-	-	95.9	$ 1655.4	24.3	11.9	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	9.9	1.2	0.4	-	-

Notes

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

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	7	1097	5	2	1112
Future Vol, veh/h	6	7	1097	5	2	1112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	6	7	1143	5	2	1158

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2308	1146	0	0	1148	0
Stage 1	1146	-	-	-	-	-
Stage 2	1162	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	39	157	-	-	616	-
Stage 1	287	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	39	157	-	-	616	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	286	-	-	-	-	-
Stage 2	282	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	147	157	616	-
HCM Lane V/C Ratio	-	-	0.043	0.046	0.003	-
HCM Control Delay (s)	-	-	30.6	29	10.9	-
HCM Lane LOS	-	-	D	D	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0	-

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	19	6	1098	1095	4
Future Vol, veh/h	2	19	6	1098	1095	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	20	6	1144	1141	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2299	1143	1145	0	-	0
Stage 1	1143	-	-	-	-	-
Stage 2	1156	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	43	246	618	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	43	246	618	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	304	-	-	-	-	-
Stage 2	302	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	618	-	157	246	-	-
HCM Lane V/C Ratio	0.01	-	0.013	0.08	-	-
HCM Control Delay (s)	10.9	-	28.2	20.9	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0	-	0	0.3	-	-

Intersection	
Int Delay, s/veh	78.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	22	70	2	78	2	932	60	65	1324	11
Future Vol, veh/h	4	1	22	70	2	78	2	932	60	65	1324	11
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	4	1	23	73	2	81	2	971	63	68	1379	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2569	2559	1385	2540	2533	1003	1390	0	0	1034	0	0
Stage 1	1521	1521	-	1007	1007	-	-	-	-	-	-	-
Stage 2	1048	1038	-	1533	1526	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	18	27	170	~ 17	28	278	499	-	-	642	-	-
Stage 1	150	183	-	282	321	-	-	-	-	-	-	-
Stage 2	278	311	-	140	182	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	24	170	~ 13	25	278	499	-	-	642	-	-
Mov Cap-2 Maneuver	11	24	-	~ 13	25	-	-	-	-	-	-	-
Stage 1	149	164	-	281	320	-	-	-	-	-	-	-
Stage 2	195	310	-	108	163	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	145.6	$ 1318.9	0	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	499	-	-	50	13	278	642	-	-
HCM Lane V/C Ratio	0.004	-	-	0.563	5.769	0.292	0.105	-	-
HCM Control Delay (s)	12.2	-	-	145.6	$ 2722.6	23.2	11.3	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.2	10.4	1.2	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	25	7	0	2	2	982	4	3	1325	2
Future Vol, veh/h	7	0	25	7	0	2	2	982	4	3	1325	2
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	7	0	27	7	0	2	2	1045	4	3	1410	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2469	2470	1411	2482	2469	1047	1412	0	0	1049	0	0
Stage 1	1417	1417	-	1051	1051	-	-	-	-	-	-	-
Stage 2	1052	1053	-	1431	1418	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	21	31	171	18	31	183	489	-	-	671	-	-
Stage 1	172	205	-	260	306	-	-	-	-	-	-	-
Stage 2	276	306	-	157	205	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	31	171	15	31	183	489	-	-	671	-	-
Mov Cap-2 Maneuver	105	125	-	85	124	-	-	-	-	-	-	-
Stage 1	171	204	-	259	305	-	-	-	-	-	-	-
Stage 2	272	305	-	132	204	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.5	45.5	0	0
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	489	-	-	105	171	85	183	671	-	-
HCM Lane V/C Ratio	0.004	-	-	0.071	0.156	0.088	0.012	0.005	-	-
HCM Control Delay (s)	12.4	-	-	41.9	29.9	51.4	24.9	10.4	-	-
HCM Lane LOS	B	-	-	E	D	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	105.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	1	125	0	88	5	858	148	74	1145	10
Future Vol, veh/h	4	1	1	125	0	88	5	858	148	74	1145	10
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	4	1	1	126	0	89	5	867	149	75	1157	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2308	2338	1162	2265	2269	942	1167	0	0	1016	0	0
Stage 1	1312	1312	-	952	952	-	-	-	-	-	-	-
Stage 2	996	1026	-	1313	1317	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	27	37	240	~ 29	41	319	606	-	-	679	-	-
Stage 1	197	230	-	310	341	-	-	-	-	-	-	-
Stage 2	297	315	-	194	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	18	33	240	~ 26	36	319	606	-	-	679	-	-
Mov Cap-2 Maneuver	18	33	-	~ 26	36	-	-	-	-	-	-	-
Stage 1	195	205	-	308	338	-	-	-	-	-	-	-
Stage 2	212	312	-	171	204	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	210.3	$ 1204.8	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	606	-	-	23	26	319	679	-	-
HCM Lane V/C Ratio	0.008	-	-	0.264	4.856	0.279	0.11	-	-
HCM Control Delay (s)	11	-	-	210.3	$ 2038.5	20.6	11	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8	15.6	1.1	0.4	-	-

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

Intersection						
Int Delay, s/veh	0.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	25	2	984	1327	2
Future Vol, veh/h	7	25	2	984	1327	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	27	2	1047	1412	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2464	1413	1414	0	-	0
Stage 1	1413	-	-	-	-	-
Stage 2	1051	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	34	171	488	-	-	-
Stage 1	227	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	171	488	-	-	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	226	-	-	-	-	-
Stage 2	339	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	488	-	138	171	-	-
HCM Lane V/C Ratio	0.004	-	0.054	0.156	-	-
HCM Control Delay (s)	12.4	-	32.6	29.9	-	-
HCM Lane LOS	B	-	D	D	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.5	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	2	984	4	3	1350
Future Vol, veh/h	7	2	984	4	3	1350
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	7	2	1047	4	3	1436

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2491	1049	0	0	1051	0
Stage 1	1049	-	-	-	-	-
Stage 2	1442	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	29	182	-	-	670	-
Stage 1	320	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	182	-	-	670	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	205	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	125	182	670	-
HCM Lane V/C Ratio	-	-	0.06	0.012	0.005	-
HCM Control Delay (s)	-	-	35.6	25	10.4	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	46

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	10	55	0	92	1	1111	101	78	1165	3
Future Vol, veh/h	5	1	10	55	0	92	1	1111	101	78	1165	3
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	5	1	10	57	0	96	1	1157	105	81	1214	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2638	2642	1216	2595	2591	1210	1217	0	0	1262	0	0
Stage 1	1378	1378	-	1212	1212	-	-	-	-	-	-	-
Stage 2	1260	1264	-	1383	1379	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	11	24	223	~ 17	26	218	580	-	-	537	-	-
Stage 1	141	214	-	222	257	-	-	-	-	-	-	-
Stage 2	167	243	-	178	214	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	20	223	~ 14	22	218	580	-	-	537	-	-
Mov Cap-2 Maneuver	~ 5	20	-	~ 14	22	-	-	-	-	-	-	-
Stage 1	141	182	-	222	256	-	-	-	-	-	-	-
Stage 2	93	243	-	143	182	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 617.3	$ 745.8	0	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	580	-	-	15	14	218	537	-	-
HCM Lane V/C Ratio	0.002	-	-	1.111	4.092	0.44	0.151	-	-
HCM Control Delay (s)	11.2	-	-	$ 617.3	$ 1936.5	33.9	12.9	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.6	8.1	2.1	0.5	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	19	6	0	7	6	1165	5	2	1176	4
Future Vol, veh/h	2	0	19	6	0	7	6	1165	5	2	1176	4
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	2	0	20	6	0	7	6	1214	5	2	1225	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2463	2462	1227	2470	2462	1217	1229	0	0	1219	0	0
Stage 1	1231	1231	-	1229	1229	-	-	-	-	-	-	-
Stage 2	1232	1231	-	1241	1233	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	21	31	220	19	31	141	574	-	-	579	-	-
Stage 1	219	252	-	206	252	-	-	-	-	-	-	-
Stage 2	219	252	-	202	251	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	20	31	220	17	31	141	574	-	-	579	-	-
Mov Cap-2 Maneuver	105	128	-	94	127	-	-	-	-	-	-	-
Stage 1	217	251	-	204	249	-	-	-	-	-	-	-
Stage 2	206	249	-	183	250	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.6	38.4	0.1	0
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	574	-	-	105	220	94	141	579	-	-
HCM Lane V/C Ratio	0.011	-	-	0.02	0.09	0.066	0.052	0.004	-	-
HCM Control Delay (s)	11.3	-	-	40	23	46	31.9	11.2	-	-
HCM Lane LOS	B	-	-	E	C	E	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	149.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	17	103	2	109	14	998	179	93	1062	14
Future Vol, veh/h	4	3	17	103	2	109	14	998	179	93	1062	14
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	4	3	18	107	2	114	15	1040	186	97	1106	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2529	2564	1114	2481	2478	1133	1121	0	0	1226	0	0
Stage 1	1308	1308	-	1163	1163	-	-	-	-	-	-	-
Stage 2	1221	1256	-	1318	1315	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	19	27	250	~ 20	30	246	631	-	-	551	-	-
Stage 1	198	231	-	235	271	-	-	-	-	-	-	-
Stage 2	222	245	-	192	230	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	8	22	250	~ 14	24	246	631	-	-	551	-	-
Mov Cap-2 Maneuver	8	22	-	~ 14	24	-	-	-	-	-	-	-
Stage 1	193	190	-	229	264	-	-	-	-	-	-	-
Stage 2	116	239	-	145	190	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	247.7	$ 1781.8	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	631	-	-	34	14	246	551	-	-
HCM Lane V/C Ratio	0.023	-	-	0.735	7.813	0.462	0.176	-	-
HCM Control Delay (s)	10.8	-	-	247.7	$ 3598.7	31.6	12.9	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	14.7	2.3	0.6	-	-

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	19	6	1172	1178	4
Future Vol, veh/h	2	19	6	1172	1178	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	20	6	1221	1227	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2462	1229	1231	0	-	0
Stage 1	1229	-	-	-	-	-
Stage 2	1233	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	34	219	573	-	-	-
Stage 1	279	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	219	573	-	-	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	278	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	573	-	141	219	-	-
HCM Lane V/C Ratio	0.011	-	0.015	0.09	-	-
HCM Control Delay (s)	11.4	-	30.9	23.1	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0	-	0	0.3	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	7	1171	5	2	1195
Future Vol, veh/h	6	7	1171	5	2	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	6	7	1220	5	2	1245

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2472	1223	0	0	1225	0
Stage 1	1223	-	-	-	-	-
Stage 2	1249	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	30	139	-	-	576	-
Stage 1	263	-	-	-	-	-
Stage 2	255	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	30	139	-	-	576	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	262	-	-	-	-	-
Stage 2	255	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	131	139	576	-
HCM Lane V/C Ratio	-	-	0.048	0.052	0.004	-
HCM Control Delay (s)	-	-	33.9	32.3	11.3	-
HCM Lane LOS	-	-	D	D	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0	-

Intersection	
Int Delay, s/veh	167.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	26	83	2	88	2	1042	68	75	1465	13
Future Vol, veh/h	5	1	26	83	2	88	2	1042	68	75	1465	13
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	5	1	27	86	2	92	2	1085	71	78	1526	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2861	2849	1533	2828	2821	1121	1540	0	0	1156	0	0
Stage 1	1689	1689	-	1125	1125	-	-	-	-	-	-	-
Stage 2	1172	1160	-	1703	1696	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	11	17	139	~ 11	18	236	437	-	-	576	-	-
Stage 1	120	151	-	241	283	-	-	-	-	-	-	-
Stage 2	237	272	-	112	150	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	15	139	~ 8	15	236	437	-	-	576	-	-
Mov Cap-2 Maneuver	~ 5	15	-	~ 8	15	-	-	-	-	-	-	-
Stage 1	119	131	-	240	282	-	-	-	-	-	-	-
Stage 2	143	271	-	~ 77	130	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 496.6	$ 2685.7	0	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	437	-	-	26	8	236	576	-	-
HCM Lane V/C Ratio	0.005	-	-	1.282	11.068	0.388	0.136	-	-
HCM Control Delay (s)	13.3	-	-	$ 496.6	$ 5435.5	29.6	12.2	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4	12.7	1.7	0.5	-	-

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	26	7	0	2	2	1102	4	3	1478	2
Future Vol, veh/h	7	0	26	7	0	2	2	1102	4	3	1478	2
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	14	0	100	0	7	0	0	5	0
Mvmt Flow	7	0	27	7	0	2	2	1136	4	3	1524	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2674	2675	1525	2687	2674	1138	1526	0	0	1140	0	0
Stage 1	1531	1531	-	1142	1142	-	-	-	-	-	-	-
Stage 2	1143	1144	-	1545	1532	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	15	23	147	13	23	159	443	-	-	620	-	-
Stage 1	148	181	-	231	278	-	-	-	-	-	-	-
Stage 2	246	277	-	135	180	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	23	147	11	23	159	443	-	-	620	-	-
Mov Cap-2 Maneuver	90	109	-	71	109	-	-	-	-	-	-	-
Stage 1	147	180	-	230	277	-	-	-	-	-	-	-
Stage 2	242	276	-	110	179	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.8	54	0	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	443	-	-	90	147	71	159	620	-	-
HCM Lane V/C Ratio	0.005	-	-	0.08	0.182	0.102	0.013	0.005	-	-
HCM Control Delay (s)	13.2	-	-	48.5	34.9	61.4	27.9	10.8	-	-
HCM Lane LOS	B	-	-	E	D	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	234.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	19	139	0	95	5	962	164	80	1283	10
Future Vol, veh/h	5	1	19	139	0	95	5	962	164	80	1283	10
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	5	1	19	140	0	96	5	972	166	81	1296	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2576	2611	1301	2538	2533	1055	1306	0	0	1138	0	0
Stage 1	1463	1463	-	1065	1065	-	-	-	-	-	-	-
Stage 2	1113	1148	-	1473	1468	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	17	25	199	~ 18	28	274	537	-	-	610	-	-
Stage 1	162	195	-	268	302	-	-	-	-	-	-	-
Stage 2	255	276	-	157	194	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	21	199	~ 14	24	274	537	-	-	610	-	-
Mov Cap-2 Maneuver	10	21	-	~ 14	24	-	-	-	-	-	-	-
Stage 1	161	169	-	266	299	-	-	-	-	-	-	-
Stage 2	164	274	-	~ 122	168	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	200.2	$ 2738.6	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	537	-	-	39	14	274	610	-	-
HCM Lane V/C Ratio	0.009	-	-	0.648	10.029	0.35	0.132	-	-
HCM Control Delay (s)	11.8	-	-	200.2	$ 4593.1	25.1	11.8	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	18.6	1.5	0.5	-	-

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

Intersection						
Int Delay, s/veh	0.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	26	2	1104	1481	2
Future Vol, veh/h	7	26	2	1104	1481	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	27	2	1138	1527	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2670	1528	1529	0	-	0
Stage 1	1528	-	-	-	-	-
Stage 2	1142	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	25	146	441	-	-	-
Stage 1	200	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	146	441	-	-	-
Mov Cap-2 Maneuver	121	-	-	-	-	-
Stage 1	199	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35.4	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	441	-	121	146	-	-
HCM Lane V/C Ratio	0.005	-	0.06	0.184	-	-
HCM Control Delay (s)	13.2	-	36.6	35.1	-	-
HCM Lane LOS	B	-	E	E	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.6	-	-

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	2	1104	4	3	1502
Future Vol, veh/h	7	2	1104	4	3	1502
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	7	2	1138	4	3	1548

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2694	1140	0	0	1142	0
Stage 1	1140	-	-	-	-	-
Stage 2	1554	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	22	159	-	-	619	-
Stage 1	289	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	22	159	-	-	619	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	288	-	-	-	-	-
Stage 2	180	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	109	159	619	-
HCM Lane V/C Ratio	-	-	0.066	0.013	0.005	-
HCM Control Delay (s)	-	-	40.4	27.9	10.8	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	120.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	11	65	0	107	1	1235	126	88	1295	3
Future Vol, veh/h	4	1	11	65	0	107	1	1235	126	88	1295	3
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	4	1	11	68	0	111	1	1286	131	92	1349	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2944	2954	1351	2895	2890	1352	1352	0	0	1417	0	0
Stage 1	1535	1535	-	1354	1354	-	-	-	-	-	-	-
Stage 2	1409	1419	-	1541	1536	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	6	15	186	~ 10	16	180	516	-	-	469	-	-
Stage 1	113	180	-	185	220	-	-	-	-	-	-	-
Stage 2	135	205	-	144	180	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 2	12	186	~ 7	13	180	516	-	-	469	-	-
Mov Cap-2 Maneuver	~ 2	12	-	~ 7	13	-	-	-	-	-	-	-
Stage 1	113	145	-	185	220	-	-	-	-	-	-	-
Stage 2	51	205	-	108	145	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 1634.7	$ 1895.9	0	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	516	-	-	7	7	180	469	-	-
HCM Lane V/C Ratio	0.002	-	-	2.381	9.673	0.619	0.195	-	-
HCM Control Delay (s)	12	-		$ 1634.7	$ 4929.5	53	14.5	-	-
HCM Lane LOS	B	-	-	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	3.2	10.1	3.5	0.7	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	6	0	7	6	1305	5	2	1314	4
Future Vol, veh/h	2	0	21	6	0	7	6	1305	5	2	1314	4
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	2	0	22	6	0	7	6	1359	5	2	1369	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2752	2751	1371	2760	2751	1362	1373	0	0	1364	0	0
Stage 1	1375	1375	-	1374	1374	-	-	-	-	-	-	-
Stage 2	1377	1376	-	1386	1377	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	13	20	181	11	20	112	506	-	-	510	-	-
Stage 1	181	215	-	169	215	-	-	-	-	-	-	-
Stage 2	181	215	-	167	214	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	12	20	181	10	20	112	506	-	-	510	-	-
Mov Cap-2 Maneuver	84	106	-	74	105	-	-	-	-	-	-	-
Stage 1	179	214	-	167	212	-	-	-	-	-	-	-
Stage 2	167	212	-	146	213	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	48	0.1	0
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	506	-	-	84	181	74	112	510	-	-
HCM Lane V/C Ratio	0.012	-	-	0.025	0.121	0.084	0.065	0.004	-	-
HCM Control Delay (s)	12.2	-	-	48.9	27.6	58.1	39.4	12.1	-	-
HCM Lane LOS	B	-	-	E	D	F	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	333.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	19	112	2	119	15	1115	197	102	1190	16
Future Vol, veh/h	4	4	19	112	2	119	15	1115	197	102	1190	16
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	4	4	20	117	2	124	16	1161	205	106	1240	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2820	2859	1249	2769	2765	1264	1257	0	0	1366	0	0
Stage 1	1461	1461	-	1296	1296	-	-	-	-	-	-	-
Stage 2	1359	1398	-	1473	1469	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	12	17	208	~ 12	20	206	560	-	-	487	-	-
Stage 1	162	195	-	197	234	-	-	-	-	-	-	-
Stage 2	185	209	-	156	194	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 3	13	208	~ 7	15	206	560	-	-	487	-	-
Mov Cap-2 Maneuver	~ 3	13	-	~ 7	15	-	-	-	-	-	-	-
Stage 1	157	152	-	191	227	-	-	-	-	-	-	-
Stage 2	71	203	-	~ 107	152	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 855.5	$ 4042	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	560	-	-	16	7	206	487	-	-
HCM Lane V/C Ratio	0.028	-	-	1.758	16.964	0.602	0.218	-	-
HCM Control Delay (s)	11.6	-	-	$ 855.5	$ 8213.5	45.8	14.4	-	-
HCM Lane LOS	B	-	-	F	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.1	16.6	3.4	0.8	-	-

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

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	21	6	1312	1316	4
Future Vol, veh/h	2	21	6	1312	1316	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	22	6	1367	1371	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2752	1373	1375	0	-	0
Stage 1	1373	-	-	-	-	-
Stage 2	1379	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	22	180	505	-	-	-
Stage 1	238	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	22	180	505	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	235	-	-	-	-	-
Stage 2	236	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	505	-	116	180	-	-
HCM Lane V/C Ratio	0.012	-	0.018	0.122	-	-
HCM Control Delay (s)	12.2	-	36.6	27.7	-	-
HCM Lane LOS	B	-	E	D	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	7	1311	5	2	1335
Future Vol, veh/h	6	7	1311	5	2	1335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	6	7	1366	5	2	1391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2764	1369	0	0	1371	0
Stage 1	1369	-	-	-	-	-
Stage 2	1395	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	19	111	-	-	507	-
Stage 1	223	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	19	111	-	-	507	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	216	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	108	111	507	-
HCM Lane V/C Ratio	-	-	0.058	0.066	0.004	-
HCM Control Delay (s)	-	-	40.4	39.7	12.1	-
HCM Lane LOS	-	-	E	E	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0	-

Intersection	
Int Delay, s/veh	40.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	19	57	3	59	2	894	49	61	1242	10
Future Vol, veh/h	4	1	19	57	3	59	2	894	49	61	1242	10
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	4	1	20	59	3	61	2	931	51	64	1294	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2420	2413	1299	2399	2393	957	1304	0	0	982	0	0
Stage 1	1427	1427	-	961	961	-	-	-	-	-	-	-
Stage 2	993	986	-	1438	1432	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	23	33	191	~ 22	34	296	538	-	-	672	-	-
Stage 1	169	203	-	299	337	-	-	-	-	-	-	-
Stage 2	298	328	-	159	202	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	16	30	191	~ 18	31	296	538	-	-	672	-	-
Mov Cap-2 Maneuver	16	30	-	~ 18	31	-	-	-	-	-	-	-
Stage 1	168	184	-	298	336	-	-	-	-	-	-	-
Stage 2	233	327	-	128	183	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	95.6	$ 791.5	0	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	538	-	-	63	18	296	672	-	-
HCM Lane V/C Ratio	0.004	-	-	0.397	3.472	0.208	0.095	-	-
HCM Control Delay (s)	11.7	-	-	95.6	$ 1549.9	20.3	10.9	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	8.4	0.8	0.3	-	-

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	24	19	0	10	2	920	10	8	1227	2
Future Vol, veh/h	7	0	24	19	0	10	2	920	10	8	1227	2
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	0	-	0	0	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	2	2	2	0	7	2	2	5	0
Mvmt Flow	7	0	26	20	0	11	2	979	11	9	1305	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2318	-	1306	2326	-	985	1307	0	0	990	0	0
Stage 1	1324	-	-	989	-	-	-	-	-	-	-	-
Stage 2	994	-	-	1337	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	27	0	197	26	0	301	536	-	-	698	-	-
Stage 1	194	0	-	297	0	-	-	-	-	-	-	-
Stage 2	298	0	-	189	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	26	-	197	22	-	301	536	-	-	698	-	-
Mov Cap-2 Maneuver	115	-	-	104	-	-	-	-	-	-	-	-
Stage 1	193	-	-	296	-	-	-	-	-	-	-	-
Stage 2	286	-	-	162	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.8	37.3	0	0.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	536	-	-	115	197	104	301	698	-	-
HCM Lane V/C Ratio	0.004	-	-	0.065	0.13	0.194	0.035	0.012	-	-
HCM Control Delay (s)	11.7	-	-	38.5	26	47.8	17.4	10.2	-	-
HCM Lane LOS	B	-	-	E	D	E	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.7	0.1	0	-	-

Intersection	
Int Delay, s/veh	57.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	17	98	0	68	4	822	131	67	1082	9
Future Vol, veh/h	4	1	17	98	0	68	4	822	131	67	1082	9
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	4	1	17	99	0	69	4	830	132	68	1093	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2173	2204	1098	2147	2142	896	1102	0	0	962	0	0
Stage 1	1234	1234	-	904	904	-	-	-	-	-	-	-
Stage 2	939	970	-	1243	1238	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	34	45	261	~ 35	49	339	641	-	-	711	-	-
Stage 1	218	251	-	330	358	-	-	-	-	-	-	-
Stage 2	320	334	-	213	250	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	25	40	261	~ 30	44	339	641	-	-	711	-	-
Mov Cap-2 Maneuver	25	40	-	~ 30	44	-	-	-	-	-	-	-
Stage 1	217	227	-	328	356	-	-	-	-	-	-	-
Stage 2	254	332	-	179	226	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.2	$ 781	0	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	641	-	-	88	30	339	711	-	-
HCM Lane V/C Ratio	0.006	-	-	0.253	3.3	0.203	0.095	-	-
HCM Control Delay (s)	10.7	-	-	59.2	$ 1310.2	18.3	10.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	11.8	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	24	2	922	1230	2
Future Vol, veh/h	7	24	2	922	1230	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	26	2	981	1309	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2295	1310	1311	0	-	0
Stage 1	1310	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	43	196	534	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	43	196	534	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	534	-	155	196	-	-
HCM Lane V/C Ratio	0.004	-	0.048	0.13	-	-
HCM Control Delay (s)	11.8	-	29.4	26.1	-	-
HCM Lane LOS	B	-	D	D	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	10	922	10	8	1251
Future Vol, veh/h	19	10	922	10	8	1251
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	20	11	981	11	9	1331

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2336	987	0	0	992	0
Stage 1	987	-	-	-	-	-
Stage 2	1349	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	37	200	-	-	705	-
Stage 1	343	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	37	200	-	-	705	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	228	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	137	200	705	-
HCM Lane V/C Ratio	-	-	0.148	0.053	0.012	-
HCM Control Delay (s)	-	-	35.8	24	10.2	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	0	-

Intersection	
Int Delay, s/veh	21.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	9	42	0	54	1	1083	58	66	1104	2
Future Vol, veh/h	4	1	9	42	0	54	1	1083	58	66	1104	2
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	4	1	9	44	0	56	1	1128	60	69	1150	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2477	2479	1151	2454	2450	1158	1152	0	0	1188	0	0
Stage 1	1289	1289	-	1160	1160	-	-	-	-	-	-	-
Stage 2	1188	1190	-	1294	1290	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	14	30	243	~ 21	31	234	614	-	-	574	-	-
Stage 1	160	236	-	238	272	-	-	-	-	-	-	-
Stage 2	185	263	-	200	236	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	26	243	~ 18	27	234	614	-	-	574	-	-
Mov Cap-2 Maneuver	10	26	-	~ 18	27	-	-	-	-	-	-	-
Stage 1	160	208	-	238	271	-	-	-	-	-	-	-
Stage 2	140	262	-	168	208	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	218.8	$ 493.1	0	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	614	-	-	29	18	234	574	-	-
HCM Lane V/C Ratio	0.002	-	-	0.503	2.431	0.24	0.12	-	-
HCM Control Delay (s)	10.9	-	-	218.8	$ 1094.6	25.2	12.1	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.6	6	0.9	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	19	15	0	14	6	1091	12	5	1093	4
Future Vol, veh/h	2	0	19	15	0	14	6	1091	12	5	1093	4
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	2	0	20	16	0	15	6	1136	13	5	1139	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2313	2312	1141	2316	2308	1143	1143	0	0	1149	0	0
Stage 1	1151	1151	-	1155	1155	-	-	-	-	-	-	-
Stage 2	1162	1161	-	1161	1153	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	27	39	247	24	39	158	619	-	-	615	-	-
Stage 1	243	275	-	227	274	-	-	-	-	-	-	-
Stage 2	240	272	-	225	274	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	24	38	247	22	38	158	619	-	-	615	-	-
Mov Cap-2 Maneuver	114	140	-	106	140	-	-	-	-	-	-	-
Stage 1	241	273	-	225	271	-	-	-	-	-	-	-
Stage 2	216	269	-	205	272	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.4	37.7	0.1	0
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	619	-	-	114	247	106	158	615	-	-
HCM Lane V/C Ratio	0.01	-	-	0.018	0.08	0.147	0.092	0.008	-	-
HCM Control Delay (s)	10.9	-	-	37.2	20.8	44.7	30.1	10.9	-	-
HCM Lane LOS	B	-	-	E	C	E	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.5	0.3	0	-	-

Intersection	
Int Delay, s/veh	52.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	16	71	2	76	13	971	139	68	1015	13
Future Vol, veh/h	3	3	16	71	2	76	13	971	139	68	1015	13
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	3	3	17	74	2	79	14	1011	145	71	1057	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2358	2390	1064	2328	2325	1084	1071	0	0	1156	0	0
Stage 1	1206	1206	-	1112	1112	-	-	-	-	-	-	-
Stage 2	1152	1184	-	1216	1213	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	25	34	267	~ 26	38	262	658	-	-	587	-	-
Stage 1	226	259	-	251	287	-	-	-	-	-	-	-
Stage 2	243	265	-	219	257	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	29	267	~ 20	33	262	658	-	-	587	-	-
Mov Cap-2 Maneuver	15	29	-	~ 20	33	-	-	-	-	-	-	-
Stage 1	221	228	-	246	281	-	-	-	-	-	-	-
Stage 2	165	259	-	178	226	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	95.9	$ 823.6	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	658	-	-	61	20	262	587	-	-
HCM Lane V/C Ratio	0.021	-	-	0.376	3.802	0.302	0.121	-	-
HCM Control Delay (s)	10.6	-	-	95.9	$ 1655.4	24.6	12	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	9.9	1.2	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	19	6	1005	1098	4
Future Vol, veh/h	2	19	6	1005	1098	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	20	6	1047	1144	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2205	1146	1148	0	-	0
Stage 1	1146	-	-	-	-	-
Stage 2	1059	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	50	245	616	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	50	245	616	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	336	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	616	-	167	245	-	-
HCM Lane V/C Ratio	0.01	-	0.012	0.081	-	-
HCM Control Delay (s)	10.9	-	26.8	21	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0	-	0	0.3	-	-

Intersection						
Int Delay, s/veh	0.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	14	1097	12	5	1112
Future Vol, veh/h	15	14	1097	12	5	1112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	16	15	1143	13	5	1158

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2318	1150	0	0	1156	0
Stage 1	1150	-	-	-	-	-
Stage 2	1168	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	38	156	-	-	612	-
Stage 1	286	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	156	-	-	612	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	284	-	-	-	-	-
Stage 2	280	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	156	612	-
HCM Lane V/C Ratio	-	-	0.093	0.009	-
HCM Control Delay (s)	-	-	30.4	10.9	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	68.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	22	70	2	79	2	837	60	66	1335	11
Future Vol, veh/h	4	1	22	70	2	79	2	837	60	66	1335	11
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	4	1	23	73	2	82	2	872	63	69	1391	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2485	2474	1397	2455	2448	904	1402	0	0	935	0	0
Stage 1	1535	1535	-	908	908	-	-	-	-	-	-	-
Stage 2	950	939	-	1547	1540	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	20	30	167	~ 20	32	318	493	-	-	701	-	-
Stage 1	147	180	-	320	357	-	-	-	-	-	-	-
Stage 2	315	345	-	138	179	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	13	27	167	~ 15	29	318	493	-	-	701	-	-
Mov Cap-2 Maneuver	13	27	-	~ 15	29	-	-	-	-	-	-	-
Stage 1	146	162	-	319	356	-	-	-	-	-	-	-
Stage 2	231	344	-	107	161	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	118.5	$ 1110.5	0	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	493	-	-	57	15	318	701	-	-
HCM Lane V/C Ratio	0.004	-	-	0.493	5	0.259	0.098	-	-
HCM Control Delay (s)	12.3	-	-	118.5	$ 2306.9	20.2	10.7	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.9	10.2	1	0.3	-	-

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

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	25	19	0	10	2	982	10	8	1325	2
Future Vol, veh/h	7	0	25	19	0	10	2	982	10	8	1325	2
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	7	0	27	20	0	11	2	1045	11	9	1410	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2489	2489	1411	2498	2485	1051	1412	0	0	1056	0	0
Stage 1	1429	1429	-	1055	1055	-	-	-	-	-	-	-
Stage 2	1060	1060	-	1443	1430	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	20	30	171	~ 18	30	182	489	-	-	667	-	-
Stage 1	169	202	-	259	305	-	-	-	-	-	-	-
Stage 2	273	303	-	154	202	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	19	29	171	~ 15	29	182	489	-	-	667	-	-
Mov Cap-2 Maneuver	100	121	-	83	122	-	-	-	-	-	-	-
Stage 1	168	199	-	258	304	-	-	-	-	-	-	-
Stage 2	256	302	-	128	199	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	33	49.5	0	0.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	489	-	-	100	171	83	182	667	-	-
HCM Lane V/C Ratio	0.004	-	-	0.074	0.156	0.244	0.058	0.013	-	-
HCM Control Delay (s)	12.4	-	-	43.9	29.9	61.8	26	10.5	-	-
HCM Lane LOS	B	-	-	E	D	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.9	0.2	0	-	-

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

Intersection	
Int Delay, s/veh	120.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	18	125	0	88	5	863	151	74	1150	10
Future Vol, veh/h	4	1	18	125	0	88	5	863	151	74	1150	10
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	4	1	18	126	0	89	5	872	153	75	1162	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2320	2352	1167	2286	2281	949	1172	0	0	1025	0	0
Stage 1	1317	1317	-	959	959	-	-	-	-	-	-	-
Stage 2	1003	1035	-	1327	1322	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	27	36	238	~ 28	40	316	603	-	-	673	-	-
Stage 1	196	229	-	308	338	-	-	-	-	-	-	-
Stage 2	294	312	-	190	228	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	18	32	238	~ 23	35	316	603	-	-	673	-	-
Mov Cap-2 Maneuver	18	32	-	~ 23	35	-	-	-	-	-	-	-
Stage 1	194	204	-	306	335	-	-	-	-	-	-	-
Stage 2	210	310	-	155	203	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.1	$ 1392.3	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	603	-	-	70	23	316	673	-	-
HCM Lane V/C Ratio	0.008	-	-	0.332	5.49	0.281	0.111	-	-
HCM Control Delay (s)	11	-	-	80.1	$ 2357.9	20.8	11	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.2	15.9	1.1	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	25	2	992	1333	2
Future Vol, veh/h	7	25	2	992	1333	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	27	2	1055	1418	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2478	1419	1420	0	-	0
Stage 1	1419	-	-	-	-	-
Stage 2	1059	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	33	169	486	-	-	-
Stage 1	226	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	33	169	486	-	-	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	225	-	-	-	-	-
Stage 2	336	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	486	-	137	169	-	-
HCM Lane V/C Ratio	0.004	-	0.054	0.157	-	-
HCM Control Delay (s)	12.4	-	32.8	30.2	-	-
HCM Lane LOS	B	-	D	D	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.5	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	10	984	10	8	1350
Future Vol, veh/h	19	10	984	10	8	1350
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	20	11	1047	11	9	1436

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2507	1053	0	0	1058	0
Stage 1	1053	-	-	-	-	-
Stage 2	1454	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	29	181	-	-	666	-
Stage 1	319	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	181	-	-	666	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	315	-	-	-	-	-
Stage 2	202	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	122	181	666	-
HCM Lane V/C Ratio	-	-	0.166	0.059	0.013	-
HCM Control Delay (s)	-	-	40.3	26.1	10.5	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0	-

Intersection	
Int Delay, s/veh	49.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	10	55	0	93	1	1117	101	79	1173	3
Future Vol, veh/h	5	1	10	55	0	93	1	1117	101	79	1173	3
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	5	1	10	57	0	97	1	1164	105	82	1222	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2655	2659	1224	2612	2608	1217	1225	0	0	1269	0	0
Stage 1	1388	1388	-	1219	1219	-	-	-	-	-	-	-
Stage 2	1267	1271	-	1393	1389	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	10	23	220	~ 16	25	216	576	-	-	534	-	-
Stage 1	139	212	-	220	255	-	-	-	-	-	-	-
Stage 2	165	241	-	175	212	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	19	220	~ 13	21	216	576	-	-	534	-	-
Mov Cap-2 Maneuver	~ 5	19	-	~ 13	21	-	-	-	-	-	-	-
Stage 1	139	179	-	220	254	-	-	-	-	-	-	-
Stage 2	91	241	-	140	179	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 617.3	$ 807.6	0	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	576	-	-	15	13	216	534	-	-
HCM Lane V/C Ratio	0.002	-	-	1.111	4.407	0.448	0.154	-	-
HCM Control Delay (s)	11.3	-	-	$ 617.3	$ 2114.7	34.6	13	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.6	8.2	2.1	0.5	-	-

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	19	15	0	14	6	1165	12	5	1176	4
Future Vol, veh/h	2	0	19	15	0	14	6	1165	12	5	1176	4
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	2	0	20	16	0	15	6	1214	13	5	1225	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2477	2476	1227	2480	2472	1221	1229	0	0	1227	0	0
Stage 1	1237	1237	-	1233	1233	-	-	-	-	-	-	-
Stage 2	1240	1239	-	1247	1239	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	21	30	220	18	30	140	574	-	-	575	-	-
Stage 1	217	250	-	205	251	-	-	-	-	-	-	-
Stage 2	217	250	-	201	250	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	19	29	220	16	29	140	574	-	-	575	-	-
Mov Cap-2 Maneuver	100	125	-	93	125	-	-	-	-	-	-	-
Stage 1	215	248	-	203	248	-	-	-	-	-	-	-
Stage 2	192	248	-	181	248	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.8	42.9	0.1	0
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	574	-	-	100	220	93	140	575	-	-
HCM Lane V/C Ratio	0.011	-	-	0.021	0.09	0.168	0.104	0.009	-	-
HCM Control Delay (s)	11.3	-	-	41.8	23	51.4	33.7	11.3	-	-
HCM Lane LOS	B	-	-	E	C	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.6	0.3	0	-	-

Intersection	
Int Delay, s/veh	149

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	17	103	2	109	14	1004	180	93	1065	14
Future Vol, veh/h	4	3	17	103	2	109	14	1004	180	93	1065	14
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	4	3	18	107	2	114	15	1046	188	97	1109	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2539	2575	1117	2491	2488	1140	1124	0	0	1234	0	0
Stage 1	1311	1311	-	1170	1170	-	-	-	-	-	-	-
Stage 2	1228	1264	-	1321	1318	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	19	26	249	~ 20	30	243	629	-	-	548	-	-
Stage 1	197	231	-	233	269	-	-	-	-	-	-	-
Stage 2	220	243	-	191	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	8	21	249	~ 14	24	243	629	-	-	548	-	-
Mov Cap-2 Maneuver	8	21	-	~ 14	24	-	-	-	-	-	-	-
Stage 1	192	190	-	227	263	-	-	-	-	-	-	-
Stage 2	114	237	-	144	188	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	247.7	$ 1782.1	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	629	-	-	34	14	243	548	-	-
HCM Lane V/C Ratio	0.023	-	-	0.735	7.813	0.467	0.177	-	-
HCM Control Delay (s)	10.9	-	-	247.7	$ 3598.7	32.2	13	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	14.7	2.3	0.6	-	-

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

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	19	6	1179	1181	4
Future Vol, veh/h	2	19	6	1179	1181	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	20	6	1228	1230	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2472	1232	1234	0	-	0
Stage 1	1232	-	-	-	-	-
Stage 2	1240	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	34	218	572	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	218	572	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	276	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	572	-	140	218	-	-
HCM Lane V/C Ratio	0.011	-	0.015	0.091	-	-
HCM Control Delay (s)	11.4	-	31.1	23.2	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %tile Q(veh)	0	-	0	0.3	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	14	1171	12	5	1195
Future Vol, veh/h	15	14	1171	12	5	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	16	15	1220	13	5	1245

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2482	1227	0	0	1233	0
Stage 1	1227	-	-	-	-	-
Stage 2	1255	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	30	139	-	-	572	-
Stage 1	262	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	30	139	-	-	572	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	260	-	-	-	-	-
Stage 2	254	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	35.2		0		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	130	139	572	-
HCM Lane V/C Ratio	-	-	0.12	0.105	0.009	-
HCM Control Delay (s)	-	-	36.4	33.9	11.4	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.3	0	-

Intersection	
Int Delay, s/veh	191.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	26	83	2	89	2	1047	68	76	1476	13
Future Vol, veh/h	5	1	26	83	2	89	2	1047	68	76	1476	13
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	8	9	0	15	0	6	12	10	5	22
Mvmt Flow	5	1	27	86	2	93	2	1091	71	79	1538	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2881	2869	1545	2848	2841	1127	1552	0	0	1162	0	0
Stage 1	1703	1703	-	1131	1131	-	-	-	-	-	-	-
Stage 2	1178	1166	-	1717	1710	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.19	6.5	6.35	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.581	4	3.435	2.2	-	-	2.29	-	-
Pot Cap-1 Maneuver	10	17	136	~ 10	18	234	433	-	-	573	-	-
Stage 1	117	149	-	240	281	-	-	-	-	-	-	-
Stage 2	235	270	-	110	147	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	15	136	~ 7	15	234	433	-	-	573	-	-
Mov Cap-2 Maneuver	~ 5	15	-	~ 7	15	-	-	-	-	-	-	-
Stage 1	116	128	-	239	280	-	-	-	-	-	-	-
Stage 2	140	269	-	~ 75	127	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 527.4	$ 3078.5	0	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	433	-	-	25	7	234	573	-	-
HCM Lane V/C Ratio	0.005	-	-	1.333	12.649	0.396	0.138	-	-
HCM Control Delay (s)	13.4	-	-	$ 527.4	$ 6270.3	30.1	12.3	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.1	12.8	1.8	0.5	-	-

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

Intersection												
Int Delay, s/veh	1.2											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	7	0	26	19	0	10	2	1102	10	8	1478	2
Future Vol, veh/h	7	0	26	19	0	10	2	1102	10	8	1478	2
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	14	0	100	0	7	0	0	5	0
Mvmt Flow	7	0	27	20	0	10	2	1136	10	8	1524	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2691	2691	1525	2700	2687	1141	1526	0	0	1146	0	0
Stage 1	1541	1541	-	1145	1145	-	-	-	-	-	-	-
Stage 2	1150	1150	-	1555	1542	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	14	22	147	~ 13	22	158	443	-	-	617	-	-
Stage 1	146	179	-	230	277	-	-	-	-	-	-	-
Stage 2	243	275	-	133	178	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	13	22	147	~ 10	22	158	443	-	-	617	-	-
Mov Cap-2 Maneuver	85	107	-	70	107	-	-	-	-	-	-	-
Stage 1	145	177	-	229	276	-	-	-	-	-	-	-
Stage 2	226	274	-	107	176	-	-	-	-	-	-	-
Approach	**EB**			**WB**			**NB**			**SB**		
HCM Control Delay, s	38.4			59.5			0			0.1		
HCM LOS	E			F								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	443	-	-	85	147	70	158	617	-	-
HCM Lane V/C Ratio	0.005	-	-	0.085	0.182	0.28	0.065	0.013	-	-
HCM Control Delay (s)	13.2	-	-	51.2	34.9	75.3	29.4	10.9	-	-
HCM Lane LOS	B	-	-	F	D	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	1	0.2	0	-	-

Notes

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

Intersection	
Int Delay, s/veh	233

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	19	139	0	95	5	967	167	80	1288	10
Future Vol, veh/h	5	1	19	139	0	95	5	967	167	80	1288	10
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	-	-	-	-	-	25	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	3	0	2	0	5	10	3	3	2
Mvmt Flow	5	1	19	140	0	96	5	977	169	81	1301	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2588	2624	1306	2550	2545	1062	1311	0	0	1146	0	0
Stage 1	1468	1468	-	1072	1072	-	-	-	-	-	-	-
Stage 2	1120	1156	-	1478	1473	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	17	24	197	~ 18	27	272	534	-	-	606	-	-
Stage 1	161	194	-	266	299	-	-	-	-	-	-	-
Stage 2	253	273	-	156	193	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	21	197	~ 14	23	272	534	-	-	606	-	-
Mov Cap-2 Maneuver	10	21	-	~ 14	23	-	-	-	-	-	-	-
Stage 1	160	168	-	264	296	-	-	-	-	-	-	-
Stage 2	162	271	-	~ 121	167	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	200.2	$ 2738.7	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	534	-	-	39	14	272	606	-	-
HCM Lane V/C Ratio	0.009	-	-	0.648	10.029	0.353	0.133	-	-
HCM Control Delay (s)	11.8	-	-	200.2	$ 4593.1	25.3	11.9	-	-
HCM Lane LOS	B	-	-	F	F	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	18.6	1.5	0.5	-	-

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

Intersection						
Int Delay, s/veh	0.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	26	2	1112	1486	2
Future Vol, veh/h	7	26	2	1112	1486	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	7	27	2	1146	1532	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2683	1533	1534	0	-	0
Stage 1	1533	-	-	-	-	-
Stage 2	1150	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	25	145	439	-	-	-
Stage 1	198	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	145	439	-	-	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	197	-	-	-	-	-
Stage 2	304	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	35.4		0		0	
HCM LOS	E					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	439	-	145	-	-
HCM Lane V/C Ratio	0.005	-	0.185	-	-
HCM Control Delay (s)	13.2	-	35.4	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	10	1104	10	8	1504
Future Vol, veh/h	19	10	1104	10	8	1504
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	20	10	1138	10	8	1551

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2710	1143	0	0	1148	0
Stage 1	1143	-	-	-	-	-
Stage 2	1567	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	21	158	-	-	616	-
Stage 1	288	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	21	158	-	-	616	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	284	-	-	-	-	-
Stage 2	177	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.6	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	106	158	616	-
HCM Lane V/C Ratio	-	-	0.185	0.065	0.013	-
HCM Control Delay (s)	-	-	46.5	29.4	10.9	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0	-

Intersection	
Int Delay, s/veh	120.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	11	65	0	107	1	1235	126	86	1292	3
Future Vol, veh/h	4	1	11	65	0	107	1	1235	126	86	1292	3
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	-	-	-	-	-	25	0	-	-	0	-	-
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, %	50	0	0	2	0	6	0	3	1	6	2	33
Mvmt Flow	4	1	11	68	0	111	1	1286	131	90	1346	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2937	2947	1348	2888	2883	1352	1349	0	0	1417	0	0
Stage 1	1528	1528	-	1354	1354	-	-	-	-	-	-	-
Stage 2	1409	1419	-	1534	1529	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.5	6.2	7.12	6.5	6.26	4.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4	3.3	3.518	4	3.354	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	6	15	186	~ 10	16	180	517	-	-	469	-	-
Stage 1	114	181	-	185	220	-	-	-	-	-	-	-
Stage 2	135	205	-	146	181	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 2	12	186	~ 7	13	180	517	-	-	469	-	-
Mov Cap-2 Maneuver	~ 2	12	-	~ 7	13	-	-	-	-	-	-	-
Stage 1	114	146	-	185	220	-	-	-	-	-	-	-
Stage 2	51	205	-	110	146	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 1634.7	$ 1895.9	0	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	517	-	-	7	7	180	469	-	-
HCM Lane V/C Ratio	0.002	-	-	2.381	9.673	0.619	0.191	-	-
HCM Control Delay (s)	12	-		$ 1634.7	$ 4929.5	53	14.5	-	-
HCM Lane LOS	B	-	-	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	3.2	10.1	3.5	0.7	-	-

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	21	15	0	14	6	1303	12	5	1314	4
Future Vol, veh/h	2	0	21	15	0	14	6	1303	12	5	1314	4
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	-	-	0	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	0	14	0	100	0	7	0	0	5	0
Mvmt Flow	2	0	22	16	0	15	6	1357	13	5	1369	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2764	2763	1371	2768	2759	1364	1373	0	0	1370	0	0
Stage 1	1381	1381	-	1376	1376	-	-	-	-	-	-	-
Stage 2	1383	1382	-	1392	1383	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	13	20	181	~ 11	20	112	506	-	-	508	-	-
Stage 1	180	213	-	169	215	-	-	-	-	-	-	-
Stage 2	180	213	-	165	213	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	20	181	~ 10	20	112	506	-	-	508	-	-
Mov Cap-2 Maneuver	79	104	-	74	104	-	-	-	-	-	-	-
Stage 1	178	211	-	167	212	-	-	-	-	-	-	-
Stage 2	155	210	-	144	211	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.7	54.5	0.1	0
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	506	-	-	79	181	74	112	508	-	-
HCM Lane V/C Ratio	0.012	-	-	0.026	0.121	0.211	0.13	0.01	-	-
HCM Control Delay (s)	12.2	-	-	51.8	27.6	66.2	41.9	12.2	-	-
HCM Lane LOS	B	-	-	F	D	F	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.7	0.4	0	-	-

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

Intersection	
Int Delay, s/veh	332.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	19	112	2	119	15	1124	201	102	1193	16
Future Vol, veh/h	4	4	19	112	2	119	15	1124	201	102	1193	16
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	-	-	-	-	-	25	0	-	-	0	-	-
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	0	5	4	0	3	0	3	5	7	2	0
Mvmt Flow	4	4	20	117	2	124	16	1171	209	106	1243	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2835	2876	1252	2784	2780	1276	1260	0	0	1380	0	0
Stage 1	1464	1464	-	1308	1308	-	-	-	-	-	-	-
Stage 2	1371	1412	-	1476	1472	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.14	6.5	6.23	4.1	-	-	4.17	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.536	4	3.327	2.2	-	-	2.263	-	-
Pot Cap-1 Maneuver	11	17	207	~ 12	19	203	559	-	-	481	-	-
Stage 1	161	195	-	194	231	-	-	-	-	-	-	-
Stage 2	182	206	-	156	193	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 3	13	207	~ 7	14	203	559	-	-	481	-	-
Mov Cap-2 Maneuver	~ 3	13	-	~ 7	14	-	-	-	-	-	-	-
Stage 1	156	152	-	188	224	-	-	-	-	-	-	-
Stage 2	68	200	-	~ 107	151	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 855.5	$ 4042.7	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	559	-	-	16	7	203	481	-	-
HCM Lane V/C Ratio	0.028	-	-	1.758	16.964	0.611	0.221	-	-
HCM Control Delay (s)	11.6	-	-	$ 855.5	$ 8213.5	47.1	14.6	-	-
HCM Lane LOS	B	-	-	F	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.1	16.6	3.5	0.8	-	-

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	21	6	1317	1319	4
Future Vol, veh/h	2	21	6	1317	1319	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	7	5	0
Mvmt Flow	2	22	6	1372	1374	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2760	1376	1378	0	-	0
Stage 1	1376	-	-	-	-	-
Stage 2	1384	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	22	180	504	-	-	-
Stage 1	237	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	22	180	504	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	234	-	-	-	-	-
Stage 2	235	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	504	-	116	180	-	-
HCM Lane V/C Ratio	0.012	-	0.018	0.122	-	-
HCM Control Delay (s)	12.2	-	36.6	27.7	-	-
HCM Lane LOS	B	-	E	D	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	16	1309	12	5	1335
Future Vol, veh/h	15	16	1309	12	5	1335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	14	100	7	0	0	5
Mvmt Flow	16	17	1364	13	5	1391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2772	1371	0	0	1377	0
Stage 1	1371	-	-	-	-	-
Stage 2	1401	-	-	-	-	-
Critical Hdwy	6.54	7.2	-	-	4.1	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	4.2	-	-	2.2	-
Pot Cap-1 Maneuver	19	111	-	-	504	-
Stage 1	222	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	19	111	-	-	504	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	220	-	-	-	-	-
Stage 2	215	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	107	111	504	-
HCM Lane V/C Ratio	-	-	0.146	0.15	0.01	-
HCM Control Delay (s)	-	-	44.3	43.1	12.2	-
HCM Lane LOS	-	-	E	E	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0	-