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Traffic Study

Cakebread Cellars P19-00074-MOD
Planning Commission Hearing Date November 4, 2020

Focused Traffic Analysis for the

CAKEBREAD CELLARS

USE MODIFICATION PROJECT

County of Napa

Prepared for:

The County of Napa

At the Request of:

Cakebread Cellars

Final Report

June 2020

Prepared by:

FOCUSED TRAFFIC ANALYSIS
PROPOSED CAKEBREAD CELLARS USE MODIFICATION PROJECT

Prepared For:
COUNTY OF NAPA
At the request of:
Cakebread Cellars Winery

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Final Report
JUNE 19, 2020

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Executive Summary

The proposed Cakebread Cellars Winery Use Modification project would consist of an increase in wine production and employment compared to existing permitted operations. There would be no increases in winery visitation and/or marketing events. The project site is located at 8300 St. Helena Highway. Vehicle access to the Winery is provided by a primary existing driveway that extends east onto the grounds directly from State Route 29 (see Figures 4.1 & 4.2—Project Site Plan). The proposed project would increase production from 501,486 gallons per year (3-year average) to 800,000 gallons per year. Relative to employment there would be a total increase of 43 employees during the harvest/crush season (worst case) dependent on a weekday (28 full-time, 15 part-time) or weekend (5 full-time and 38 part-time).

Three intersections along State Route 29 (SR-29) at Rutherford Road, Cakebread Cellars Winery, and Oakville Cross Road-Walnut Lane were evaluated for existing and future operating conditions with and without the proposed project. In addition, the arterial segments of State Route 29 south of the project driveway as well as Rutherford Road and Oakville Cross Road-Walnut Lane were evaluated for peak hour weekday and weekend operating conditions.

Based on transportation analyses of Existing, Near-Term, and Cumulative traffic conditions with and without the project, the following findings and recommendations are presented:

Existing (No Project) Conditions

The study intersections of Rutherford Road/SR-29 and Oakville Cross Road/SR-29 are currently operating at LOS F during both the weekday PM hour and Saturday midday peak hour for outbound left and right-turn movements from the minor street onto SR-29. The Cakebread Cellars Winery/SR-29 intersection is operating at LOS D or better. Based on an accident history analysis, the Rutherford Road/SR-29 intersection experiences an accident rate slightly higher than the State average for similar facilities based on the number of “rear-end” and “broadside” accidents. These collisions are likely due to the relatively high speeds on SR-29 combined with stop-sign controlled motorists from Rutherford Road attempting to merge left onto SR-29 with very small “gaps” in through-traffic. Based on the CAMUTCD for the peak hour signal warrant, both the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections already qualify for signalization with existing (no project) weekday PM peak and Saturday midday peak hour volumes.

Arterial operation on SR-29 is calculated at LOS F during both the weekday PM peak and midday peak hours. (This segment of SR-29 has been operating at LOS F during these peak hour periods prior to the current adoption of the County’s General Plan). Arterial operation on Rutherford Road and Oakville Cross Road-Walnut Lane is acceptable (LOS C or better).

Near-Term (No Project) Conditions

Under Near-Term (No Project) conditions, existing traffic volumes were increased by 1.23% per year to the year 2022 to allow for local/regional traffic growth in the area. Near-term traffic growth factors are based on historical Caltrans traffic volumes along SR-29 for the past three years. In addition, approved project-specific developments were included under near-term (no project) conditions as directed by Napa County Planning staff.

Based on increases in traffic volumes from Near-Term traffic growth, the Rutherford Road and Oakville Cross Road-Walnut Lane intersections at SR-29 would continue to operate at LOS F during the weekday PM peak hour and Saturday midday peak hour, as would the north-south

arterial segment of SR-29 (consistent with County General Plan designations). The remaining Cakebread Cellars Winery driveway intersection at SR-29 would operate at acceptable levels (LOS D or better).

Existing plus Project Conditions

A. Traffic

Proposed project daily and peak hour trip generation was conservatively based on site-specific employee work-shift information, the total increase in employees, and Napa County Trip Generation ratios for daily employee trips. In addition, truck traffic related to production increases were based on the total number of truck deliveries during the Cakebread Cellars Winery harvest/crush seasons for the years 2018 and 2019. Based on these project-specific trip generation components, the project is estimated to generate 96 net new daily trips with 25 net new weekday PM peak hour trips and conservatively assumed 25 net new Saturday midday peak hour trips. (Based on actual employee shift times for Saturday work periods, the expectation is that there would be no increase in employee and/or production trips during this weekend midday time period). The net increase in daily and peak hour project trip generation is based on a proposed increase of 43 employees and proportional increase in truck trip generation associated with an additional 300,000 gallons of wine production (to 800,000 gallons). On an annual basis, the project is expected to generate 240,580 total trips based on all existing and future operations.

Both the Rutherford Road and Oakville Cross Road-Walnut Lane intersections at SR-29 would continue to operate at LOS F during both the weekday PM and weekend midday peak hours with proposed project traffic. The remaining study intersection Cakebread Cellars Winery Driveway/SR-29 Road would continue to operate acceptable levels (LOS D or better) during the same peak time periods.

Based on Napa County Updated Transportation Impact Study Guidelines; the intersections of Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 have been evaluated for proposed project impacts since the LOS operates at an unacceptable level (LOS F) without proposed project traffic during the weekday PM peak hour and weekend midday peak hour.[1] It is noted that Napa County trip generation guidelines indicate that for "site specific" trip generation analysis, the "peak hour of the project generator" must be added to the "peak hour of the adjacent street network." Therefore, potential proposed project impact(s) must be evaluated for the weekday PM peak and weekend (Saturday) midday peak hours using the highest portion of the proposed project's peak hour trip generation. However, Cakebread Cellars Winery employees typically do not leave the Winery during the Saturday weekend midday peak hour. It is emphasized that potential project impacts for the Saturday weekend midday peak hour are ***overstated***.

County criteria indicate that a significant impact could be found if the proposed project contributes 10% or more to the side street approach at the intersection. The guidelines go on to state, "the peak hour signal warrant criteria should also be evaluated and presented for informational purposes." During the weekday PM peak hour, the proposed project would add six (6) trips to the Rutherford Road/SR-29 intersection and 19 trips to the Oakville Cross Road-Walnut Lane/SR-29

[1] *Fehr & Peers Memorandum, Updated Transportation Impact Study Guidelines, Draft, April 20, 2018.*

intersection. During the weekend midday peak hour, the exact same amount of proposed project trips would be added to these two intersections. (Again, weekend midday peak hour project trips are over-stated since employees do not leave the Winery during this time period). Since proposed project trips are all outbound from the Cakebread Cellars driveway due to employee shift times (with the exception of one peak hour trip), there would no contribution to side-street approaches at the off-site intersections of Rutherford Road and Oakville Cross Road-Walnut Lane at SR-29. Under the County significance criteria, these impacts are less than significant. The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to meet the peak hour signal warrant with or without proposed project.

SR-29 experiences peak hour directional arterial flow (one-way southbound) of approximately 953 vehicles during the weekday PM peak hour and 958 during the Saturday midday peak hour. Based on an undivided Class I arterial over 40 mph these volumes currently result in LOS F during both time periods (see Appendices for Peak Hour Roadway LOS Table). The proposed project would add 19 southbound trips to the SR-29 arterial segment and, (applying the significance criteria of 1% or more) would be considered a potentially significant impact. However, the Napa County Traffic Impact Guidelines have determined that for SR-29 in the unincorporated areas between Yountville and Calistoga that LOS F is acceptable:

> "In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus on reducing the project's vehicular trips through modifying the project definition and/or applying TDM strategies, and then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts."

The proposed project will be implementing an aggressive VMT Reduction/TDM Plan for employees (Section 7) as part of their overall development plan to reduce peak hour vehicle trips on SR-29. Combined with Napa County TIG policies indicated that LOS F is acceptable for SR-29 segments in the project study area, overall project impacts would be considered less-than-significant.

B. Vehicle Miles Traveled (VMT)/Transportation Demand Management (TDM) Plan

A VMT Reduction/TDM Plan has been developed for the proposed project that would reduce overall project trip generation and parking demand. Please refer to Section 7 (VMT Reduction/TDM Plan).

C. Project Access/Circulation

Vehicle access to the Cakebread Cellars Winery is provided by a primary driveway extending east from SR-29 onto the winery grounds (see Figures 4.1 and 4.2—Project Site Plan). All visitors, employees, and trucks use the primary SR-29 driveway for access to/from the Winery. A private roadway (Glos Lane) is located south of the primary driveway and serves 4-5 neighbors by easement over the Cakebread Cellars Winery grounds. Note that Glos Lane is signed "No Winery Access." A two-way-left-turn-lane (TWLTL) is present on SR-29 along the project frontage extending from Bella Oaks Lane to 200-feet south of the Cakebread Cellars Winery driveway. The TWLTL on SR-29 allows motorists to gain access to the Winery and/or merge onto SR-29 from the Winery without delaying through-traffic on SR-29. Section 6.0

(Project Access/Circulation) describes vehicle access, parking, emergency access, design standards, pedestrian/bicycle circulation, and truck access/loading.

Near-Term Plus Project Conditions

Same recommendations as Existing plus Project Conditions

Cumulative Year 2030 (No Project) Conditions

With year 2030 cumulative (no project) traffic volumes, the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to operate at LOS F during both the weekday PM and weekend midday peak hours. Directional roadway segment operation along SR-29 would continue to operate at unacceptable levels (LOS F) with year 2030 cumulative (no project) volumes. The directional roadway segments of Rutherford Road and Oakville Cross Road would operate acceptably (LOS D or better).

Cumulative Year 2030 With Project Conditions

With proposed project traffic, the Rutherford Road and Oakville Cross Road-Walnut Lane intersections at SR-29 would continue to function at LOS F during the weekday PM and weekend midday peak hours. The Cakebread Cellars Winery driveway at SR-29 would change from LOS D to LOS E during the weekday PM peak hour (only).

During the weekday PM peak hour and weekend midday peak hour, the proposed project would add six (6) trips to the intersection Rutherford Road/SR-29 intersection. Based on the net growth in cumulative traffic volumes at the intersection of 436 vehicles and 492 vehicles (weekday PM peak hour and weekend midday peak hour); proposed project contribution would be less than 5%. During the same weekday and weekend time periods, the proposed project would be expected to add 19 trips to the intersection of Oakville Cross Road-Walnut Lane/SR-29. With net increases of 433 vehicles and 484 vehicles in cumulative traffic proposed project increases would be less than 5%.

The vehicle delays and intersection LOS (LOS E) at the Cakebread Cellars Winery driveway at SR-29 during the weekday PM peak hour would not be considered significant in nature. Vehicle queues for stop-sign controlled outbound traffic would not exceed two vehicles (95th percentile queue) and there would ample vehicle queuing capacity on-site without disrupting overall site circulation.

In Year 2030, SR-29 is projected to experience peak hour directional arterial flow (one-way southbound) of approximately 1,228 vehicles during the weekday PM peak hour and 1,202 during the Saturday midday peak hour. Based on an undivided Class I arterial over 40 mph this would yield LOS F during both time periods (see Appendices for Peak Hour Roadway LOS Table). The proposed project would add 19 southbound trips to the SR-29 arterial segment and, (under the significance criteria of 5% or more) would be considered a potentially significant impact based on the net increase in cumulative directional traffic (242 PM weekday and 227 weekend midday trips net cumulative traffic growth). Again, the Napa County Traffic Impact Guidelines have determined that for SR-29 in the unincorporated areas between Yountville and Calistoga that LOS F is acceptable:

> "In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus

> on reducing the project's vehicular trips through modifying the project definition and/or applying TDM strategies, and then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts."

As noted above, the proposed project will be implementing an aggressive VMT Reduction/TDM Plan for employees (Section 7) as part of their overall development plan to reduce peak hour vehicle trips on SR-29. Combined with Napa County TIG policies indicated that LOS F is acceptable for SR-29 segments in the project study area, overall project impacts would be considered less-than-significant.

The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections meet the peak hour signal warrant under existing (no project) conditions and would continue to do so under any "with project" development conditions (existing, near-term or cumulative conditions). As with project impacts found under existing plus project and near-term plus project conditions: Napa County guidelines indicate potential mitigation could include adding a signal if conditions are appropriate, geometric modifications to the intersection configuration, changes to the Project to reduce its peak hour trip generation, or converting an intersection to a roundabout per Policy CIR-13.5. The Cakebread Cellars Winery active and ongoing employee TDM program ("Employee Green Team") would continue to reduce overall single-occupant vehicle employee trips.

1. Introduction

The following report provides a focused traffic analysis for the proposed Cakebread Cellars Use Modification project located at 8300 St. Helena Highway in Rutherford, Napa County—(see Figure 1 for Project Vicinity Map). The initial administrative draft traffic analysis is a result of constructive discussions and correspondence with Napa County Planning Department and Napa County Senior Traffic Engineer.[2] Comments were received on the scope of work related to daily and peak hour traffic volumes, near-term and long-term traffic growth projections, consistency of the project description between traffic analyses and the project use modification application, and proposed project "fair share" contributions toward potential County mitigation measures on Rutherford Road, St. Helena Highway, and Oakville Cross Road. Proposed project characteristics related to changes from existing employment and production to future levels in the overall traffic scope/analysis were evaluated. Methodologies for analyzing the potential impacts of proposed project uses are consistent with the Use Permit Modification (Supplemental Winery Uses) from Napa County Planning, Building, and Environmental Services.[3] Methodologies focus on both daily and peak hour trip generation associated with employment and production levels. Finally, this report conforms to the County's revised transportation significance criteria established in the Traffic Impact Study Policies.[4] Key issues evaluated in this study include the following:

- Existing and future weekday (Friday) PM peak hour and weekend (Saturday) midday peak hour operations at the Rutherford Road/State Route 29 (SR-29), Cakebread Cellars Driveway/SR-29, and Oakville Cross Road-Walnut Lane/SR-29 intersections as well as daily traffic volumes along Rutherford Road, SR-29, and Oakville Cross Road using new count data and Caltrans historical volume data;
- Near-Term (2022) traffic conditions reflecting other approved projects in the study area encompassing Napa County inclusive of St. Helena, Zinfandel, Rutherford, Oakville, and Yountville based on County input and Caltrans historical traffic volume growth;
- Increase in proposed project trip generation relative to existing conditions from proposed project uses including employment and production;
- Project access from St. Helena Highway (SR-29) and circulation of vehicles within these areas;
- Cumulative year 2030 (no project) conditions along SR-29 and Rutherford Road based on the Napa County General Plan Update EIR.
- Project-specific TDM measures to reduce overall project trip generation and a qualitative analysis of VMT and potential reductions in trip distances.

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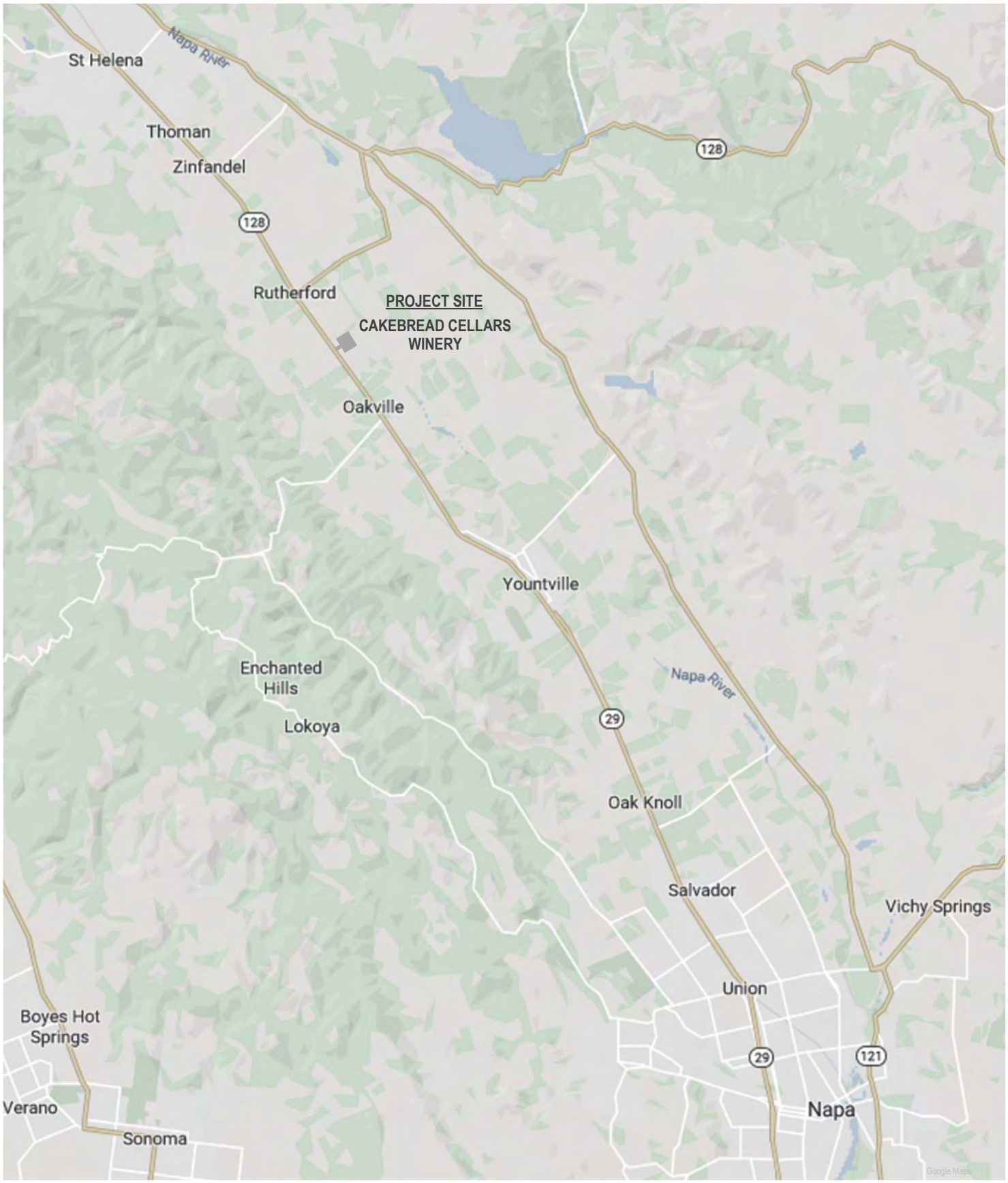
[2] Meeting with Napa County Planning, Building, and Environmental Services Staff (Ms. Charlene Gallina, Ms. Joan Gargiulo, and Mr. Ahsan Kazmi, P.E.) with Mr. Josh Devore (DP&F), Mr. Bruce Cakebread (Cakebread Cellars) and Mr. Peter Galloway (GHD), Comments on initial draft scope of work for Cakebread Cellars Use Modification, May 18, 2019.

[3] Napa County Planning, Building, and Environmental Services, Use Permit Application (Supplemental Application for Winery Uses, Revised June 11, 2015.

[4] Napa County Department of Public Works, Traffic Impact Study (TIS) Policies and TIS Required Elements, Updated March 25, 2016.



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PROJECT VICINITY MAP

FIGURE 1

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The following sections outline existing and future traffic conditions with and without the proposed Cakebread Cellars Use Modification project. Where necessary, measures are recommended to ensure acceptable traffic flow, circulation, TDM measures, and/or fair share mitigation consistent with significance thresholds outlined in the County's Traffic Impact Study (TIS) Required Elements and the Napa County General Plan.

2. Existing Conditions

Proposed Project Site

The proposed Cakebread Cellars Winery project is located at 8300 St. Helena Highway approximately equal-distant (one-mile) between Rutherford Road and Oakville Cross Road-Walnut Lane. The proposed project would consist of an increase in employment and wine production from permitted conditions. A brief description of the roadways serving the site is as follows:

Roadways

St. Helena Highway or State Route 29 (SR-29) extends in a north-south direction between the incorporated cities of Yountville, St. Helena and Calistoga in the project study area. In the Rutherford area, SR-29 is classified as a two-lane rural throughway based on the Napa County General Plan. The highway provides access north through St. Helena, Calistoga, and into Lake County to Middleton and Lower Lake. South of Rutherford, the highway provides access to Oakville, Yountville, Napa, American Canyon, and Vallejo. In the immediate project site area south of Rutherford, SR-29 has one travel lane in each direction with a two-way-left-turn-lane. Wide (9-10 feet) paved shoulders exist on the east and west sides of the highway and are designated as Class II bike lanes that extend north-south through Rutherford Road and Oakville Cross Road-Walnut Lane. The speed limit on SR-29 is 50 mph in the project area.

Rutherford Road (State Route 128) extends in an easterly direction from SR-29 for approximately 1.5 miles before intersecting Conn Creek Road one mile north of the project site. A two-lane roadway, Rutherford Road provides access to commercial, restaurant, residential and agricultural winery uses immediately east of SR-29. This roadway segment just east of SR-29 has a width of approximately 36 feet and allows on-street parking in designated areas with curb, gutter, and pedestrian sidewalks. Approximately 800 feet east of the highway the roadway narrows to 24-feet as it extends towards more residential and winery areas to Conn Creek Road. The speed limit on Rutherford Road is 30 mph in the commercial-residential segment east of SR-29.

Oakville Cross Road-Walnut Lane is located approximately one-mile south of the project site extending in an east-west direction. Providing access to agricultural/vineyard areas, Oakville Cross Road extends east from St. Helena Highway as a two-lane arterial with a speed limit of 50 mph (except in narrow bridge areas and/or curved segments where the speed limit is 25-30 mph). Oakville Cross Road is designated as a Class III bike route. Walnut Lane extends west from St. Helena Highway as a narrow (20-foot) street providing access to vineyard/agricultural areas with a prima facie speed limit of 25 mph.

Existing Intersection Volumes

In order to identify existing peak hour operating conditions, weekday and weekend peak period traffic counts were performed along St. Helena Highway at the three primary (gateway) access intersections at the following locations:

1. State Route 29/Rutherford Road (State Route 128) Stop-control (Rutherford Rd.)
2. State Route 29/Cakebread Cellars Driveway Stop-control(Cakebread Cellars)
3. State Route 29/Oakville Cross Rd.-Walnut Ln. Stop-control (O-C Rd.-Walnut Ln.)

Data collection was conducted at the three intersection locations during two different time periods; the month of May-June 2019 and later in fall of November 2019. This data collection was conducted at the request of Napa County Public Works and the fact that on-site construction for permitted uses had been ongoing at the Winery since April 2019. With construction completed in October 2019, study locations were re-counted including the project driveway at Cakebread Cellars

Peak period vehicle counts were conducted on a Friday weekday late afternoon (3:00-6:00 p.m.) and Saturday afternoon (Noon-4:00 p.m.) on May 31, June 1, 2019, and November 15 and 16, 2019.[5] The resultant "peak hour" of traffic flow on State Route 29 occurs during 4:00-5:00 p.m. (Thursday) and 1:45-2:45 p.m. (Saturday). Peak period counts conducted in November were significantly higher than previous counts conducted in May and June. This was due to a very late harvest/crush season extending past October due to very mild weather extending through the month. Therefore, no seasonal volume adjustments to existing volumes were made to adjust for harvest/crush season.[6] In addition, through-traffic on SR-29 is dynamic and can experience reduced flows due to large volumes and/or traffic control north or south of the area. Existing weekday PM peak hour and weekend midday peak hour intersection volumes have been shown in Figure 2.

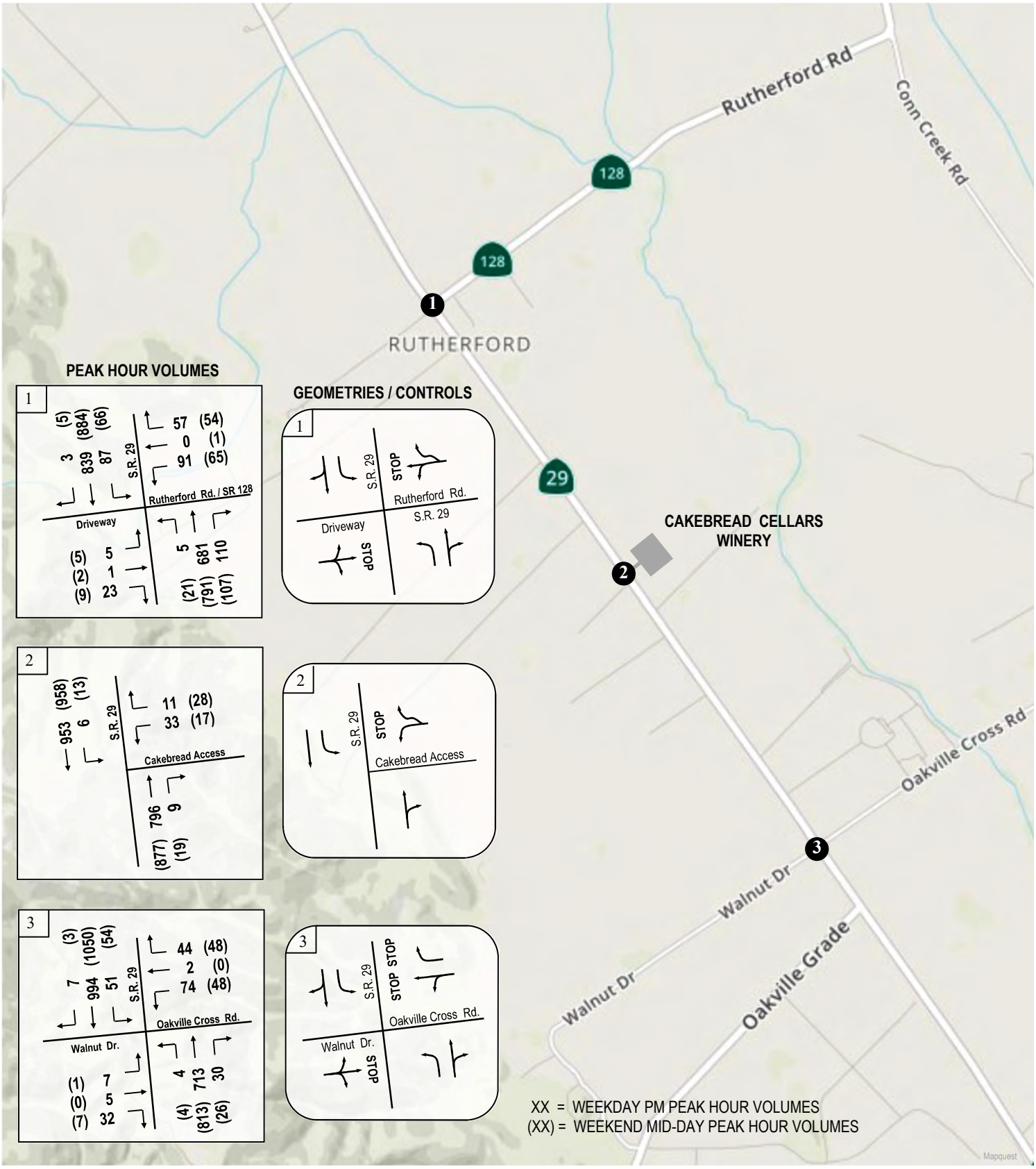
Existing Intersection Methodology/Description

Intersection operation is one of the primary factors in evaluating the carrying capacity of a roadway network. Traffic conditions are measured by Level of Service (LOS), which applies a letter ranking to successive levels of intersection performance. LOS 'A' represents optimum conditions with free-flow travel and no congestion. LOS 'F' represents severe congestion with long delays at the approaches. For intersections with minor street stop control, the LOS reflects the delays experienced by the minor street approach. Level of service definitions are shown in Table 1.

Intersection levels-of-service have been based on the most recent Highway Capacity Manual (*HCM 2016*) operations methodology for unsignalized intersections. In addition, peak hour factors (PHF's) for each intersection approach have been incorporated into all existing and future intersection LOS calculations. The PHF is a measure of the traffic flow rate at each intersection approach. Based on field count data, these PHF's ranged from .87 to .95 dependent on each intersection. Intersection approaches with lower approach volumes typically have lower (and more conservative) PHF's.

[5] National Data Systems, Weekday Friday peak period (3:00-6:00 p.m.) and Weekend (Saturday) peak period (Noon-4:00 p.m.) vehicle turning movement counts at the SR-29/Rutherford Road and SR-29/Oakville Cross Road-Walnut Lane intersections, May 31 & June 1, 2019.

[6] Napa County, Planning, Building, and Environmental Services, Draft Traffic Impact Guidelines, Seasonal traffic volumes, June 19, 2019



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EXISTING (NO PROJECT)
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 2

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TABLE 1
INTERSECTION LEVEL-OF-SERVICE DEFINITIONS

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec)	
				Signalized/ Roundabouts	Unsignalized/ All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and < 20.0	>10.0 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20.0 and < 35.0	>15.0 and < 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and < 55.0	>25.0 and < 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and < 80.0	>35.0 and < 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0

Reference: 2016 Highway Capacity Manual

The SR-29/Rutherford Road intersection is stop-sign controlled for the eastbound and westbound turning movements at SR-29 located approximately one-mile north of the project site. Westbound Rutherford Road does not have striped separate westbound right or left-turn lanes at SR-29. However, the westbound approach is wide enough to allow separate turning movements based on its width (19-feet) and the red-curb striping on the north side of the street that extends for approximately 60-75 feet. The eastbound approach at SR-29 is a private road (Inglenook Winery) with shared left-through-right turn lane. The intersection's east-west approaches are slightly offset but the intersection does function as a standard four-way (minor street stopped) facility based on field observations.

The SR-29/Oakville Cross-Walnut Lane intersection is located approximately one-mile south of the project site and is stop-sign controlled for the east-west approaches (Oakville Road and Walnut Lane). The westbound Oakville Cross Road has a separate right-turn lane and shared through/left-turn lane with eastbound Walnut Lane having a shared left, through, and right-turn lane. Northbound and southbound left-turn lanes are present on SR-29 at the major street approaches.

The SR-29/Cakebread Cellars driveway intersection is stop-sign controlled for the project driveway that has a flared westbound approach for separate outbound left and right-turn movements. In this segment of SR-29, a two-way-left-turn-lane extends between Bella Oaks Lane to the north to approximately 200-feet south of the Cakebread Cellars project driveway and provides existing left-turn access (southbound) into the project site.

Existing Intersection Operations Level-of-Service

Existing weekday PM peak and weekend midday peak hour existing (no project) level-of-service has been shown in Table 2. As calculated, the State Route 29 (SR-29)/Rutherford Road intersection is operating at LOS F (>300 seconds) during both the weekday PM peak hour and the weekend midday peak hour. It is noted that unsignalized intersections along SR-29 can experience major delays for minor street stop-sign controlled traffic due to existing traffic components along the State highway. Specifically, factors influencing delays on SR-29 include higher vehicle speeds, higher traffic volumes, and the lack of "gaps" in north-south traffic to allow safe access to/from SR-29. These conditions are very pronounced during the weekday and Saturday peak traffic flow periods when commute/tourist traffic is leaving or arriving in the Napa Valley. Through-traffic on SR-29 can cause long delays for stop-sign controlled westbound left and right-turn movements from Rutherford Road during these time periods. The presence of left-turn lanes on SR-29 at Rutherford Road (and a two-way-left-turn lane) extending north and south along SR-29 does provide some relief to minor street stopped motorists who wish to access the highway by allowing a refuge lane for motorists to turn left and/or merge into traffic flows.

The Rutherford Road/Oakville Cross Road-Walnut Lane intersection also operates at LOS F (> 300 seconds) with existing traffic during these same weekday and weekend time periods. Westbound left-turn and right-turn movements from Oakville Cross Road onto SR-29 during these peak periods exceeds 100 vehicles and motorists experience very long delays merging onto SR-29.

TABLE 2
EXISTING (NO PROJECT) CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
WEEKDAY PM PEAK AND WEEKEND MIDDAY PEAK HOUR (1)

	Intersection	Control Type	Wkdy. PM LOS/Delay Existing (No Project)	Wknd. Midday LOS/Delay Existing (No Project)
1	Rutherford Road/State Route 29	MSSC	**F >300**	**F >300**
2	Cakebread Cellars/State Route 29	MSSC	C 21.9	B 13.4
3	OCR-WL/State Route 29	MSSC	**F >300**	**F >300**

(1) Based on Highway Capacity Manual (HCM) 2016, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds. Stated LOS refers to the minor street (stop-sign) controlled movement. MSSC = Minor Street Stop Control OCR-WL = Oakville Cross Road-Walnut Lane

Finally, the Cakebread Cellars Driveway/SR-29 is operating at LOS C during both the Friday PM peak hour and LOS B during the Saturday Midday peak hour.

Existing Peak Hour Arterial Level-of Service

Average daily and peak hour roadway segment volumes were collected on Oakville Cross Road and obtained for State Route 29 and Rutherford Road (State Route 128) from the recent Caltrans volume research.[7] [8]

Peak hour roadway operation has been evaluated consistent with Napa County criteria for arterial level-of-service. Rutherford Road is currently operating at LOS B at 198 eastbound directional peak hour vehicles (Class II Arterial 35 mph or less). SR-29 experiences peak hour directional arterial flow (one-way southbound) of approximately 953 vehicles during the weekday PM peak hour and 958 during the Saturday Midday peak hour. Based on an undivided Class I arterial over 40 mph this would yield LOS F during both time periods (see Appendices for Peak Hour Roadway LOS Table). It is noted that field observations indicate that during the weekday PM peak hour period southbound traffic flow on SR-29 can vary from free-flow conditions to intermittent periods of slowed or stop-and-go conditions between approximately 4:50-5:30 p.m. (for typical weekday southbound direction traffic flow). For this reason, peak hour arterial conditions reflect a progression of LOS F during this time period. Please note---traffic flow observations for southbound SR-29 may not necessarily coincide with the identified "peak hour" of traffic volumes. Oakville Cross Road experiences peak hour directional volumes (westbound) of 120 during the Friday PM peak hour and 96 vehicles during the Saturday midday peak hour representing LOS B conditions.

It is noted that traffic observations along State Route 29 were conducted during the weekday three-hour count period between 3:00-6:00 p.m. with the observer noting the various flows of traffic ranging at times from "free-flow" conditions to intermittent periods of slowed or stop-and-go conditions between "*approximately*" 4:30-5:30 p.m. in the southbound commute direction. As noted, these are observations conducted by the traffic technician and may not always coincide with recorded "peak hour" of traffic. Daily fluctuations in traffic flow are quite common and observed conditions may at times differ from the recorded peak hour due to external factors (accidents, roadway construction, or event traffic).

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[7] National Data Systems (NDS), Average daily and peak hour traffic counts on Oakville Cross Road east of SR-29 November 15-23, 2019.
[8] Caltrans Highway Volumes, Average daily and peak hour traffic counts on SR-29 and SR-128, 2017.

Signal Warrant Evaluation

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria, the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 unsignalized study intersections were evaluated for signalization.[9] The peak hour warrant(s) are one of several standards to help determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour warrants does not necessarily mean a signal should be installed. The decision to install a traffic signal should be based on further studies utilizing additional warrants as presented in the California MUTCD. At this time, the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would qualify for signalization under the peak hour warrant (the warrant graphs are provided in the Appendix) without near-term, proposed project, or cumulative traffic volumes. The Cakebread Cellars/SR-29 intersection would not qualify for signalization with existing volumes at this time. It is noted that the minor street driveway volumes at Cakebread Cellars are too low to consider for warrant evaluation (75 vehicles or greater is the minimum minor-street volume).

Bicycle and Pedestrians Facilities

Existing facilities in the project study area for bicycles and pedestrians include pedestrian sidewalks on Rutherford Road extending east from SR-29 for approximately 675 feet. In addition, pedestrian sidewalks are located along the north side of SR-29 (east side) combined with stop-sign intersection controls at the Rutherford Road/SR-29 intersection. There are no pedestrian facilities at the Oakville Cross Road-Walnut Lane/SR-29 intersection nor at the Cakebread Cellars/SR-29 intersection. However, SR-29 has Class II bicycle lanes on both sides of the highway between Rutherford Road and Oakville Cross Road-Walnut Lane. Bicyclists were observed using the relatively wide striped shoulder areas (6-8 feet) on SR-29 travelling north-south through the study area. Lesser bicycle activity was observed on Oakville Cross Road-Walnut Lane in an east-west direction. The Oakville Cross Road segment east of SR-29 is designated as a Class III bike route. Pedestrian activity in the entire study area was light with most pedestrians focused along the Rutherford Road area and the associated winery/restaurant/hotel uses within the proximity of SR-29. No pedestrians were observed crossing SR-29 (east-west) and there are no pedestrian crosswalks on either SR-29 or Oakville Cross Road-Walnut Lane in the project vicinity area.

The Napa County Bicycle Plan identifies both SR-29, Rutherford Road, and Oakville Cross Road as “Primary Class II Route” and “Class II Bike Lane—Proposed.” As noted, SR-29 is currently operating as a Class II bike lane facility in the study area and Oakville Cross Road is designated as a Class III bike route east of SR-29. However, the Bicycle Plan goes on to qualify “All proposed bike routes shown on the map are for study purposes only. Designation of a route as proposed does not imply any actual plans or project will be considered along the route.” [10] The Cakebread Cellars Winery provides bicycle racks for employees/guests.

Collision History

A vehicle collision history for the study area was conducted to determine any trends or patterns that may indicate a safety issue. Collision rates are calculated based on records provided by the California Highway Patrol as published in their Statewide Integrated Traffic Records System

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[9] California Manual on Uniform Traffic Control Devices (CAMUTCD), Chapter 4C, Peak hour signal warrant (#3), 2016.

[10] Napa Countywide Bicycle Plan, Planning Area—Mid Valley, Figure 4, January 2018.

(SWITRS) reports. The most current five (5) year period available is January 1, 2014 through December 31, 2018.

Collision rates for the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 study intersections are shown in Table 3. In addition, the SR-29 segment between Bella Oaks Lane and Glos Lane has been evaluated for collision activity. The project site driveway falls approximately mid-segment in this 1,800-foot stretch of SR-29. The calculated collision rates for the study locations were compared to the average collision rates for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways* (Caltrans).

The calculated collision rate for the Rutherford Road/SR-29 intersection exceeds the statewide average for similar facilities, indicating the intersection is not operating safely. The majority of collisions at this intersection represent "broadside" or "rear-end" crashes. These types of collisions are likely due to the relatively high speeds on SR-29 combined with motorists turning from the highway (rear-end) and/or stop-sign controlled motorists from Rutherford Road attempting to merge onto SR-29 with very small "gaps" in through-traffic. The Oakville Cross Road-Walnut Lane/SR-29 intersection has experienced four (4) collisions over a five-year period with a collision rate of (0.08) below the state average for this facility. Finally, the roadway segment of SR-29 between Bella Oaks Lane and Glos Lane has a collision rate higher than the state average for this facility of 1.18. The majority of collisions (15) involve rear-end accidents and have occurred north and south of the project site in segments that do not include a two-way-left-turn lane over the last five years under existing (no project) condition. (Suggested mitigation for the State Route 29 roadway segment has been recommended in the Project Impact section).

TABLE 3 EXISTING COLLISION RATES AT STUDY INTERSECTIONS/ROADWAY SEGMENTS

Study Intersection/Segment	Number of Collisions (2014-2017)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Rutherford Rd./SR-29	16	0.34	0.23
3. OCR-WL/SR-29	4	0.08	0.16
SR-29: Bella Oaks Ln. to Glos Ln.	20	1.18	0.82

Source: California Highway Patrol, Statewide Integrated Traffic Records System (SWITRS), January 1, 2013—December 31, 2017.
Collision rates calculated based on c/mve or collisions per million vehicles entering.
OCR-WL= Oakville Cross Road-Walnut Lane

3. Year 2022 Near-Term (No Project) Conditions

Near-Term Year 2022 Methodology

Based on direction from the County Traffic Engineer, year 2022 near-term conditions have been based on historical Caltrans volume data for the last three full calendar years.[11] Based on historical average daily traffic data that includes peak hour two-way volumes, volumes on SR-29 have increased by 3.7% in the last three years or 1.23% per year. On Rutherford Road, daily and peak hour volumes are virtually unchanged over the past three years remaining static between SR-

[11] *Caltrans, Traffic Volumes on California State Highways, State Route 29 and State Route 128 (Rutherford Road), 2015, 2016, 2017.*

29 and Silverado Trail. Therefore, the yearly growth rate used for SR-29 (1.23% per year) is being used for both Rutherford Road and Oakville Cross volumes as a conservative measure. Based on a two-year growth period from collected data (year 2020) to year 2022 near-term conditions, 2.46% was applied to existing peak hour volumes for background/regional growth along the two study roadways.

In addition to historical Caltrans volume growth projections, local approved/pending projects in the immediate study area have been included in overall traffic growth at the request of Napa County Public Works staff.[12] The approved/pending project list was provided for a proposed project at Rutherford Road and encompasses the project study area south through Oakville Cross Road. Ongoing development projects occurring within Napa County include the following:

- **Scarlett Winery** – 1052 Ponti Road, Napa County, approximately 3.7 miles east of the project site off Silverado Trail-Ponti Road; new winery with annual production of 30,000 gallons; 6 full-time employees and 5 part-time employees; average of 15 visitors per day; average of 25 guests at 27 annual events;
- **LMR Winery** – 1790 St. Helena Highway, approximately 1.5 miles north of the project site off SR-29; use permit modification increasing annual production of 100,000 gallons; 6 full-time employee and 3 part-time employees; average of 50 visitors per day; average of 44 guests at 32 annual events;
- **Beaulieu Vineyards** – 1960 St. Helena Highway, approximately 1 mile north of the project site; No production increases. Use permit update to include 19 full-time employees and a reduction of 51 part-time employees; average increase in daily visitation of 100 guests; net increase of 9,650 guests at 196 annual events (please note---annual events would occur twice-weekly with an addition of 50 guests per event. These guest have been added to daily visitation numbers);
- **WHL Winery** – 1561 S. Whitehall Lane, approximately 3.9 miles northwest of the project site; use permit update to increase production to 100,000 gallons annually; 4 full-time employees and 2 part-time employees; No visitation and no marketing events;
- **Nickel & Nickel Winery** -- 8164 St. Helena Highway, approximately 0.4 miles south of the project site off SR-29. Use permit application to increase production to 100,000 gallons; 56 full-time employees (no part-time employees); average of 185 daily visitors; No change in marketing events;
- **Frank Family Rutherford Winery** – 8895 Conn Creek Road, new winery location located approximately 2.6 miles northeast of the project site via Rutherford Road-Conn Creek Road. Annual proposed production of 475,000 gallons; 14 full-time employees (no part-time employees); average of 50 daily visitors; net increase of 1,248 guests at 104 annual events (please note---annual events would occur twice-weekly with an addition of 50 guests per event. These guest have been added to daily visitation numbers);[13]
- **Mathew Bruno Wine Tasting Room** – 1151 Rutherford Road, new wine tasting room project located 1 mile north of the project site at the Grape Lane/Rutherford Road intersection. Maximum of 56 guests per day with 2 employees 7 days per week.

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[12] Ms. Dana Ayers, Planner III, County of Napa, personal communication related to County development projects, May 5, 2017.

[13] Ms. Dana Ayers, Planner III, Napa County, Approved/Pending project list for Rutherford Road & SR-29 area projects, February 22, 2018.

Daily, weekday PM peak hour, and Saturday Midday peak traffic volumes were generated for the above near-term projects based on the employee peaking factors and auto occupancy rates for visitors using recent winery research conducted by the Napa County Planning, Building, and Environmental Services Department.[14]

As noted, a two-year horizon window to the Year 2022 has been assumed. Based on the approved/pending projects reviewed by County staff, both weekday PM peak hour and weekend midday peak hour traffic volumes resulting from these projects were added to the street network.

Near-term (no project) volumes for weekday PM peak hour and weekend midday peak hour have been shown in Figure 3.

Near-Term Year 2022 (No Project) Intersection Operation

Existing weekday PM peak and weekend midday peak hour near-term year 2022 (no project) level-of-service has been shown in Table 4. As calculated, the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to operate at LOS F during both the weekday PM peak hour and weekend midday peak hour. Stated intersection LOS refer to the stop-sign controlled movements at Rutherford Road and Oakville Cross Road-Walnut Lane. The Cakebread Cellars Driveway/SR-29 intersection would be operating at LOS C during both the Friday PM peak hour and Saturday midday peak hour.

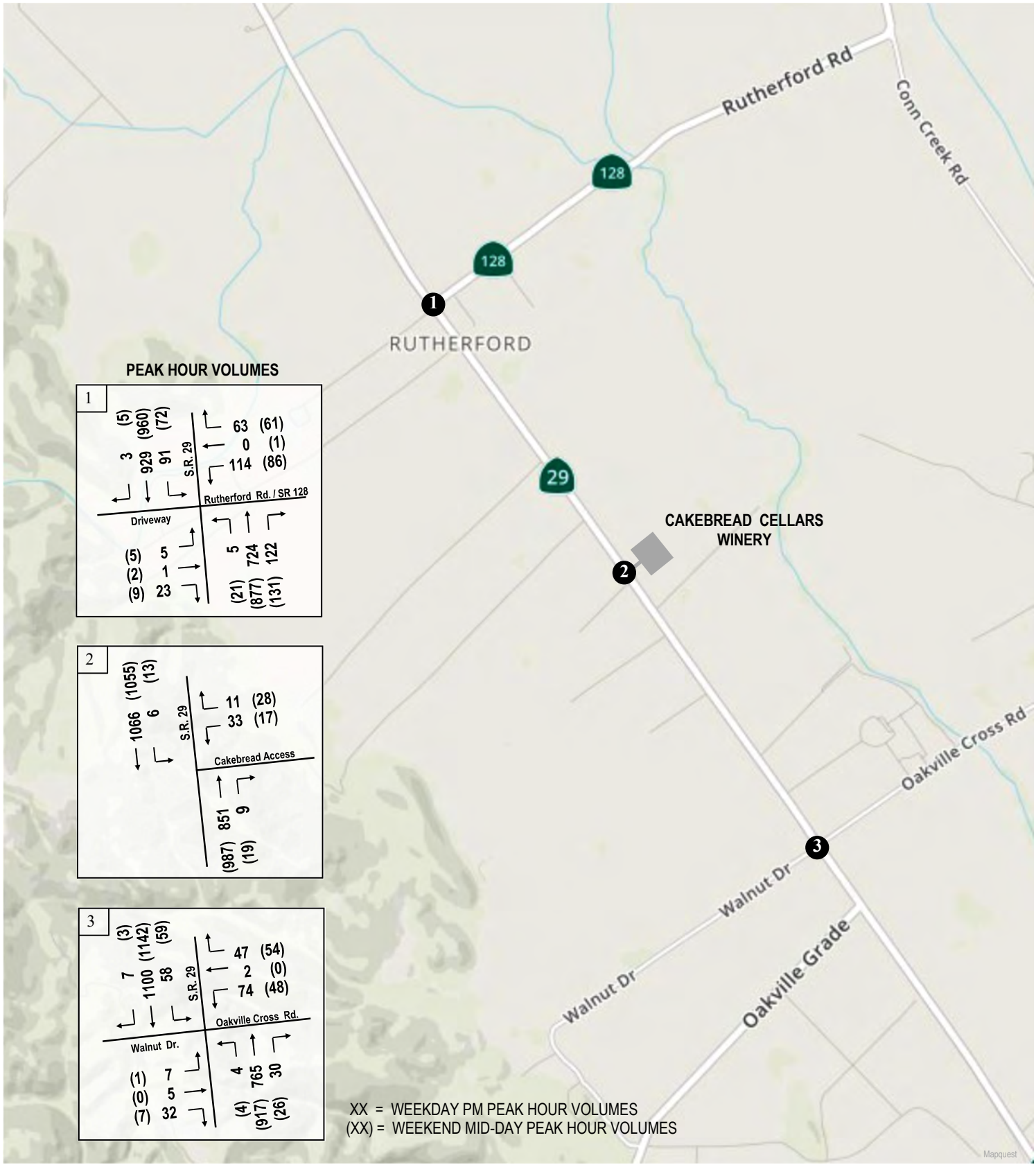
TABLE 4 NEAR-TERM YEAR 2022 (NO PROJECT) CONDITIONS: INTERSECTION LEVELS-OF-SERVICE WEEKDAY PM PEAK AND WEEKEND MIDDAY PEAK HOUR(1)

	Intersection	Control Type	Wkdy. PM LOS/Delay Year 2022 (No Project)	Wknd. Midday LOS/Delay Year 2022 (No Project)
1	Rutherford Road/State Route 29	MSSC	**F >300**	**F >300**
2	Cakebread Cellars/State Route 29	MSSC	C 24.8	C 15.1
3	OCR-WL/State Route 29	MSSC	**F >300**	**F >300**

(1) Based on Highway Capacity Manual (HCM) 2016, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds. Stated LOS refers to the minor street (stop-sign) controlled movement. MSSC = Minor Street Stop Control

Based on CAMUTCD peak hour signal warrant criteria (Warrant #3), the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to qualify for signalization under the peak hour warrant (the warrant graphs are provided in the Appendix). The Cakebread Cellars Driveway/SR-29 intersection would not qualify for signalization with near-term (no project) volumes at this time.

[14] *County of Napa, Planning, Buidling, Environmental Services (PBES), "Winery Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2020.*



NEAR TERM (NO PROJECT)
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 3

N

Near-Term Year 2022 (No Project) Arterial Operation

Peak hour arterial operation has also been evaluated with near-term year 2022 (no project) conditions. Rutherford Road would continue to operate at LOS B with 213 directional peak hour vehicles (Class II Arterial 35 mph or less). SR-29 would experience peak hour directional arterial flow (one-way) of approximately 1,072 vehicles during the weekday PM peak hour (southbound) and 1,068 during the Saturday midday peak hour (southbound). Based on an undivided Class I arterial over 40 mph this would yield LOS F during both time periods. The Oakville Cross Road would be operating at LOS B at 123 peak hour (westbound) vehicles.

4. Napa County Significance Criteria

The County of Napa's significance criteria has been based on a review of the Napa Valley Transportation Authority and Napa County General Plan documentation on roadway and intersection operations. In addition, updated criteria for unsignalized intersections and arterial segments has been based on adopted criteria in the County's Traffic Impact Study Policies (Required Elements). Specifically, the Circulation Element of the County's General Plan and updated guidelines for significance criteria outline the following significance criteria specific to intersection operation:

Intersections/Roadway Segments

- The County shall seek to maintain a Level of Service D or better at all intersections, except where the level of service already exceeds this standard (i.e. Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way;
- No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met;
- 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, the peak hour signal warrant criteria should also be evaluated and presented for informational purposes; or
- Under Existing Conditions, an unsignalized intersection or roadway segment operates at LOS E or F during the selected peak hours without Project trips, and the project contributes 10 percent or more of the side-street approach traffic to the two-way stop controlled intersection/facility. For directional roadway segments, if the project contributes one percent or more to peak hour volumes;
- Under Near-Term or Cumulative Conditions, an unsignalized intersection or roadway segment operates at LOS E or F during the selected peak hours without Project trips, and the project contributes five percent or more of the total traffic growth to that intersection/facility.

Further significance criteria are based on County and CEQA guidelines and apply mainly to intersection operation and access. A significant impact occurs if project traffic would result in the following:

- Cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume capacity ratio on roads, or congestion at intersections);
- Exceed either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways;

- Result in a change of traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency vehicle access;
- Project site or internal circulation on the site is not adequate to accommodate pedestrians and bicycles;

5. Proposed Project Impacts

Proposed Project Description

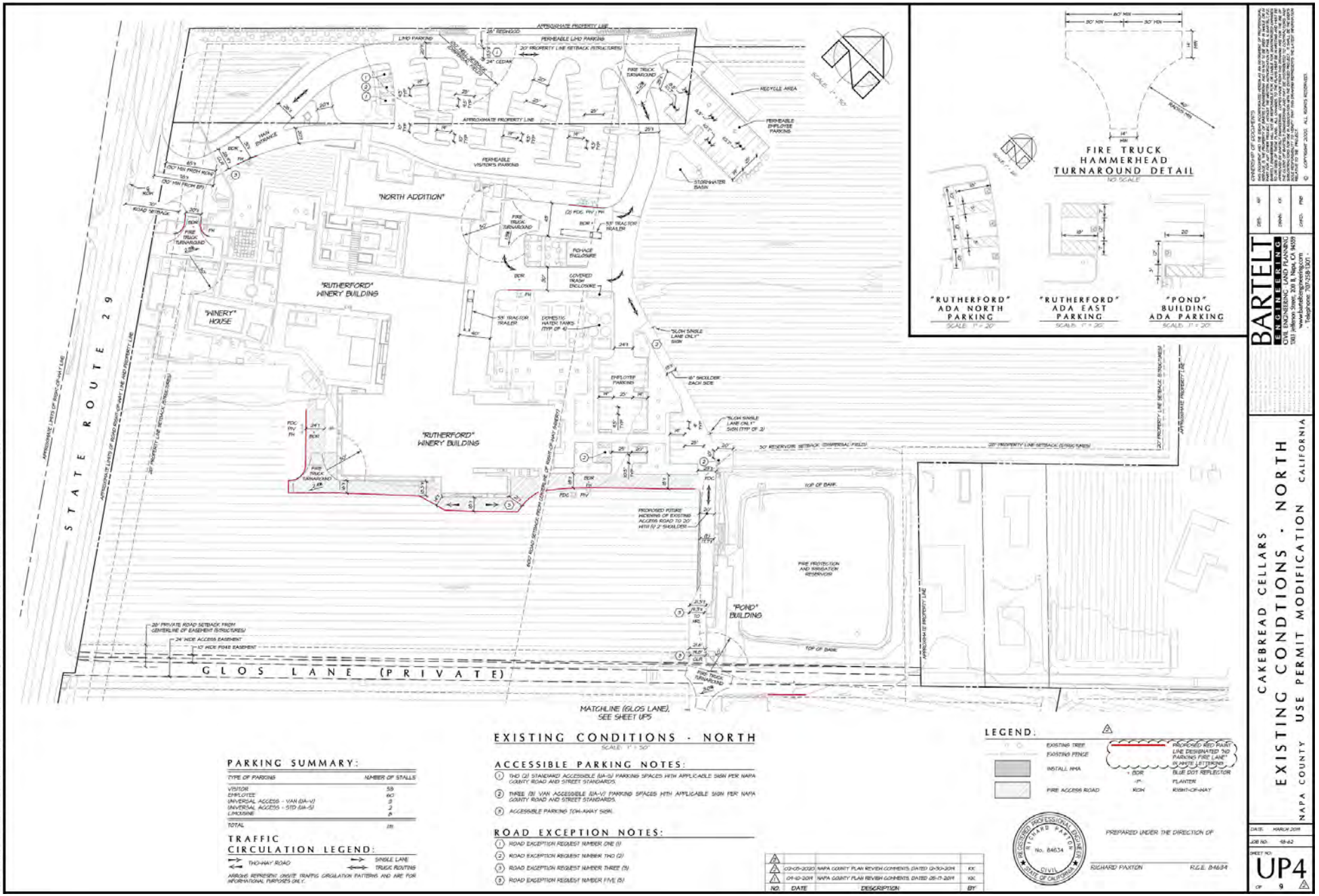
The proposed Cakebread Cellars Use Modification project would consist of increasing two components associated with winery production; 1) annual gallons of production per year, and, 2) the number of full-time/part-time employees. There would be ***no increases*** in winery visitation or marketing events. As noted, the existing project site is located at 8300 St. Helena Highway on the east side of the highway and is served by an existing two-way-left-turn lane and a wide project driveway (see Figures 4.1 & 4.2—Project Site Plan). Wine production is proposed to increase to 800,000 gallons per year. Employment would increase by approximately 32 employees during non-harvest conditions and 43 employees (maximum) during the harvest/crush period. Proposed project components can be described as follows:

Project Components (Tasting Room Operations):

			Existing	Proposed
•	Production	Gallons:	501,486	800,000
•	Employees	Weekday:	64 FT/13 PT	92 FT/16 PT (non-harvest)
		Weekend:	64 FT/13 PT	64 FT/17 PT (non-harvest)
		Weekday:	64 FT/13 PT	92 FT/28 PT (harvest)
		Weekend:	64 FT/13 PT	69 FT/51 PT (harvest)
•	Trucks:	4.5 trucks/day or 9 truck trips		6.5 trucks/day or 12 truck trips (harvest)

As shown above, existing production at the winery would increase by approximately 300,000 gallons per year from 501,846 gallons (3-year average) to 800,000 gallons. During non-harvest periods, full-time employment would typically increase from 64 employees to 92 employees (+28) during the weekdays. There would (in general) be no increase in full-time employment on the weekends. Part-time employment is expected to increase incrementally from 13 employees to 16-17 employees (+4) dependent on the weekday or weekend. Overall, employment would be expected to increase by 32 employees during the non-harvest periods.

During the harvest/crush season, full-time employment would increase from 64 employees to 92 employees (+28) on the weekday. Part-time employment would increase by 15 employees during the same period. During the weekend, full-time employment would increase by 5 employees with part-time employment increasing by 38 employees. Overall, employment would be expected to increase by 43 employees during the harvest/crush period (see Appendices---Winery Traffic Information/Trip Generation Sheets, Existing Permitted and Proposed Levels, Cakebread Cellars Winery, Napa County Application, 2019).



EXISTING CONDITIONS - NORTH

SCALE: 1" = 50'

PARKING SUMMARY:

TYPE OF PARKING	NUMBER OF STALLS
VISITOR	59
EMPLOYEE	60
UNIVERSAL ACCESS - VAN (UA-V)	3
UNIVERSAL ACCESS - STD (UA-S)	3
LIMOUSINE	8
TOTAL	131

TRAFFIC CIRCULATION LEGEND:

TWO-WAY ROAD

SINGLE LANE

TRUCK ROUTING

ARROWS REPRESENT ONSITE TRAFFIC CIRCULATION PATTERNS AND ARE FOR INFORMATIONAL PURPOSES ONLY.

ACCESSIBLE PARKING NOTES:

1. TWO (2) STANDARD ACCESSIBLE (UA-S) PARKING SPACES WITH APPLICABLE SIGN PER NAPA COUNTY ROAD AND STREET STANDARDS.
2. THREE (3) VAN ACCESSIBLE (UA-V) PARKING SPACES WITH APPLICABLE SIGN PER NAPA COUNTY ROAD AND STREET STANDARDS.
3. ACCESSIBLE PARKING TOW-AWAY SIGN.

ROAD EXCEPTION NOTES:

1. ROAD EXCEPTION REQUEST NUMBER ONE (1)
2. ROAD EXCEPTION REQUEST NUMBER TWO (2)
3. ROAD EXCEPTION REQUEST NUMBER THREE (3)
4. ROAD EXCEPTION REQUEST NUMBER FIVE (5)

LEGEND:

EXISTING TREE
EXISTING FENCE
INSTALL MMA
FIRE ACCESS ROAD
PROPOSED RED PAINT LINE DESIGNATED "NO PARKING FIRE LANE"
BLUE DOT REFLECTOR
PLANTER
RIGHT-OF-WAY

NO.	DATE	DESCRIPTION	BY
3	03-05-2020	NAPA COUNTY PLAN REVIEW COMMENTS, DATED 12-30-2019	KK
2	09-10-2019	NAPA COUNTY PLAN REVIEW COMMENTS, DATED 08-17-2019	KK
1			

REGISTERED PROFESSIONAL ENGINEER RICHARD PAXTON No. 84634 CIVIL STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF

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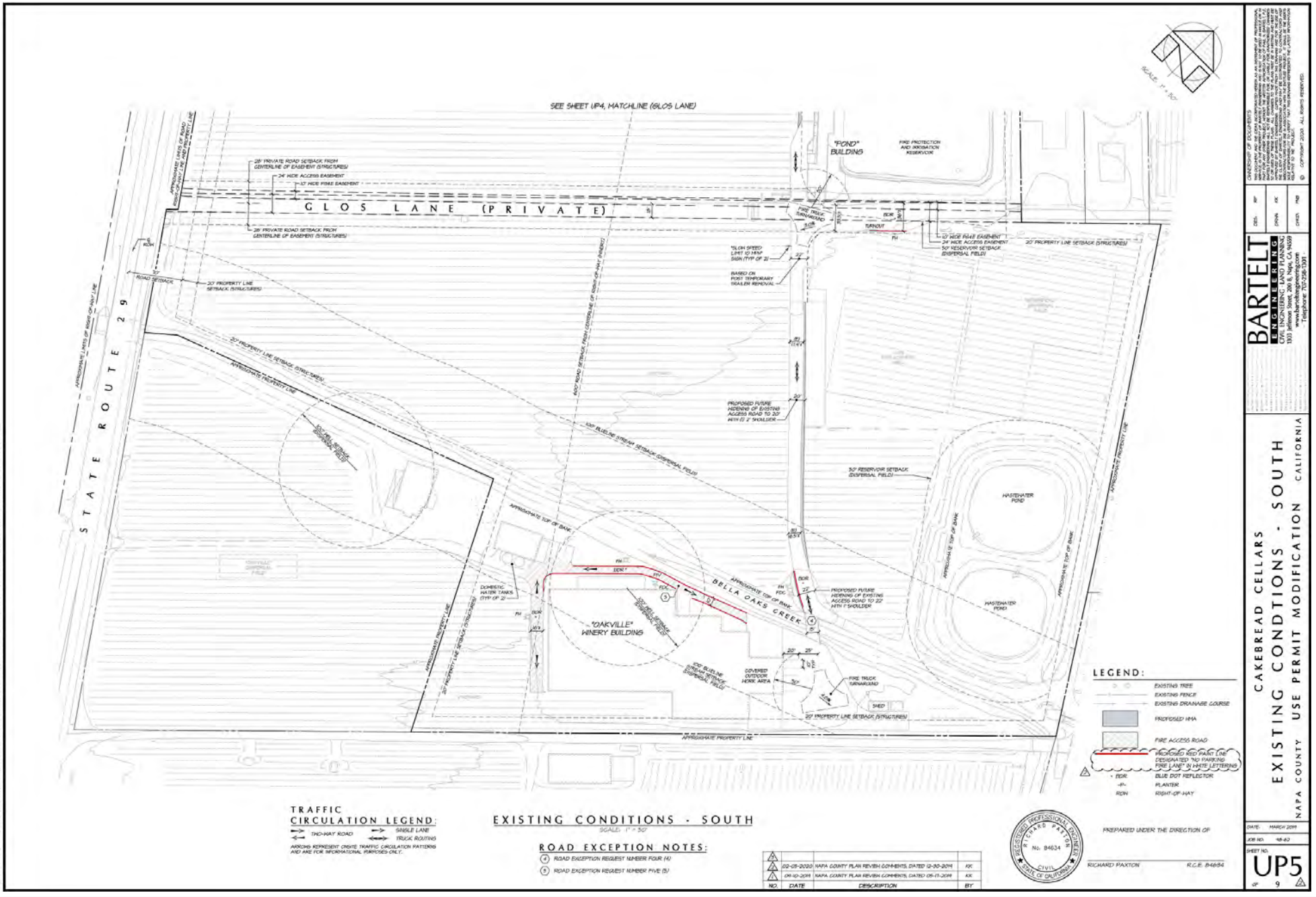
DES. KP
DRWN. CK
CHKD. PMP

CAKEBREAD CELLARS
EXISTING CONDITIONS - NORTH
NAPA COUNTY USE PERMIT MODIFICATION CALIFORNIA

DATE: MARCH 2019
JOB NO. 18-62
SHEET NO. UP4 OF 9

PROJECT SITE PLAN - NORTH

FIGURE 4.1



PROJECT SITE PLAN - SOUTH

FIGURE 4.2

Existing Employment Site Uses

Meetings with Napa County Planning and Engineering staff indicated a need to understand the daily operations of the winery as they relate to employment levels and the various job-tasks. Cakebread Cellars Winery has voluntarily provided monthly operational data (see Appendices—2018 Cakebread Operations Employee Workshifts) to show the fluctuations in employees travelling to/from the winery during selected non-harvest and harvest months. As shown in Tables 5 and 6, employment activity is lower during the winter month of January compared to a harvest month in October.

TABLE 5 CAKEBREAD CELLARS DAILY EMPLOYMENT; JANUARY NON-HARVEST 2018

Work Day	6:30am 2:30pm	7:00am 3:30pm	7:30am 4:00pm	8:00am 4:30pm	8:00am 5:00pm	8:15am 4:45pm	8:30am 5:00pm	9:00am 1:00pm	10:00am 5:00pm	12:00pm 5:00pm	Total
Monday	2	5	8	11	10	2	18	0	1	1	58
Tuesday	2	5	8	13	12	1	18	1	0	0	60
Wednesday	2	5	8	13	12	1	15	1	0	0	57
Thursday	2	5	8	13	12	2	14	1	1	0	58
Friday	2	5	8	13	12	2	21	0	1	2	66
Saturday	0	0	0	2	2	1	20	0	1	2	28
Sunday	0	0	0	0	0	1	19	0	1	2	23

Source: Cakebread Cellars Winery, 2019.

TABLE 6 CAKEBREAD CELLARS DAILY EMPLOYMENT; OCTOBER HARVEST 2018

Work Day	5:30am 5:30pm	6:00am 6:00pm	6:30am 2:30pm	7:00am 3:30pm	7:00am 7:00pm	7:30am 4:00pm	8:00am 4:30pm	8:00am 5:00pm	8:15am 4:45pm	8:30am 5:00pm	9:00am 1:00pm	10:00am 5:00pm	10:00am 10:00pm	12:00pm 5:00pm	3:00pm 11:00pm	3:00pm 3:00am	4:00pm 4:00am	5:00pm 5:00am	5:15pm 10:15pm	5:30pm 11:00pm	Total
Monday	7	8	2	1	3	4	4	17	0	19	0	1	0	0	0	0	4	0	0	0	70
Tuesday	1	10	2	1	4	5	6	17	0	18	1	0	2	0	0	0	3	0	0	0	70
Wednesda	1	10	2	1	6	5	7	17	0	17	1	0	2	1	0	0	4	0	0	0	74
Thursday	1	8	2	1	7	5	6	17	0	20	1	1	1	0	0	0	4	0	0	0	74
Friday	1	9	2	1	7	5	6	17	0	23	0	2	2	1	0	0	4	0	0	0	80
Saturday	1	10	0	0	4	0	2	4	0	26	0	1	2	1	0	0	2	2	0	0	55
Sunday	0	7	0	0	5	0	0	0	0	22	0	1	0	1	0	4	0	0	0	0	40

Source: Cakebread Cellars Winery, 2019.

As shown in Tables 5 and 6 above, daily employment in the month of January tends to peak on a Friday at 66 employees. In contrast, the harvest month of October saw the winery employee 80 workers primarily due to additional part-time activities associated with wine production and harvesting. In addition, employees working during the harvest typically can arrive/leave prior to peak commute periods when their services are needed.

Employment associated with Cakebread Cellars activities can be described for both existing and future activities related to production, culinary, administration, direct sales, and facilities. A brief description of each winery job department follows:

Production

The production department is responsible for the production of wine. This includes harvest activities from August through October, which is the busiest and highest labor headcount season of the year. Typically headcount in the production department will increase by 12 and for the harvest period;

Culinary
The culinary department is responsible for the wine education of guests through food. This includes hosting small groups for interactive educational events such as cooking classes, blending seminars, wine and food pairings, lunches or dinners. Culinary is most active during the harvest period of August through October with events occurring on weekends or evenings where on-call staff maybe asked to assist;

Administration
The administration department consists of the finance staff, office staff, and human resources staff. This team does not experience the fluctuation in headcount during the harvest season as other departments and is very predictable and consistent with the hours worked Monday-Friday;

Direct Sales
The direct sales department is responsible for the guest and wine club member experiences. This includes guests who; visit the winery, call into or email the winery. This is the winery's largest department and consists of team members in the tasting room, wine club, shipping, and customer service. Typically, headcount will increase by 4-6 seasonal employees during the months of June through October;

Facilities
The facilities department is responsible for the landscape and housekeeping ambiance of the winery. This team does not experience the fluctuation in headcount during the harvest season as other departments and is very predictable and consistent with the hours worked Monday-Friday.

Project Trip Generation/Distribution

Trip Generation Methodology

Daily and peak hour project trip generation has been based on employment and truck delivery data supplied by Cakebread Cellars Winery and Napa County daily trip ratios for full-time and part-time employees. In addition, daily driveway counts were conducted at the Cakebread Cellars Winery with the goal of obtaining project trip generation rates. However, the project's driveway counts contain both employee and visitor (guest) trips. There is no way to distinguish between an employee trip and a visitor trip from the raw count data. It was also found that the Cakebread Cellars Winery driveway counts do not provide an accurate assessment of employee peaking factors since their trips are mixed with visitor traffic (which have a different peaking profile).

For the above reasons, a more conservative approach for employee trips and their peaking factors was used to develop proposed project trip generation. Cakebread Cellars Winery was able to provide specific work-shift data for all existing employees for both Fridays and Saturdays during the peak harvest months of September and October.[15] Based on a review of the work shift data, the vast majority of employees leave the winery between 5:00-6:00 p.m. on both a Friday and Saturday. The portion of employees exiting the Winery during this time period was 55.5% (Fridays) and 57.5% (Saturdays). When applied to the maximum proposed increase in employment during the harvest season (43 employees); there would be an additional 25 weekday PM peak hour trips and 25 midday peak hour weekend trips. Assuming each

[15] Bruce Cakebread, Applicant, Cakebread Cellars Winery, Employee work-shift data for Fridays and Saturdays, September and October 2019.

employee is a single-vehicle occupant there would be 86 additional daily trips. It is noted that employees are allotted just one half-hour for lunch and do not typically leave the Winery grounds. Opportunities for lunch travel are limited in that there is only one "quick-service" eatery one mile to the north in Rutherford and/or Yountville eateries located 4.8 miles to the south. Oakville Grocery Market is located closer (about one mile south of the project site). However, non-tourist focused lunch destinations are very limited within a reasonable distance of the project site. For this reason, daily trips related to employment have been increased by 10% to reflect occasional off-site vehicle trips or emergencies during the day as a conservative measure.

Truck trips during the harvest season has been based on truck delivery information provided by the Cakebread Cellars Winery.[16] Specifically, the total number of on-haul grape deliveries for the 2018 and 2019 harvest season was reviewed. Over an 8-week harvest period, the Winery averaged 228 truck deliveries for approximately 500,000 gallons of wine production. Using the proportional increase in wine production to 800,000 gallons (annually) would equate to a 60% increase in capacity or 365 trucks during the harvest season. Based on two trips per truck, there would be 730 total truck trips over the 8-week season or 91 truck trips per week. Assuming around-the-clock production would generate 13 daily truck trips with two truck trips during the peak hour. It is noted that grape on-haul trucks (production trucks) typically operate outside of the peak hours of adjacent street traffic. Discussions with the project applicant indicate that on-haul grape trucks usually arrive very early in the morning and/or late at night since production occurs on a 24-hour basis. At Cakebread Cellars Winery, over 75% of the grapes are harvested during night-time hours outside of the peak traffic periods. Therefore, truck traffic related to production has little if any effect on weekday PM peak hour and/or Saturday midday peak hour traffic flows.

Based on the proposed project's maximum employment and production during the harvest/ crush season daily and peak hour trip generation have been shown in Table 7. The proposed project would be expected to generate 96 net new daily trips with 25 weekday PM peak hour trips (1 in, 24 out). During a typical weekend (Saturday), the project would be expected to generate 25 midday peak hour trips (afternoon) peak hour trips (1 in, 24 out).

Consistent with new Napa County guidelines related to site-specific trip generation calculations, the proposed project's "peak hour of the generator" is being applied to the "peak hour of adjacent street traffic." While this methodology accurately reflects the proposed project's impacts during the Friday weekday PM peak hour, it **does not reflect** the project impacts accurately during the Saturday midday peak hour. Employees are not leaving the facility during the Saturday midday peak hour between 1:45-2:45 p.m. However, County guidelines related to site-specific trip generation compel these project trips to be added to the peak hour of adjacent street traffic. Therefore, proposed project impacts are over-stated and would be less during the Saturday midday peak hour.

Trip Generation; PBES Methodology and Project-Specific Methodology

Napa County Planning, Building, and Environmental Services (PBES) Winery Traffic Information/Trip Generation calculation sheets have been provided for proposed project uses in the Appendices (Appendix E). County methodology for proposed project trip generation is

[16] Bruce Cakebread, Applicant, Cakebread Cellars Winery, On-haul grape truck deliveries during harvest/crush season, August 22 – October 23, 2018 and 2019.

TABLE 7 CAKEBREAD CELLARS WINERY; DAILY AND PEAK HOUR TRIP GENERATION

Land Use	Units	Daily		Weekday PM Peak			Weekend MD Peak		
		Rate(1)	Trips	Trips(2)	In	Out	Trips(2)	In	Out
Existing Winery Use									
(Cakebread Cellars)									
F-T Winery Employees	64	2.10	134	36	0	36	37	0	37
P-T Winery Employees	13	2.10	27	7	0	7	8	0	8
Production (3)	500K	0.018	9	1	0	1	1	0	1
Permitted Project Trips			**170**	**44**	**0**	**44**	**46**	**0**	**46**
Proposed Winery Use									
(Cakebread Cellars)									
F-T Winery Employees	92	2.10	193	51	0	51	53	0	53
P-T Winery Employees	28	2.10	59	16	0	16	16	0	16
Production(3)	800K	0.018	14	2	1	1	2	1	1
Proposed Project Trips			**266**	**69**	**1**	**68**	**71**	**1**	**70**
Net Added Project Trips			**96**	**25**	**1**	**24**	**25**	**1**	**24**

(1) Daily employee trip rate based on 2 trips/employee with a 10% buffer added for occassional off-site trips/emergenices. Employees do not leave site for lunch (typically).

(2) Peak hour of the project generator PM weekday and Midday weekend based on Cakebread Cellars Winery employee work-shift data for September-October 2019 (see Appendices). PM weekday rate of 55.5% and Midday weekend rate of 57.5%.

(3) Daily and peak hour truck trip generation based on Cakebread Cellars Winery total number of on-haul grape deliveries for 2018 and 2019 (see Appendices).

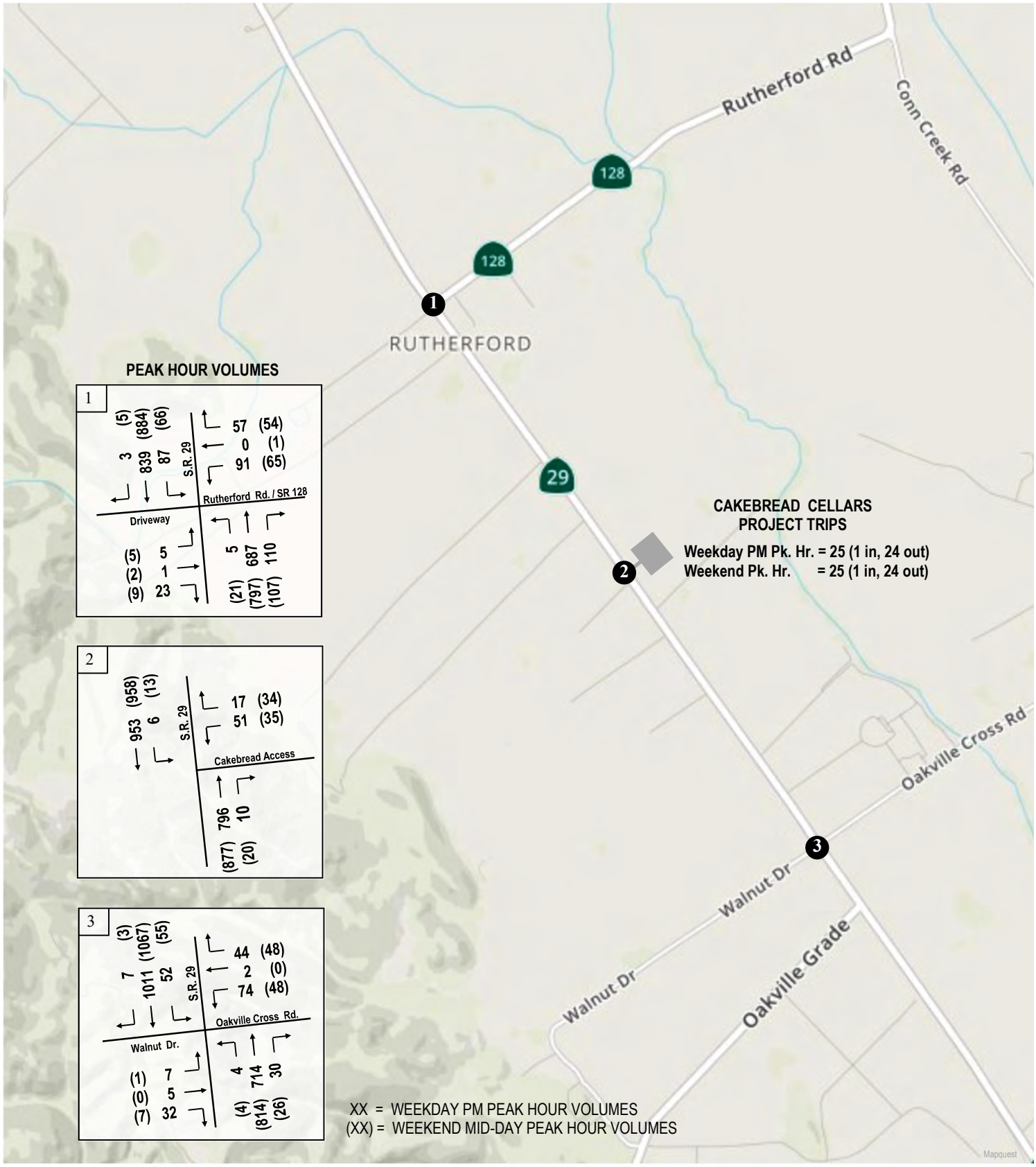
F-T = Full-Time, P-T = Part-Time

slightly more conservative than actual project-specific trip generation calculations used in this study (referring to items N-Q for Proposed Project Trip Generation in Appendix E that over-state project trips). Focusing on employee trip generation ratios, the County assumes a daily ratio of 3.05 trips per full-time employee (1.9 trips per part-time employee). This County ratio yields an additional 30 daily trips assuming full-time employees generate one (1) additional daily trip each to/from a winery. By contrast, project-specific employee data indicate that full-time employees rarely leave the winery campus, generating just 2.1 daily trips per employee (both full-time and part-time employees). Therefore, County PBES methodology for winery employment trip generation would tend to be more conservative than project-specific data and does not accurately reflect real-world employment activity at the Cakebread Cellars Winery used for this analysis.

Trip Assignment

To determine traffic impacts associated with the proposed project, the net increase in project trips were added to existing volumes and near-term (no project) volumes. Based on observed travel patterns at the Cakebread Cellars Winery driveway, the weekday PM and weekend midday peak hour project trips were distributed 75 to/from the south and 25% to/from the north on SR-29. Employment trip patterns were primarily derived from Friday PM peak hour driveway volumes when the majority of Cakebread Cellars employees are leaving the Winery.

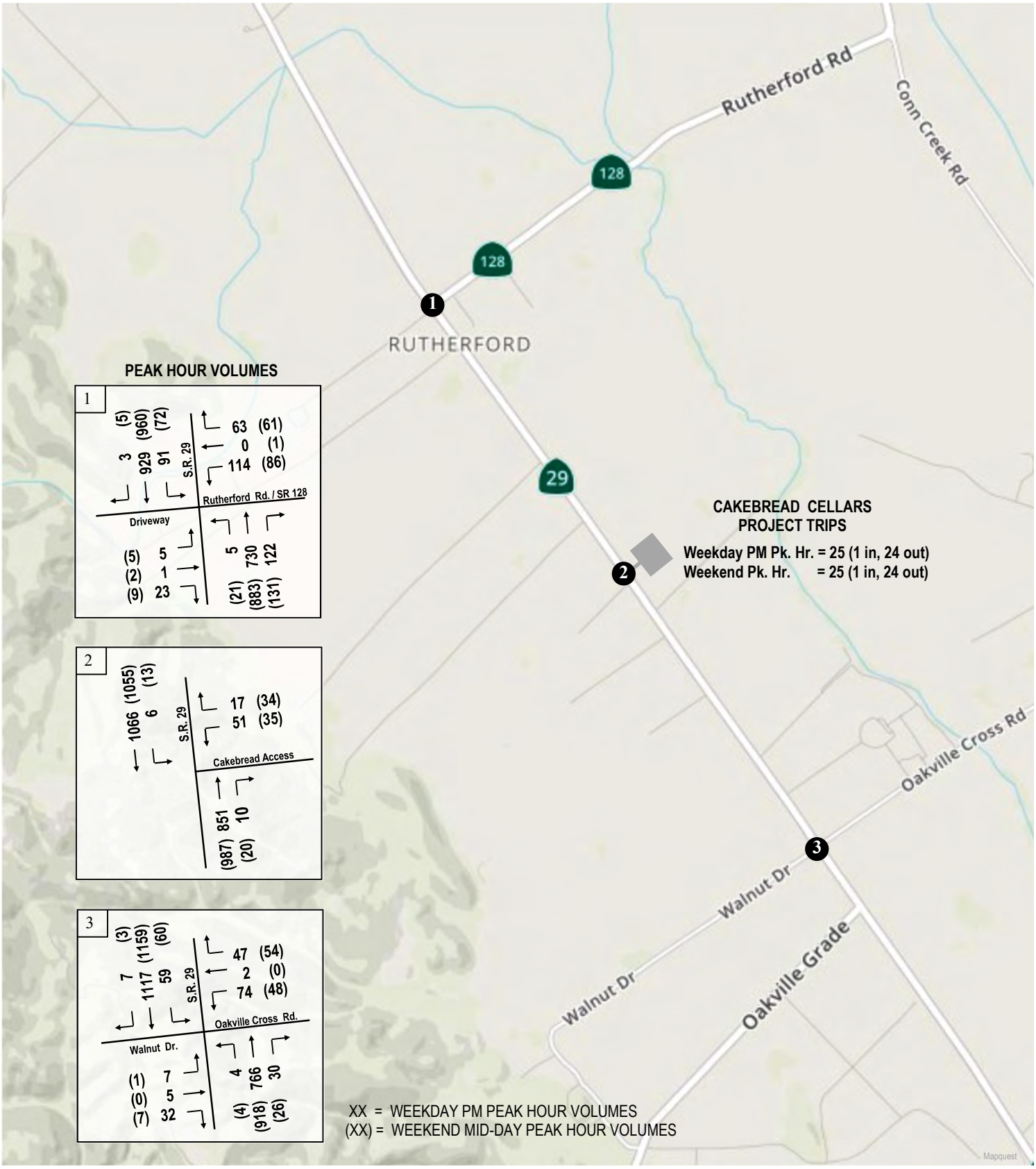
Friday PM peak hour and conservatively assumed Saturday midday peak hour existing plus project and near-term plus project volumes have been shown in Figures 5 and 6.



EXISTING PLUS PROJECT
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 5

N



NEAR TERM PLUS PROJECT
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 6

N

Project Effects on Intersection/Roadway Segment Operations

Existing plus Project Intersection Operating Conditions

During the peak harvest activity periods, the increase in employment and production has been analyzed to generate 25 net new weekday PM peak hour trips and 25 net new Saturday midday peak hour project trips. Weekday PM peak hour and weekend midday peak hour intersection levels of service were evaluated with proposed project traffic and are shown in Table 8.

With existing plus project traffic volumes, operations at both the Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR 29 intersections would remain unchanged (LOS F) from existing conditions during the weekday PM peak hour and weekend midday peak hour periods. The remaining study intersection of Cakebread Cellars/SR-29 would operate at acceptable levels (LOS C) during the same peak time periods.

TABLE 8
EXISTING AND NEAR-TERM WITH PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
WEEKDAY PM PEAK AND WEEKEND MIDDAY PEAK HOUR[1]

			Wkdy. PM LOS/Delay		Wknd. Midday LOS/Delay	
	Intersection	Control Type	Existing (No Project)	Existing (W/ Project)	Existing (No Project)	Existing (W/ Project)
1	Rutherford Road/SR-29	MSSC	**F >300**	**F >300**	**F >300**	**F >300**
2	Cakebread Cellars/SR-29	MSSC	C 21.9	C 24.2	B 13.4	C 17.8
3	OCR-WL/SR-29	MSSC	**F >300**	**F >300**	**F >300**	**F >300**
			Wkdy. PM LOS/Delay		**Wknd. Midday LOS/Delay**	
	Intersection	Control Type	N-T Yr. 2022 (No Project)	N-T Yr. 2022 (W/ Project)	N-T Yr. 2022 (No Project)	N-T Yr. 2022 (W/ Project)
1	Rutherford Road/SR-29	MSSC	**F >300**	**F >300**	**F >300**	**F >300**
2	Cakebread Cellars/SR-29	MSSC	C 24.8	D 28.0	C 15.1	C 20.8
3	OCR-WL/SR-29	MSSC	**F >300**	**F >300**	**F >300**	**F >300**

(1) Based on Highway Capacity Manual (HCM 6), Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds. Stated LOS refers to the minor street (stop-sign) controlled movement.

Based on Napa County Updated Transportation Impact Study Guidelines; the intersections of Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 have been evaluated for proposed project impacts since the LOS operates at an unacceptable level (LOS F) without proposed project traffic during the weekday PM peak hour and weekend midday peak hour.[17] County criteria indicate that a significant impact could be found if the proposed project contributes 10% or more to the side-street approach volumes at the intersection. The guidelines go on to state, "the peak hour signal warrant criteria should also be evaluated and presented for informational purposes." During the weekday PM peak hour, the proposed project would add six (6) trips to the Rutherford Road/SR-29 intersection and 19 trips to the Oakville Cross Road-Walnut Lane/SR-29 intersection. During the weekend midday peak hour, the exact same amount of proposed project trips would be added to these two intersections. (Again, based on actual employee shift times for a Saturday the expectation is that there would be no increase in employee trips during this weekend midday time period). Since proposed project trips are all outbound from the Cakebread Cellars

[17] *Fehr & Peers Memorandum, Updated Transportation Impact Study Guidelines, Draft, April 20, 2018.*

driveway due to employee shift times (with the exception of one peak hour trip), there would no contribution to side-street approaches at the off-site intersections of Rutherford Road and Oakville Cross Road-Walnut Lane at SR-29. Under the County significance criteria, these impacts are less than significant. The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to meet the peak hour signal warrant with or without proposed project.

Napa County guidelines indicate potential mitigation could include adding a signal if conditions are appropriate, geometric modifications to the intersection configuration, or changes to the Project to reduce its peak hour trip generation, or converting an intersection to a roundabout per Policy CIR-31. As noted, the County of Napa has updated its Circulation Element and TIS guidelines with recommendations towards improving overall vehicle delays along SR-29, reducing vehicle miles traveled (VMT), and potentially implementing a traffic impact fees.[18] [19] The proposed project will be implementing a VMT Reduction/TDM Plan for employees (Section 7) as part of their overall development plan.

Existing plus Project Arterial Operations

SR-29 experiences peak hour directional arterial flow (one-way southbound) of approximately 953 vehicles during the weekday PM peak hour and 958 during the Saturday midday peak hour. Based on an undivided Class I arterial over 40 mph this currently yields LOS F during both time periods (see Appendices for Peak Hour Roadway LOS Table). The proposed project would add 19 southbound trips to the SR-29 arterial segment and, (applying the significance criteria of 1% or more) would be considered a potentially significant impact. However, a review of the Updated Napa County Traffic Impact Guidelines has additional direction related to roadway segments operating at LOS F:

> "In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus on reducing the project's vehicular trips through modifying the project definition and/or applying TDM strategies, and then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts."
>
> The following roadway segments are exceptions to the LOS D standard described above:

- State Route 29 in the unincorporated areas between Yountville and Calistoga: LOS F is acceptable.[20]

As noted above, the proposed project will be implementing a VMT Reduction/TDM Plan for employees (Section 7) as part of their overall development plan to reduce peak hour vehicle trips on SR-29. Combined with Napa County TIG policies indicated that LOS F is acceptable for SR-29

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[18] County of Napa, General Plan Circulation Element, Adopted February 2019.

[19] Fehr and Peers, Guidelines for Application of Updated General Plan Circulation Policies on Significance Criteria Related to Vehicle Level of Service, Memorandum, April 20, 2018.

[20] Fehr and Peers, Guidelines for Application of Updated General Plan Circulation Policies on Significance Criteria Related to Vehicle Level of Service, Memorandum, Page 9, April 20, 2018

segments, in the project study area overall project impacts would be considered less-than-significant.

Near-Term plus Project Intersection/Roadway Segment Operating Conditions

Near-term year 2022 weekday PM peak hour and weekend midday peak hour intersection levels of service were evaluated with proposed project traffic and are shown in Table 8.

With near-term plus project traffic volumes, project study intersection operations would remain unchanged from near-term (no project) conditions during the weekday and weekend peak periods. The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane intersections would continue to operate at LOS F during both the weekday PM and weekend midday peak hours with or without proposed project traffic. The remaining Cakebread Cellars/SR-29 intersection would continue to operate acceptable levels (LOS D or better) during the same peak time periods.

Proposed project impacts under near-term plus project conditions for study intersections and roadway segment operations would be the same as under existing plus project conditions. Therefore, as under existing plus project conditions, Napa County guidelines indicate potential mitigation could include adding a signal if conditions are appropriate, geometric modifications to the intersection configuration, changes to the Project to reduce its peak hour trip generation, or converting an intersection to a roundabout per Policy CIR-13.5. As noted, the project applicant has developed a TDM plan to reduce overall vehicle trip generation, VMT, and associated parking demand (see VMT Reduction/TDM Plan Section). Combined with Napa County TIG policies indicated that LOS F is acceptable for SR-29 segments in the project study area, overall project impacts would be considered less-than-significant.

6. Site Access/Design Parameters

Sight Distance

Vehicle sight distance at the existing Cakebread Cellars Winery/SR-29 intersection was evaluated for adequate sight lines. The required vehicle visibility or "corner sight distance" is a function of travel speeds on SR-29 Road. Caltrans design standards indicate that for appropriate corner sight distance, "a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the cross road and the driver of an approaching vehicle in the right lane of the main highway". Caltrans design guidelines also indicate that the minimum corner sight distance “shall be equal to the stopping sight distance” where possible.

The posted vehicle speed limit on SR-29 at the Cakebread Cellars driveway is 50 mph in the project area. The "critical" vehicle speed (the speed at which 85% of all surveyed vehicles travel at or below) along SR-29 was observed at approximately 55-60 mph at the project driveway during free-flow conditions. Caltrans’ design standards indicate that these vehicle speeds require a stopping sight distance of 580-feet both north and south of the Cakebread Cellars driveway measured along the travel lanes.[21] Based on field measurements, sight distance from the Cakebread Cellars driveway to the north and south is in excess of 1,000+ feet along SR-29. Therefore, the sight distance recommendations are met for the speed limit and observed vehicle speeds

[21] *Caltrans, Highway Design Manual, Table 405.1A, Corner (Stopping) Sight Distance, March 7, 2014.*

Project Access and Circulation

Access

No changes in site access and/or circulation would occur as a result of the Cakebread Cellars Winery Use Modification project. Vehicle and truck access to the Winery would continue to be gained from the wide primary driveway extending east from SR-29 into the winery grounds (see Figures 4.1 & 4.2—Project Site Plan). At SR-29, the driveway width is approximately 75-feet before narrowing to approximately 30-feet as it approaches the on-site visitor parking areas. About 175-feet east of SR-29, the main driveway splits into two driveway aisles (north and south) that extend on either side of the visitor parking aisles. These drive aisles meet the County minimum width of 20-feet for commercial, industrial, and non-residential driveways. The northern leg of the driveway continues to extend east but narrows to 13.5-feet to maintain ROW for an existing heritage redwood tree. Once past the tree, the driveway widens out again to provide access to employee parking at the far eastern portion of the winery grounds. The driveway then extends south widening further to 25-feet to provide vehicle and truck access to rear building and loading zones on the eastern portion of the winery grounds.

The southern split of the driveway extends east to provide access to vehicle parking aisles aligned in a north-south fashion. There are four parking aisles separated by landscaped medians that can be accessed by either the north or south driveway aisles. It is noted that the north driveway aisle is also designed to accommodate large buses and/or limousines via large extended length parking cutouts adjacent to the northern edge of the property line.

It is noted that emergency access is provided by east-west facilities via Glos Lane (private drive) and a dedicated Winery driveway south of Glos Lane that accesses the “Oakville” Winery Building (see Figures 4 and 5). However, these access driveways are not used on a regular basis and would only serve to provide access for emergency evacuation or vehicles. For this reason, all project-related traffic would continue to be to/from the primary project driveway from SR-29.

Parking

Vehicle parking for daily operations is provided by a combination of visitor and employee parking spaces accessible via the primary Cakebread Cellars Winery driveway from SR-29. As noted, visitors access parking areas between the north and south driveway aisles approximately 200-feet east of SR-29. Within the parking fields there are approximately 61 parking spaces (including 3 ADA compatible parking spaces). Further east off the north driveway a separate parking field is located that accommodates approximately 25 spaces. Extending further south from the northern driveway (behind the Rutherford Winery Building) an additional parking field is located with 21 parking spaces (including an additional ADA compatible space). Finally, a smaller parking field (9 spaces and 1 ADA space) is located directly east of this latter parking lot. Based on the existing project site plan, there are a total of 131 on-site parking spaces including visitor (58), employee (60), universal access van (3), universal access standard (2), and limousine (8). In order to maximize parking efficiency, parking spaces are not specifically reserved for visitors or employees. Typically, there are more employees on-site during the weekdays with fewer visitors and vice-verse on the weekends. Shared parking serves to provide adequate parking supply while reducing the project’s on-site parking footprint.

Emergency Access

Emergency vehicle access is gained from the primary Cakebread Cellars Winery driveway from SR-29 as well as Glos Lane and a dedicated Winery driveway to the south (approximately 665-

feet and 1,100-feet south of the Winery's primary driveway from SR-29). Both of these southern Winery access facilities (Glos Lane and dedicated Winery driveway) are signed "No Winery Access." Fire truck turnarounds ("hammerheads") are provided at five locations throughout the Winery grounds:

1. Immediately south of the "Rutherford" Winery in the entry area adjacent to the "Winery" House building;
2. Internal North Drive Aisle/Employee Parking Lot;
3. East of the "Rutherford" building in the truck loading/unloading area;
4. Glos Lane/Rear Cakebread Cellars Winery driveway intersection;
5. East of the "Oakville" Winery building

Design Standards

Existing design of the driveway access for truck turning radii, parking spaces, and emergency vehicle access have been reviewed based on the Napa County Road and Street Standards.[22] With regard to driveway access, the County requires design radii of R20' for driveway/common drive connection to arterial roads. The primary Cakebread Cellars Winery driveway from SR-29 is designed for minimum R20 radius to accommodate truck-turning radii. All standard on-site parking spaces are designed to County standards of 9'x19' (most are larger) with drive aisles of 25-feet. ADA compliant parking spaces (5) are in excess of what the County requires based on the total number of parking spaces being provided on the project site. Finally, emergency vehicle access and turnarounds (standard hammerhead turnarounds) have been designed to meet the County minimum design requirements of 60 feet in width with R40' turning radius for fire equipment. Due to physical driveway components (heritage trees), Cakebread Cellars Winery has an exception to the road and street standards the County has endorsed for minor exceptions to the internal driveway(s).

Pedestrian/Bicycle Circulation

Pedestrian and bicycle circulation occurs primarily in the northern half of the project site where daily visitor parking spaces and bicycle facilities are located associated with access through the primary north driveway entrance. A dedicated pedestrian path and crosswalk link the initial visitors parking field (containing ADA compatible parking spaces) with the new "North Addition" building. The crosswalk extends across the south internal driveway to link the two areas. There is also an east-west pedestrian path linking all four visitor parking fields and employee parking field to crosswalk via a series of parking median extensions within the parking fields. Bicycle racks are located immediately east of the primary Cakebread Cellars driveway entrance adjacent to the "Winery House" and for employees at the rear of the site buildings. In total, the Winery has three (3) bicycle racks for guests and employee use. It is noted that while Cakebread Cellars Winery advocates for bicycle use by its employees, it does not advocate for using SR-29 as a primary bicycle route to its facility at this time due to safety concerns.

The Napa Countywide Bicycle Plan has been completed and adopted by the Napa Valley Transportation Authority (NVTA) and the County.[23] In the project site vicinity, SR-29 is designated at a Class II bike route (on-street bike lanes). A review of the Napa Countywide Pedestrian Plan

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[22] Napa County Road and Street Standards, Department of Planning, Building, & Environmental Services, September 26, 2017
[23] Napa County, Countywide Bicycle Plan (2012), Planning Area-Mid Valley, January 2012.

indicates that no specific pedestrian improvements are identified for SR-29 in the area (Appendix UNC-C—Detailed Project List, Unincorporated Napa County).[24] The Cakebread Cellars Winery provides bicycle racks for employees/guests.

Truck Access/Loading

Based on discussions with the project applicant, all medium and large trucks are required to enter the winery via the primary Cakebread Cellars Winery driveway via SR-29. Once on the property, drivers use the north driveway to access around the parking fields to the rear of the site behind the "Rutherford" Winery building to the truck loading areas. The truck loading areas are located at the back of the Rutherford Winery Building and can accommodate large semi-tractor trailers of 53-feet in length (maximum). Trucks can circulate around the existing pomace enclosure area where access pads to the loading dock areas have drive aisle widths of ranging from 30-43 feet each and can easily accommodate large trucks.

Garbage trucks access the winery property from the same northern driveway from SR-29. Upon picking up the trash adjacent to the pomace enclosure at the far eastern portion of the property, trucks circulate around the enclosure and exit back out to SR-29 via the same driveway.

As noted, a two-way-left-turn-lane (TWLTL) is present on SR-29 along the project frontage extending from Bella Oaks Lane to approximately 200-feet past the Cakebread Cellars Winery driveway. The TWLTL on SR-29 allows motorists and trucks to gain access to the Winery and/or merge onto SR-29 from the Winery without delaying through-traffic on SR-29. The project applicant indicates that Cakebread Cellars Winery installed the TWLTL on SR-29 in the study area.[25]

7. VMT Reduction/TDM Plan

VMT Reduction Goals:

Napa County is currently in the process of establishing a threshold for minimum vehicle miles traveled (VMT) for various land use developments including office, residential, and commercial-retail development. However, the "winery" project category does not fall neatly into traditional land use categories and is a hybrid land use combining VMT characteristics of agriculture and office uses. Until minimum VMT thresholds are established by the County for winery projects, a qualitative review of proposed project trips has been conducted with guidance from the *California Governer's Office of Planning and Research, Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.* The Advisory indicates that the VMT metric supports three statutory goals: "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and diversity of land uses." The Advisory goes on to state that "achieving 15 percent lower per employee (office) VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State's emissions goals." With regard to the proposed Cakebread Cellars Winery Use Modification project, the Technical Advisory provides "screening thresholds" for small projects as follows:

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[24] Napa County, Countywide Pedestrian Plan, Unincorporated Napa County Area, NVTA, August 2016.
[25] Mr. Bruce Cakebread, Cakebread Cellars Winery, Personal communication, January 22, 2020.

> Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day[26] generally may be assumed to cause a less-than-significant transportation impact.

Since the proposed project's primary trip generator is employment it would tend to mimic an office development; with employees arriving in the morning and leaving during the PM peak commute period. However, it is noted that new project trips associated with expanded wine production activities would typically occur during off-peak or non-peak hours. It is not unreasonable to suggest that specific proposed project TDM measures (discussed below) would help to reduce overall employee VMT towards the 15% threshold. However, it is also likely the proposed project would be exempt from VMT threshold reductions since it is only generating 96 net new daily trips as a result of increased employment and production uses.

Napa County identifies a number of Transportation Demand Management (TDM) strategies to assist in reducing single-occupant vehicle use.[27] Suggested measures could include staggered work hours, provision of employee bus passes, provision of van pools/car pool/shuttle programs, on-site bicycle accommodations, alternative work schedules/telecommuting, preferential parking for carpools, rideshare programs, and establishing a Transportation Management Association (TMA) for employee information/incentives. The following describes the Cakebread Cellars Winery existing and active TDM program:

Cakebread Cellars Transportation Demand Management Plan

Based on correspondence from Cakebread Cellars staff, the Winery has been proactively working to reduce employee single-occupant vehicle trips for many years to mitigate traffic impacts in the Napa Valley.[28] Cakebread Cellars has established what they term their employee centered "Green Team" to encourage commuter traffic goals, reduce the Winery's overall carbon footprint, and to bring awareness and behavioral changes to both employees and the surrounding community. These measures are consistent with Section 18.110.0404(G) of the zoning ordinance. The specific goals of the employee TDM plan are as follows:

- Reduce single-occupant vehicle trips for both existing and project-related uses during peak commute periods;
- Reduce air quality impacts;
- Minimize daily travel costs for Cakebread Cellars employees;
- Provide employees with a more relaxed and comfortable experience during their daily commute to/from the Winery.

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[26] CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

[27] Fehr and Peers, Updated Transportation Impact Study Guidelines (Draft), Napa County, April 18, 2018.

[28] Ms. Nicole Cummings, PHR Human Resources Director, Cakebread Cellars Winery, Cakebread Cellars Traffic Mitigation Measures, January 21, 2020.

Over the last five years, Cakebread Cellars Winery has implemented a number of TDM measures to reduce overall employee trips to/from the Winery and these are as follows:

1. Conducted employee surveys to better understand the needs and behaviors of employees who drive to work each day;

2. Designed and deployed an employee carpool incentive program;
.
3. Added an employee pre-tax benefit program;

4. Created and tested an employee/employer cost shared shuttle bus program;

5. Presented a shuttle bus ride share program to 6 of our neighbor winery partners to increase awareness and action not just at Cakebread Cellars but within our community;

6. Designed and deployed an emergency ride home program for employees who carpool and need a ride home sooner than expected;

7. Cakebread Cellars representatives (Ms. Nicole Cummings) serves as the Napa Valley Vintner representative on the Citizens Advisory Board of the Napa Valley Transportation Authority (3 years and current);

8. Cakebread Cellars Winery is a member of the Napa Valley Vintner traffic mitigation committee;

9. Cakebread Cellars Winery has met with The Vine to share ideas to increase bus service up valley;

10. Cakebread Cellars Winery has volunteered to test the Ride Amigos program;

11. Cakebread Cellars Winery participates in the Solano-Napa commuter programs;

12. Based on employee commute surveys, researched vanpools and the option of offering an employer sponsored rideshare program;

13. Cakebread Cellars Winery participates in the Bike to Work program and offers incentives to employees to bike to work; however, the Winery does not currently support this program on a regular basis given the safety concerns of biking on highway 29;
14. Cakebread Cellars Winery participated in the Napa County strategic planning session for transportation;

15. Cakebread Cellars Winery has reached out to the Wine Train to educate the service on the benefits of offering a commuter train experience throughout their Napa Valley route;

16. Cakebread Cellars Winery participates in and supports the Napa Forward program development (see detailed description of recent program participation below);

17. Cakebread Cellars Winery hosted two Napa Forward employee education and sign up meetings onsite.

From the Cakebread Cellars TDM components described above, it is clear the Winery has been involved and is currently involved in trying to reduce their overall employee single-occupant vehicle use. Discussions with Cakebread Cellars Winery representatives indicate that they provided a separate shuttle-bus between the Winery and downtown Napa (also to the benefit of other wineries along this route). However, the shuttle program was discontinued after two months due to low ridership. The Winery has also approached The Vine about providing a more consistent bus route on SR-29 (a commuter express route) to serve the major towns and/or wineries along the highway.

Napa Valley Forward Commuter Program

The following information/announcement was recently provided by Cakebread Cellars to expand on their participation in the Napa Valley Forward program and is paraphrased below (January 2020-see Appendices):

> "The Metropolitan Transportation Commission (MTC), in partnership with Napa Valley Vintners and Visit Napa Valley will be implementing the Napa Valley Forward program starting January 27, 2020. Cakebread Cellars will be fully supporting this program and has registered as a Napa Valley Forward program partner. All Cakebread Cellars employees are eligible to sign up and participate in the program.
>
> Napa Valley Forward is an innovative commute program designed to help employees find better, faster, enjoyable, and more affordable ways to commute to and from work. Through the program's online tool at www.Napa-Valley.Luum.com, employees can get matched with a carpool or vanpool group, try VINE transit for free, and earn rewards when using a mode other than driving to get to work. Cakebread Cellar employees can also check out opportunities to bike or walk to work, and take advantage of the program's Guaranteed Ride Home feature – for times when employees may have an emergency or unscheduled overtime.
>
> Cakebread Cellars hosted two education opportunities for all employees in February 2020. Cakebread Cellars required all employees who work more than three days per week to attend one of these events to learn about the program and the ways in which our industry is supporting sustainability programs. Employees are not obligated to join the program but there will be incentives and fun giveaways. Should employees have any questions about the program or education event, please contact your Cakebread Cellars "Green Team" member."[29]

8. Cumulative Conditions

Cumulative Year 2030 Projections

Model Forecast

Consistent with near-term (no project) traffic volume growth factors, year 2030 cumulative conditions have been based on historical Caltrans volume data for the last three full calendar

[29] *Ms. Nicole Cummings, PHR Human Resources Director, Cakebread Cellars Winery, Napa Valley Forward Commuter Program, January 27, 2020.*

years.[30] Based on historical average daily traffic data that includes peak hour two-way volumes, volumes on SR-29 have increased by 3.7% in the last three years or 1.23% per year. On Rutherford Road, daily and peak hour volumes are virtually unchanged over the past three years remaining static between SR-29 and Silverado Trail. No historical volumes are available for Oakville Cross Road-Walnut Lane. Therefore, the yearly growth rate used for SR-29 (1.23% per year) is being used for both Rutherford Road and Oakville Cross Road-Walnut Lane volumes as a conservative measure. Based on an 11-year growth period from collected data (year 2019) to year 2030 cumulative (no project) conditions, 13.53% was applied to existing peak hour volumes for background/regional growth along the two study roadways.

Since future volume traffic forecasts are only available for the weekday PM peak hour and not for a Saturday midday peak hour, volumes on SR-29 were uniformly increased by the same percentage as listed above as a conservative measure.

Cumulative year 2030 (no project) and plus project volumes and for weekday PM peak hour and weekend midday peak hour have been shown in Figures 7 and 8.

Cumulative (No Project) Intersection/Roadway Segment Operating Conditions

With year 2030 cumulative (no project) traffic volumes, project study intersection operations have been calculated and shown in Table 9. The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to operate at LOS F during both the weekday PM and weekend midday peak hours with proposed project traffic. The remaining Cakebread Cellars Driveway/SR-29 intersection would continue to operate acceptable levels (LOS D or better) during the same peak time periods.

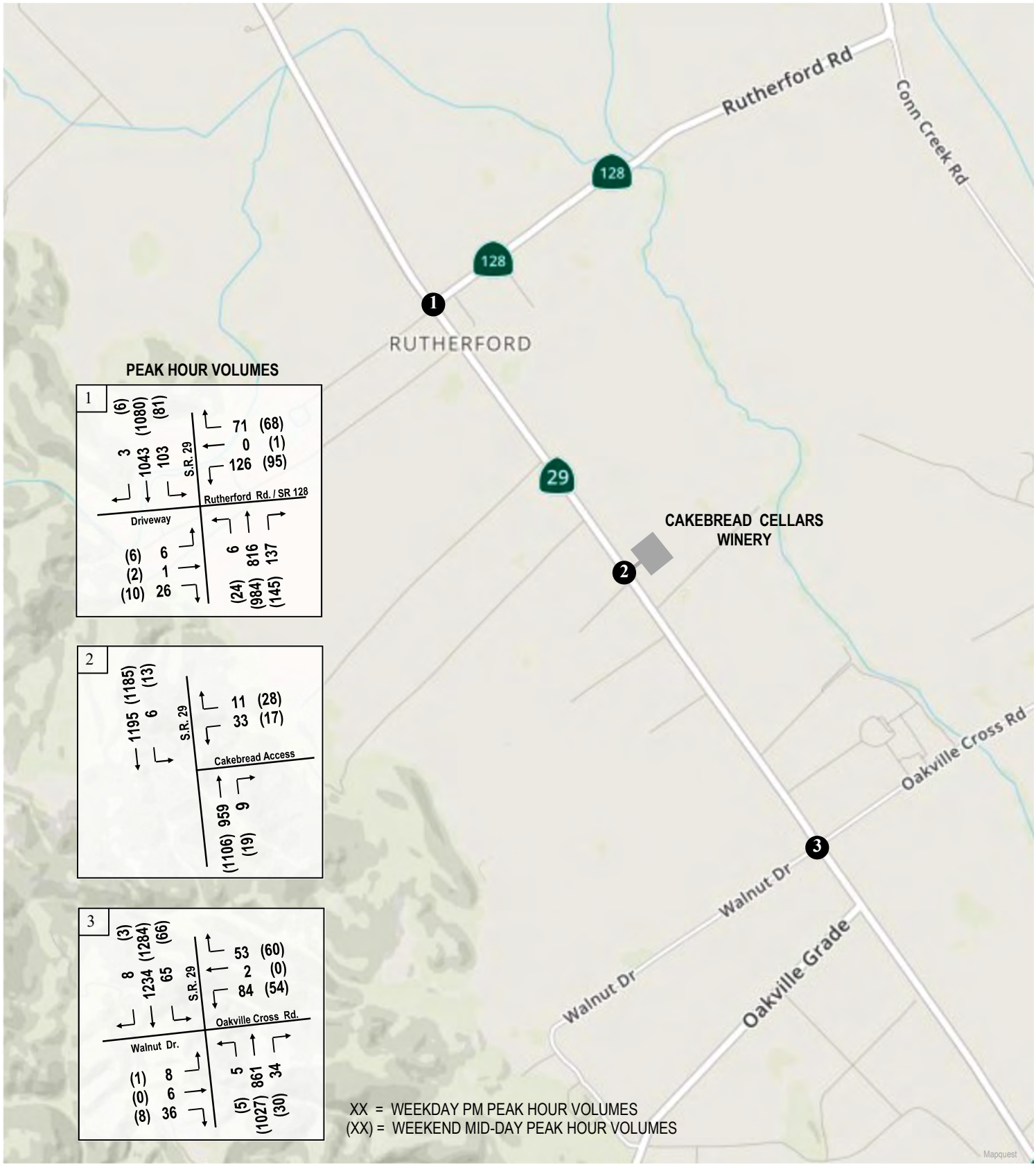
During the weekday PM and Saturday midday peak hours, cumulative (no project) arterial volumes on SR-29 would increase to 1,228 vehicles during the weekday PM peak hour (southbound) and 1,202 vehicles during the Saturday midday peak hour (northbound). Arterial operations would be at LOS F during both the weekday PM peak hour and Saturday midday peak hour. Rutherford Road would continue to operate at LOS C with 240 vehicles (eastbound) with Oakville Cross Road operating at LOS B with 139 vehicle (westbound).

TABLE 9
YEAR 2030 AND YEAR 2030 WITH PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE WEEKDAY PM PEAK AND WEEKEND MIDDAY PEAK HOUR[1]

			Wkdy. PM LOS/Delay		Wknd. Midday LOS/Delay	
	Intersection	Control Type	Yr. 2030 (No Project)	Yr. 2030 (With Prj.)	Yr. 2030 (No Project)	Yr. 2030 (With Prj.)
1	Rutherford Road/State Route 29	MSSC	**F >300**	**F >300**	**F >300**	**F >300**
2	Cakebread Cellars/State Route 29	MSSC	D 29.9	**E 35.0**	C 17.5	D 25.2
2	OCR-WL/State Route 29.	MSSC	**F >300**	**F >300**	**F >300**	**F >300**

(1) Based on Highway Capacity Manual (HCM) 2010, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds. Stated LOS refers to the minor street (stop-sign) controlled movement.

[30] *Caltrans, Traffic Volumes on California State Highways, State Route 29 and State Route 128 (Rutherford Road), 2015, 2016, 2017.*



PEAK HOUR VOLUMES

1

2

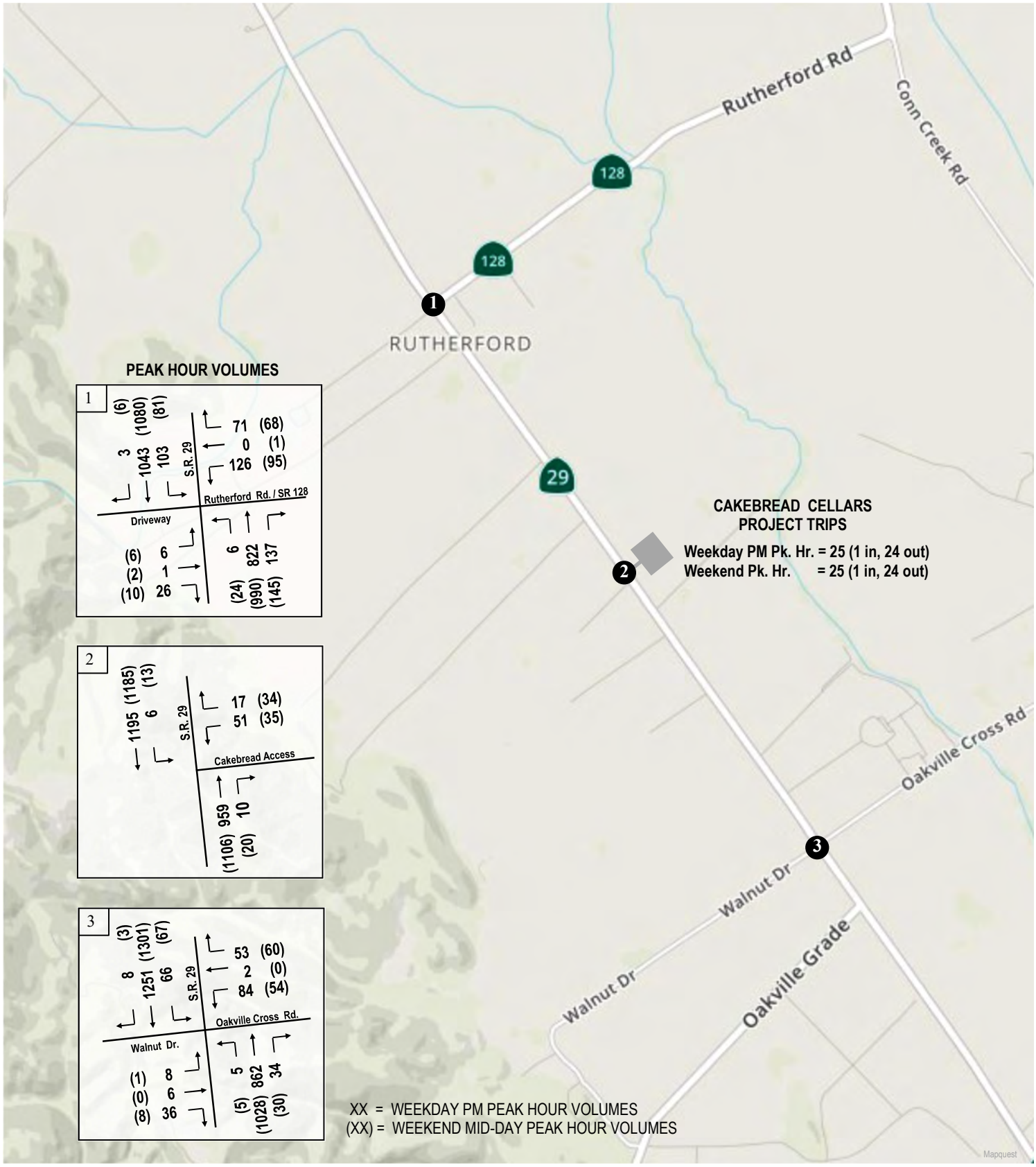
3

XX = WEEKDAY PM PEAK HOUR VOLUMES
(XX) = WEEKEND MID-DAY PEAK HOUR VOLUMES

CUMULATIVE YEAR 2030 (NO PROJECT)
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 7

N



CUMULATIVE YEAR 2030 PLUS PROJECT
WEEKDAY PM AND WEEKEND MID-DAY PEAK HOUR VOLUMES

FIGURE 8

N

Year 2030 Cumulative plus Project Intersection/Roadway Segment Operating Conditions

With year 2030 cumulative plus project traffic volumes, project study intersection operations have been calculated and shown in Table 9. The Rutherford Road/SR-29 and Oakville Cross Road-Walnut Lane/SR-29 intersections would continue to operate at LOS F during both the weekday PM and weekend midday peak hours with proposed project traffic. The remaining Cakebread Cellars Driveway/SR-29 intersection would operate at LOS E during the Friday PM peak hour and LOS D during the Saturday midday peak hour.

Based on updated County significance criteria for unsignalized intersections; the off-site intersections of Rutherford Road/SR-29 and Oakville Cross Road/SR-29 have been evaluated for proposed project impacts since their LOS operates at an unacceptable level (LOS F) without proposed project trips during the weekday PM peak hour and weekend midday peak hour. County criteria indicate that a significant impact could be found if the proposed project contributes 5% or more of the total traffic growth the intersection. The guidelines go on to state, "the peak hour signal warrant criteria should also be evaluated and presented for informational purposes."

During the weekday PM peak hour and conservatively assumed weekend midday peak hour, the proposed project would add six (6) trips to the intersection Rutherford Road/SR-29 intersection. Based on the net growth in cumulative traffic volumes at the intersection of 436 vehicles and 492 vehicles (weekday PM peak hour and weekend midday peak hour); proposed project contribution would be less than 5%. During the same weekday and weekend time periods, the proposed project is assumed to add 19 trips to the intersection of Oakville Cross Road-Walnut Lane/SR-29. With net increases of 433 vehicles and 484 vehicles in cumulative traffic proposed project increases would be less than 5%.

As noted above, SR-29 experiences peak hour directional arterial flow (one-way southbound) of approximately 1,228 vehicles during the weekday PM peak hour and 1,202 during the Saturday midday peak hour. Based on an undivided Class I arterial over 40 mph this would yield LOS F during both time periods (see Appendices for Peak Hour Roadway LOS Table). The proposed project would add 19 southbound trips to the SR-29 arterial segment and, (under the significance criteria of 5% or more) would be considered a potentially significant impact based on the net increase in cumulative directional traffic (242 PM weekday and 227 weekend midday). Again, a review of the Updated Napa County Traffic Impact Guidelines indicates that State Route 29 in the unincorporated areas between Yountville and Calistoga: LOS F is acceptable.[31]

> "In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus on reducing the project's vehicular trips through modifying the project definition and/or applying TDM strategies, and then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts."

[31] *Fehr and Peers, Guidelines for Application of Updated General Plan Circulation Policies on Significance Criteria Related to Vehicle Level of Service, Memorandum, Page 9, April 20, 2018*

As noted, the project applicant has developed a TDM plan to reduce overall vehicle trip generation, VMT, and associated parking demand (see VMT Reduction/TDM Plan Section). Combined with Napa County TIG policies indicated that LOS F is acceptable for SR-29 segments in the project study area, overall cumulative project impacts would be considered less-than-significant.

Appendix A: Weekday Friday PM and Weekend Saturday Midday Peak Hour Intersection Counts

Prepared by National Data & Surveying Services

SR-29 & Rutherford Rd

Peak Hour Turning Movement Count

ID: 19-08314-001
City: Rutherford

Day: Friday
Date: 05/31/2019

PEAK HOURS

AM	NONE
NOON	NONE
PM	03:15 PM - 04:15 PM

COUNT PERIODS

AM	NONE
NOON	NONE
PM	03:00 PM - 06:00 PM

SR-29

SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	1	770	116	0	672	PM

0 1 1 0

EASTBOUND (Rutherford Rd)

AM	NOON	PM	
0	0	6	
0	0	0	0
0	0	6	0
0	0	0	0.5
0	0	28	0.5
AM	NOON	PM	

WESTBOUND (Rutherford Rd)

PM	NOON	AM	
67	0	0	0.5
0	0	0	0.5
112	0	0	0
0	0	0	0
236	0	0	
PM	NOON	AM	

0 1 1 0

CONTROL

2-Way Stop (EB/WB)

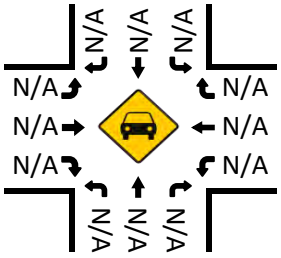
	AM	NOON	PM
TEV	0	0	###
PHF			0.87

NORTHBOUND

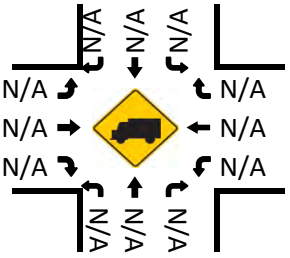
PM	910	0	5	599	120	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

SR-29

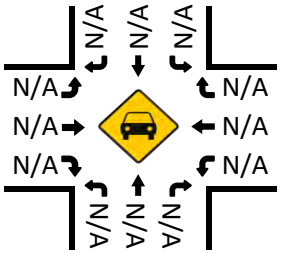
Cars (AM)



HT (AM)



Cars (NOON)



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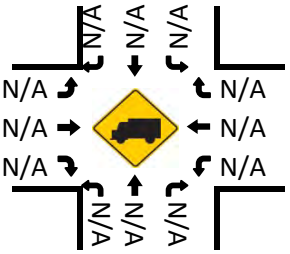
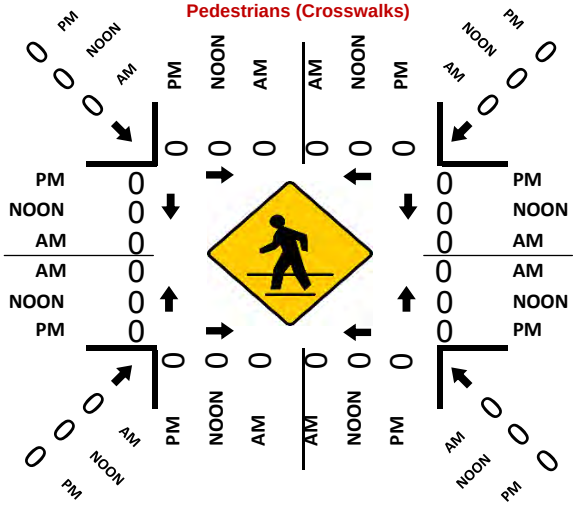
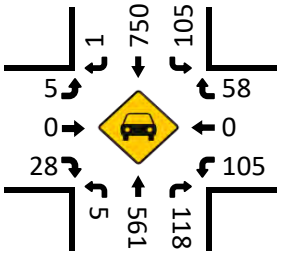


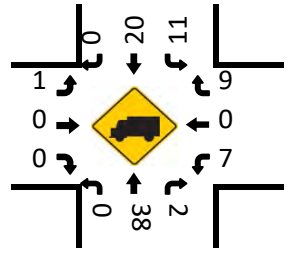
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Oakville Cross Rd/Walnut Ln

Peak Hour Turning Movement Count

ID: 19-08314-002
City: Rutherford

Day: Friday
Date: 05/31/2019

PEAK HOURS		COUNT PERIODS
AM	NONE	NONE
NOON	NONE	NONE
PM	03:15 PM - 04:15 PM	03:00 PM - 06:00 PM

SR-29 — SOUTHBOUND

	U-Turn	Left	Thru	Right	Departing
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	13	938	59	0	667
Lanes	0	1	1	0	

Oakville Cross Rd/Walnut Ln — EASTBOUND

	AM	NOON	PM	Lanes
Departing	0	0	19	
U-Turn	0	0	0	0
Left	0	0	10	0
Thru	0	0	8	1
Right	0	0	56	0

Oakville Cross Rd/Walnut Ln — WESTBOUND

	PM	NOON	AM	Lanes
Right	40	0	0	1
Thru	1	0	0	0.5
Left	95	0	0	0.5
U-Turn	0	0	0	0
Departing	101	0	0	

SR-29 — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	1	1	0
PM	1089	0	5	617	34
NOON	0	0	0	0	0
AM	0	0	0	0	0

CONTROL: 2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	0	0	1876
PHF			0.93

Cars (AM)

All movements: N/A

HT (AM)

All movements: N/A

Cars (NOON)

All movements: N/A

HT (NOON)

All movements: N/A

Cars (PM)

Approach	U-Turn	Left	Thru	Right
Southbound	13	933	58	
Eastbound		10	8	56
Westbound		91	1	40
Northbound		5	601	33

HT (PM)

Approach	U-Turn	Left	Thru	Right
Southbound	0	5	1	
Eastbound		0	0	0
Westbound		4	0	0
Northbound		0	16	1

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
East leg	0	0	0
West leg	0	0	0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

Prepared by National Data & Surveying Services

SR-29 & Rutherford Rd

Peak Hour Turning Movement Count

ID: 19-08314-001
City: Rutherford

Day: Saturday
Date: 06/01/2019

PEAK HOURS

AM	NONE
NOON	01:00 PM - 02:00 PM
PM	02:00 PM - 03:00 PM

COUNT PERIODS

AM	NONE
NOON	12:00 PM - 02:00 PM
PM	02:00 PM - 04:00 PM

SR-29 — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	7	604	54	0	951	NOON
PM	4	804	52	0	869	PM

Rutherford Rd — EASTBOUND

AM	NOON	PM	
0	19	21	
0	0	0	0
0	3	8	0
0	5	3	0.5
0	6	11	0.5
AM	NOON	PM	

WESTBOUND — Rutherford Rd

PM	NOON	AM	
60	76	0	0.5
2	1	0	0.5
54	62	0	
0	0	0	
182	160	0	
PM	NOON	AM	

CONTROL

2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	0	1803	1941
PHF		0.95	0.94

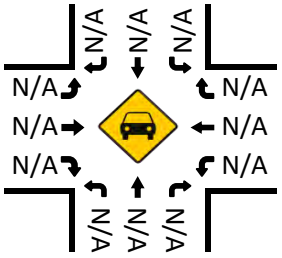
0 1 1 0

0 1 1 0

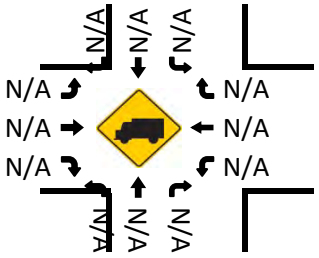
NORTHBOUND — SR-29

PM	869	0	15	801	127	PM
NOON	673	1	11	872	101	NOON
AM	0	0	0	0	0	AM

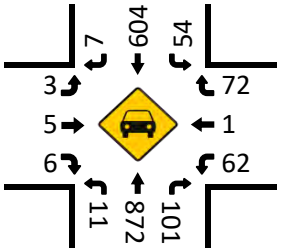
Cars (AM)



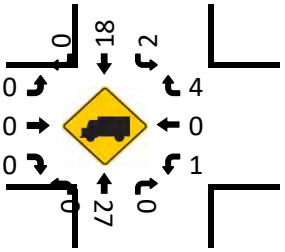
HT (AM)



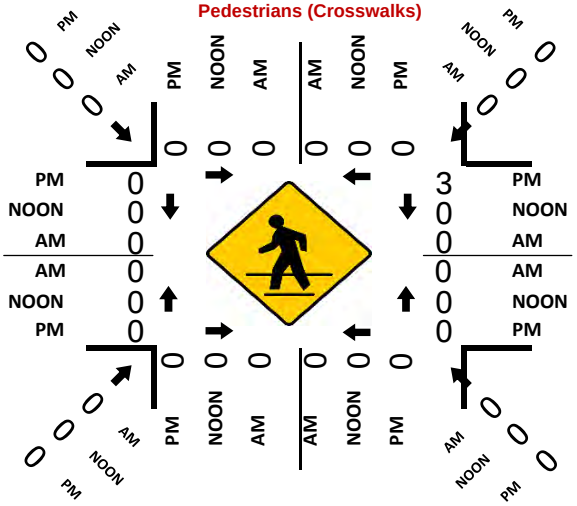
Cars (NOON)



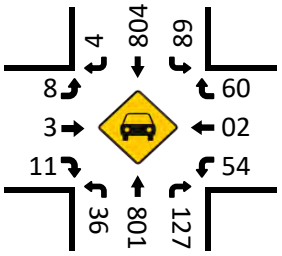
HT (NOON)



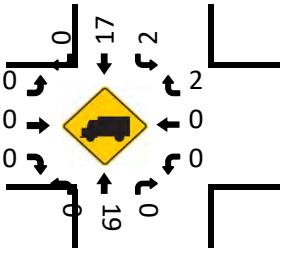
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Oakville Cross Rd/Walnut Ln

Peak Hour Turning Movement Count

ID: 19-08314-002
City: Rutherford

Day: Saturday
Date: 06/01/2019

	PEAK HOURS	COUNT PERIODS
AM	NONE	NONE
NOON	01:00 PM - 02:00 PM	12:00 PM - 02:00 PM
PM	03:00 PM - 04:00 PM	02:00 PM - 04:00 PM

SR-29 — SOUTHBOUND

	Right	Through	Left	U-Turn	Total (⇧)
AM	0	0	0	0	0
NOON	4	672	55	0	1020
PM	4	1108	53	0	841
Lanes	0	1	1	0	

Oakville Cross Rd/Walnut Ln — EASTBOUND

	AM	NOON	PM	Lanes
Total (⇦)	0	13	7	
U-Turn	0	0	0	0
Left	0	3	2	0
Through	0	1	0	1
Right	0	8	10	0

Oakville Cross Rd/Walnut Ln — WESTBOUND

	PM	NOON	AM	Lanes
Left	44	67	0	1
Through	0	1	0	.5
Right	71	53	0	.5
U-Turn	0	0	0	0
Total (⇨)	80	92	0	

SR-29 — NORTHBOUND

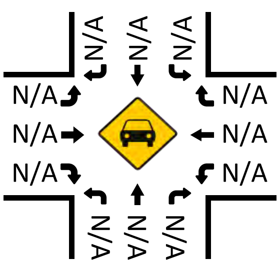
	Total (⇩)	U-Turn	Left	Through	Right
Lanes		0	1	1	0
PM	1189	0	3	795	27
NOON	733	0	8	950	36
AM	0	0	0	0	0

CONTROL

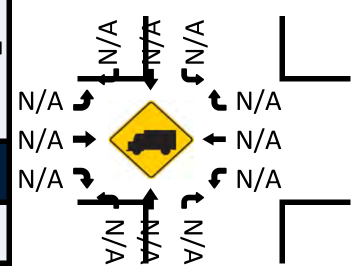
2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	0	1858	2117
PHF		0.90	0.94

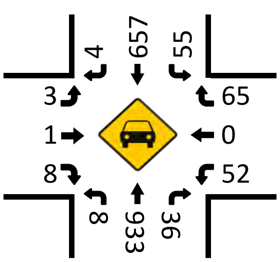
Cars (AM)



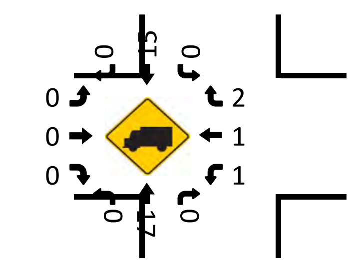
HT (AM)



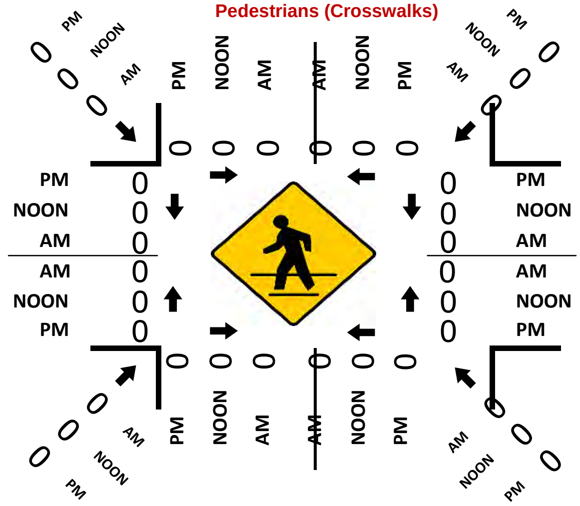
Cars (NOON)



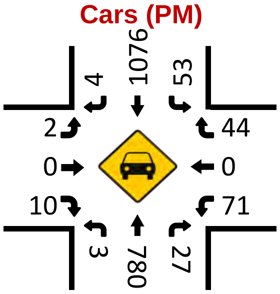
HT (NOON)



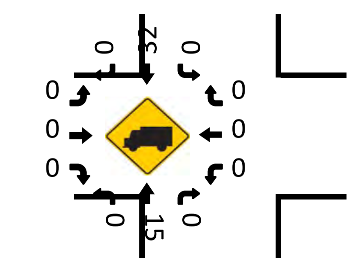
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Rutherford Rd

Peak Hour Turning Movement Count

ID: 19-08584-001
City: Rutherford

Day: Friday
Date: 11/15/2019

SR-29

SOUTHBOUND

PEAK HOURS								COUNT PERIODS
NONE	AM	0	0	0	0	0	AM	NONE
NONE	NOON	0	0	0	0	0	NOON	NONE
03:00 PM - 04:00 PM	PM	5	908	58	0	824	PM	03:00 PM - 06:00 PM

EASTBOUND (Rutherford Rd)

AM	NOON	PM	
0	0	10	⇦
0	0	0	↰ 0
0	0	4	↑ 0
0	0	2	→ 0
0	0	18	↱ 0
AM	NOON	PM	

WESTBOUND (Rutherford Rd)

PM	NOON	AM	
57	0	0	0 ↱
0	0	0	0 ↑
70	0	0	0 ↰
0	0	0	0
159	0	0	⇨
PM	NOON	AM	

CONTROL

0

	AM	NOON	PM
TEV	0	0	1989
PHF			0.87

0 0 0 0

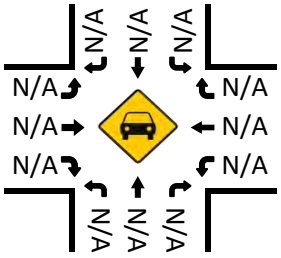
PM	NOON	AM				
996	0	5	763	99	⇩	PM
0	0	0	0	0		NOON
0	0	0	0	0		AM

0 0 0 0

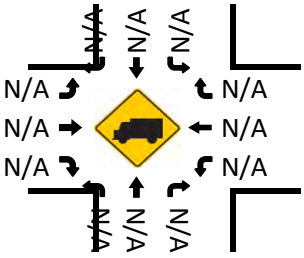
NORTHBOUND

SR-29

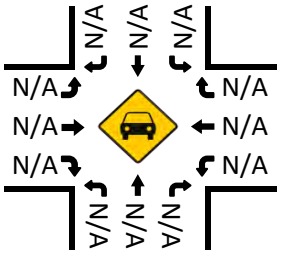
Total Vehicles (AM)



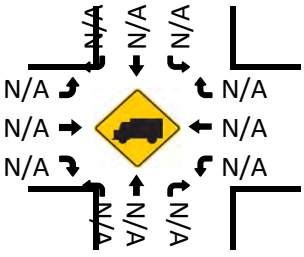
HT (AM)



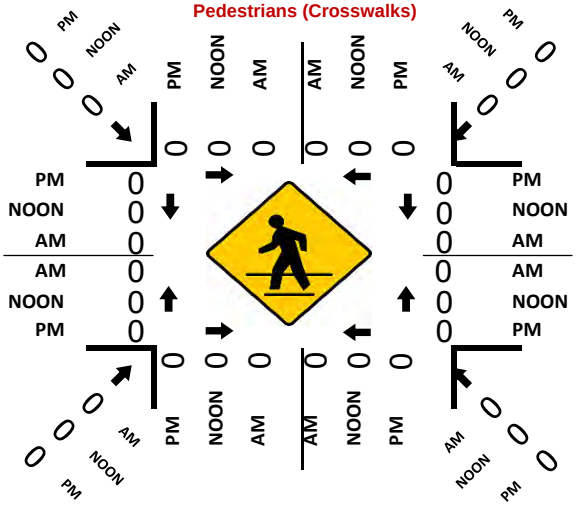
Total Vehicles (Noon)



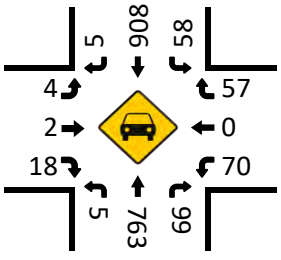
HT (NOON)



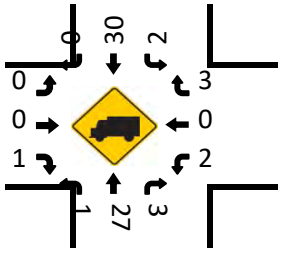
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Cakebread Cellars Dwy

Peak Hour Turning Movement Count

ID: 19-08584-003
City: Rutherford

Day: Friday
Date: 11/15/2019

PEAK HOURS

AM	NONE
NOON	NONE
PM	03:00 PM - 04:00 PM

COUNT PERIODS

AM	NONE
NOON	NONE
PM	03:00 PM - 06:00 PM

SR-29

SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	1004	6	0	842	PM

EASTBOUND — Cakebread Cellars Dwy

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	1	0
0	0	0	0
0	0	2	0
AM	NOON	PM	

WESTBOUND — Cakebread Cellars Dwy

PM	NOON	AM
11	0	0
0	0	0
33	0	0
0	0	0
15	0	0
PM	NOON	AM

CONTROL

0

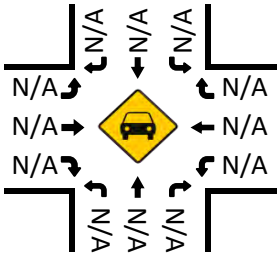
	AM	NOON	PM
TEV	0	0	1896
PHF			0.92

NORTHBOUND

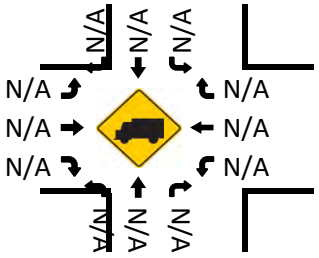
PM	1039	0	0	830	9	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

SR-29

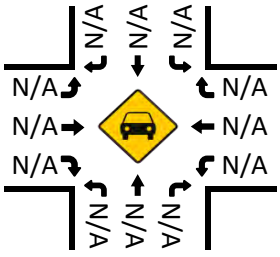
Total Vehicles (AM)



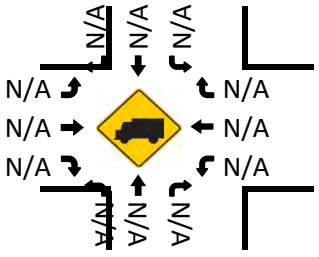
HT (AM)



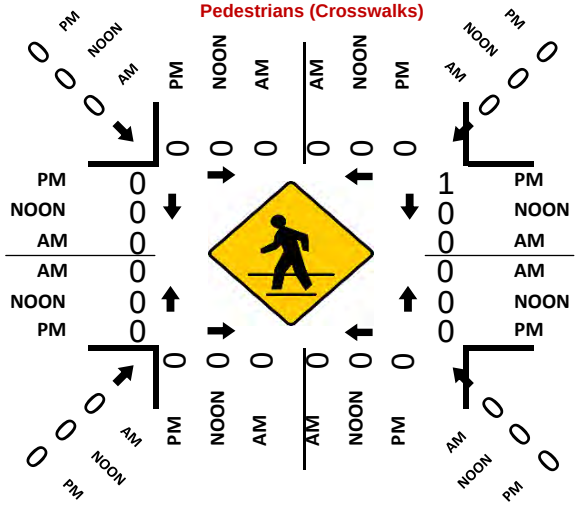
Total Vehicles (Noon)



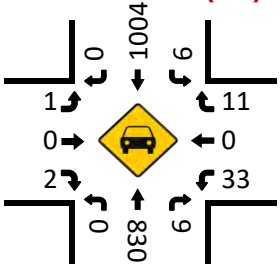
HT (NOON)



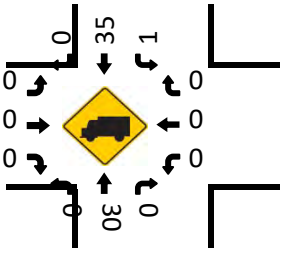
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Oakville Cross Rd/Walnut Ln

Peak Hour Turning Movement Count

ID: 19-08584-002
City: Rutherford

Day: Friday
Date: 11/15/2019

PEAK HOURS

AM: NONE
NOON: NONE
PM: 03:00 PM - 04:00 PM

COUNT PERIODS

AM: NONE
NOON: NONE
PM: 03:00 PM - 06:00 PM

SR-29 SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	2	1049	43	0	861	PM

Oakville Cross Rd/Walnut Ln EASTBOUND

AM	NOON	PM	
0	0	8	
0	0	0	0
0	0	5	0
0	0	2	0
0	0	9	0

CONTROL

0

	AM	NOON	PM
TEV	0	0	2050
PHF			0.95

Oakville Cross Rd/Walnut Ln WESTBOUND

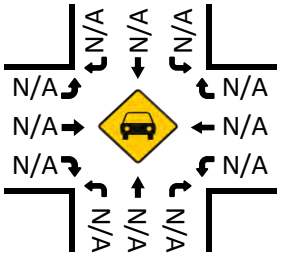
PM	NOON	AM	
48	0	0	0
2	0	0	0
52	0	0	0
0	0	0	0
71	0	0	

SR-29 NORTHBOUND

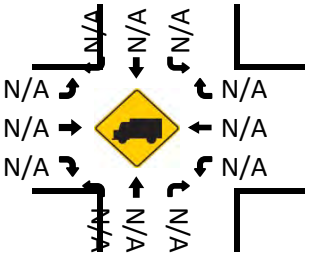
PM	1110	0	4	808	26	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

SR-29

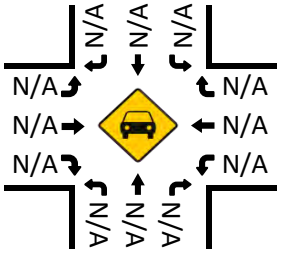
Total Vehicles (AM)



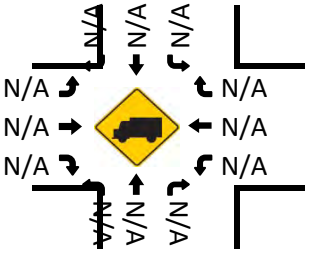
HT (AM)



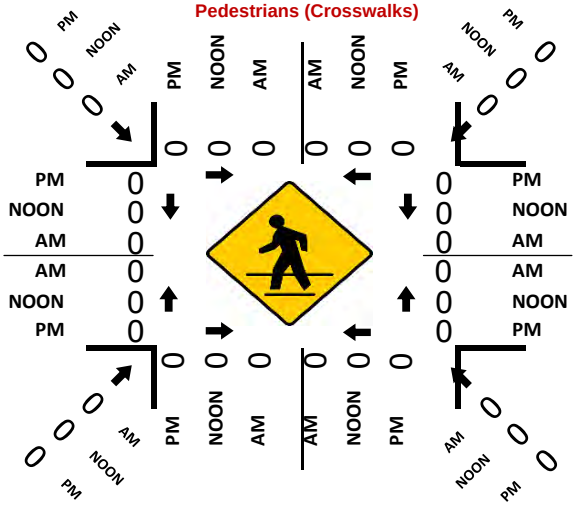
Total Vehicles (Noon)



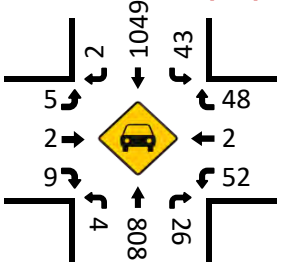
HT (NOON)



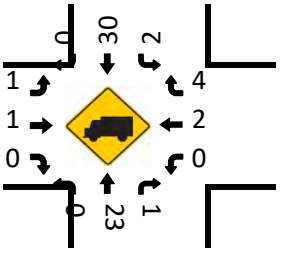
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Rutherford Rd

Peak Hour Turning Movement Count

ID: 19-08584-001
City: Rutherford

Day: Saturday
Date: 11/16/2019

PEAK HOURS

AM: NONE
NOON: 03:00 PM - 04:00 PM
PM: NONE

COUNT PERIODS

AM: NONE
NOON: 12:00 PM - 04:00 PM
PM: NONE

SR-29 SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	6	963	43	0	831	NOON
PM	0	0	0	0	0	PM

Rutherford Rd EASTBOUND

AM	NOON	PM
0	13	0
0	0	0
0	2	0
0	1	0
0	8	0

CONTROL

0

	AM	NOON	PM
TEV	0	2021	0
PHF		0.92	

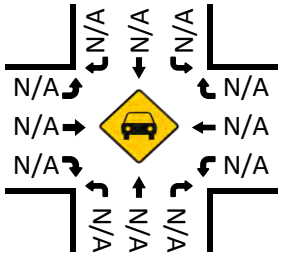
WESTBOUND Rutherford Rd

PM	NOON	AM
0	48	0
0	1	0
0	75	0
0	0	0
0	131	0

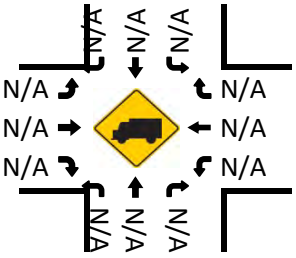
SR-29 NORTHBOUND

PM	0	0	0	0	0	PM
NOON	1046	0	6	781	87	NOON
AM	0	0	0	0	0	AM

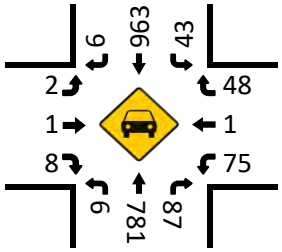
Total Vehicles (AM)



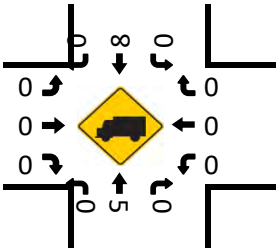
HT (AM)



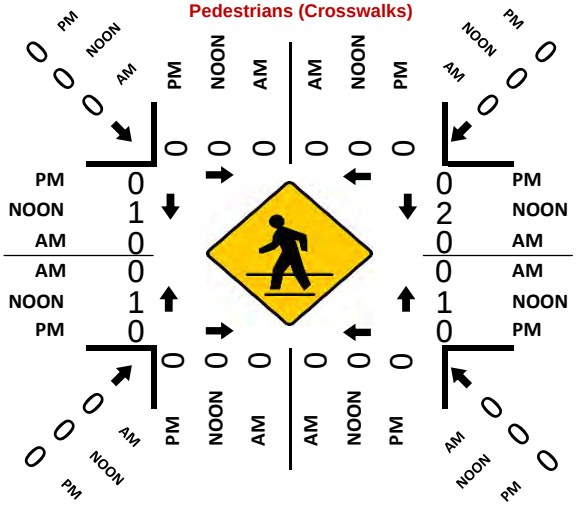
Total Vehicles (Noon)



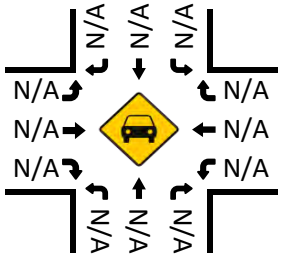
HT (NOON)



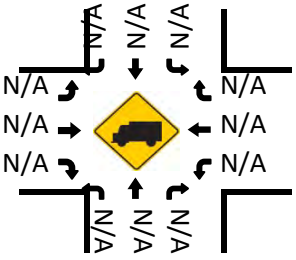
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Cakebread Cellars Dwy

Peak Hour Turning Movement Count

ID: 19-08584-003
City: Rutherford

Day: Saturday
Date: 11/16/2019

PEAK HOURS

AM	NONE
NOON	02:45 PM - 03:45 PM
PM	NONE

COUNT PERIODS

AM	NONE
NOON	12:00 PM - 04:00 PM
PM	NONE

SR-29 — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	1	1035	13	0	887	NOON
PM	0	0	0	0	0	PM

Cakebread Cellars Dwy — EASTBOUND

AM	NOON	PM	
0	2	0	
0	0	0	0
0	2	0	0
0	0	0	0
0	1	0	0
AM	NOON	PM	

CONTROL

0

	AM	NOON	PM
TEV	0	1974	0
PHF		0.92	

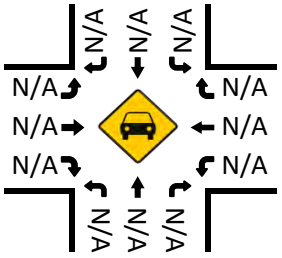
WESTBOUND — Cakebread Cellars Dwy

PM	NOON	AM	
0	28	0	
0	0	0	
0	17	0	
0	0	0	
0	32	0	
PM	NOON	AM	

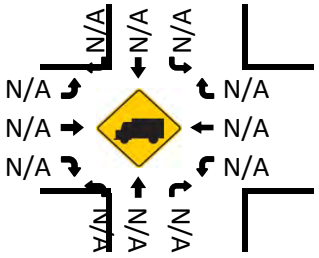
SR-29 — NORTHBOUND

PM	0	0	0	0	0	PM
NOON	1053	0	1	857	19	NOON
AM	0	0	0	0	0	AM

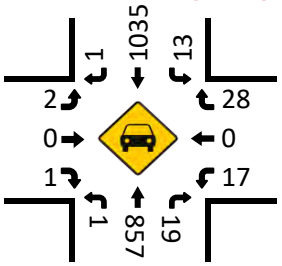
Total Vehicles (AM)



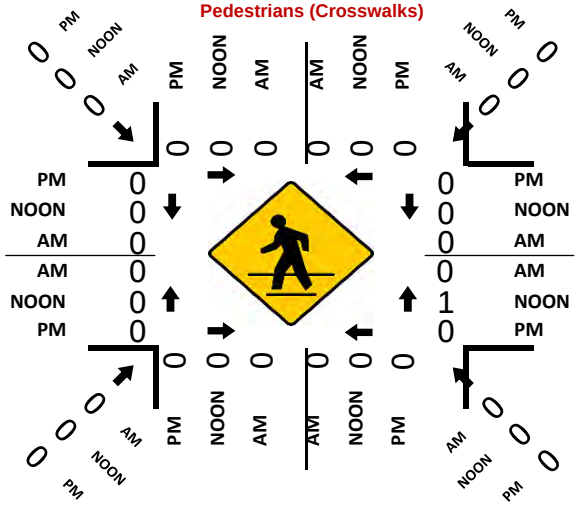
HT (AM)



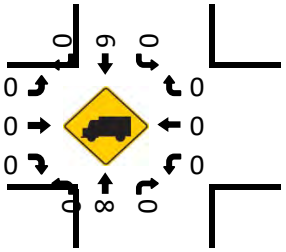
Total Vehicles (Noon)



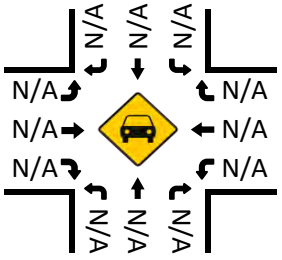
Pedestrians (Crosswalks)



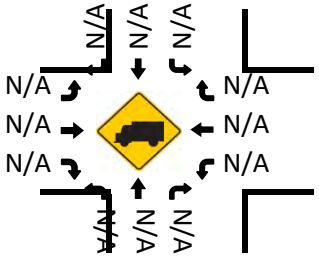
HT (NOON)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

SR-29 & Oakville Cross Rd/Walnut Ln

Peak Hour Turning Movement Count

ID: 19-08584-002
City: Rutherford

Day: Saturday
Date: 11/16/2019

	PEAK HOURS	COUNT PERIODS
AM	NONE	NONE
NOON	02:45 PM - 03:45 PM	12:00 PM - 04:00 PM
PM	NONE	NONE

SR-29 SOUTHBOUND

AM	0	0	0	0	0
NOON	1	1024	55	0	899
PM	0	0	0	0	0
	0	0	0	0	

Oakville Cross Rd/Walnut Ln EASTBOUND

	AM	NOON	PM	
Departing	0	6	0	
U-turn	0	0	0	0
Left	0	1	0	0
Through	0	0	0	0
Right	0	4	0	0

Oakville Cross Rd/Walnut Ln WESTBOUND

	PM	NOON	AM
0	0	53	0
0	0	0	0
0	0	25	0
0	0	0	0
Departing	0	80	0

CONTROL

0

	AM	NOON	PM
TEV	0	2038	0
PHF		0.95	

SR-29 NORTHBOUND

		0	0	0	0
PM	0	0	0	0	0
NOON	1053	0	5	845	25
AM	0	0	0	0	0

Total Vehicles (AM)

All movements: N/A

Total Vehicles (Noon)

Southbound: 1, 1024, 55
Eastbound: 1, 0, 4
Westbound: 53, 0, 25
Northbound: 5, 845, 25

Total Vehicles (PM)

All movements: N/A

HT (AM)

All movements: N/A

HT (NOON)

Southbound: 0, 8, 0
Eastbound: 0, 0, 0
Westbound: 1, 0, 1
Northbound: 0, 8, 0

HT (PM)

All movements: N/A

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
West leg	0	0	0
East leg	0	5	0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

Appendix B: Average Daily Traffic (ADT) Counts

Prepared by National Data & Surveying Services

VOLUME

Oakville Cross Rd E/O SR-29

Day: Thursday
Date: 5/30/2019

City: Oakville
Project #: CA19_8313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	917	834	1,751

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			12	19	31
00:15			0	3	3	12:15			15	13	28
00:30			0	0	0	12:30			17	17	34
00:45			0	0	3 0 3	12:45			16 60	17 66	33 126
01:00			2	0	2	13:00			26	20	46
01:15			2	2	4	13:15			17	17	34
01:30			0	1	1	13:30			20	15	35
01:45			1 5	0 3	1 8	13:45			18 81	17 69	35 150
02:00			0	0	0	14:00			10	23	33
02:15			1	0	1	14:15			16	21	37
02:30			1	1	2	14:30			11	15	26
02:45			1 3	0 1	1 4	14:45			29 66	17 76	46 142
03:00			5	0	5	15:00			14	10	24
03:15			1	0	1	15:15			11	20	31
03:30			3	3	6	15:30			18	17	35
03:45			0 9	1 4	1 13	15:45			23 66	25 72	48 138
04:00			3	1	4	16:00			16	27	43
04:15			0	0	0	16:15			10	16	26
04:30			1	4	5	16:30			6	18	24
04:45			1 5	1 6	2 11	16:45			11 43	23 84	34 127
05:00			8	2	10	17:00			13	12	25
05:15			18	4	22	17:15			6	11	17
05:30			23	7	30	17:30			8	13	21
05:45			30 79	13 26	43 105	17:45			7 34	6 42	13 76
06:00			14	5	19	18:00			5	8	13
06:15			11	10	21	18:15			1	10	11
06:30			8	8	16	18:30			3	4	7
06:45			20 53	13 36	33 89	18:45			2 11	3 25	5 36
07:00			15	9	24	19:00			3	2	5
07:15			17	7	24	19:15			2	1	3
07:30			29	14	43	19:30			2	2	4
07:45			25 86	10 40	35 126	19:45			3 10	4 9	7 19
08:00			24	14	38	20:00			3	4	7
08:15			26	17	43	20:15			2	2	4
08:30			20	9	29	20:30			1	2	3
08:45			21 91	18 58	39 149	20:45			2 8	7 15	9 23
09:00			17	15	32	21:00			1	4	5
09:15			21	12	33	21:15			2	3	5
09:30			22	7	29	21:30			3	1	4
09:45			17 77	20 54	37 131	21:45			3 9	0 8	3 17
10:00			19	11	30	22:00			2	5	7
10:15			12	14	26	22:15			0	1	1
10:30			15	8	23	22:30			0	3	3
10:45			14 60	22 55	36 115	22:45			0 2	0 9	0 11
11:00			13	16	29	23:00			1	0	1
11:15			13	13	26	23:15			1	1	2
11:30			13	19	32	23:30			4	2	6
11:45			14 53	21 69	35 122	23:45			0 6	1 4	1 10
TOTALS			521	355	**876**	**TOTALS**			396	479	**875**
SPLIT %			59.5%	40.5%	**50.0%**	**SPLIT %**			45.3%	54.7%	**50.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	917	834	1,751

AM Peak Hour			07:30	11:15	**07:30**	**PM Peak Hour**			13:00	15:15	**15:15**
AM Pk Volume			104	72	**159**	**PM Pk Volume**			81	89	**157**
Pk Hr Factor			0.897	0.857	**0.924**	**Pk Hr Factor**			0.779	0.824	**0.818**
7 - 9 Volume	0	0	177	98	**275**	**4 - 6 Volume**	0	0	77	126	**203**
7 - 9 Peak Hour			07:30	08:00	**07:30**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	104	58	**159**	**4 - 6 Pk Volume**	0	0	43	84	**127**
Pk Hr Factor	0.000	0.000	0.897	0.806	**0.924**	**Pk Hr Factor**	0.000	0.000	0.672	0.778	**0.738**

Prepared by National Data & Surveying Services

VOLUME

Oakville Cross Rd E/O SR-29

Day: Friday
Date: 5/31/2019

City: Oakville
Project #: CA19_8313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,123	1,064	2,187

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					18		20		38	
00:15					0		2		2		12:15					23		14		37	
00:30					1		0		1		12:30					14		31		45	
00:45					3	4	0	2	3	6	12:45					23	78	29	94	52	172
01:00					0		4		4		13:00					24		15		39	
01:15					1		1		2		13:15					21		20		41	
01:30					0		1		1		13:30					24		17		41	
01:45					1	2	1	7	2	9	13:45					25	94	17	69	42	163
02:00					0		0		0		14:00					20		18		38	
02:15					0		0		0		14:15					22		21		43	
02:30					0		0		0		14:30					23		21		44	
02:45					0		1	1	1	1	14:45					16	81	17	77	33	158
03:00					0		0		0		15:00					23		25		48	
03:15					1		0		1		15:15					26		24		50	
03:30					0		1		1		15:30					25		28		53	
03:45					0	1	0	1	0	2	15:45					29	103	33	110	62	213
04:00					0		1		1		16:00					22		41		63	
04:15					1		0		1		16:15					13		32		45	
04:30					0		3		3		16:30					18		39		57	
04:45					2	3	0	4	2	7	16:45					20	73	29	141	49	214
05:00					8		2		10		17:00					13		37		50	
05:15					17		2		19		17:15					11		22		33	
05:30					27		7		34		17:30					12		25		37	
05:45					38	90	9	20	47	110	17:45					16	52	26	110	42	162
06:00					35		4		39		18:00					11		18		29	
06:15					7		2		9		18:15					10		18		28	
06:30					10		10		20		18:30					12		9		21	
06:45					17	69	6	22	23	91	18:45					6	39	6	51	12	90
07:00					15		12		27		19:00					7		8		15	
07:15					10		9		19		19:15					4		3		7	
07:30					25		14		39		19:30					5		1		6	
07:45					27	77	13	48	40	125	19:45					5	21	2	14	7	35
08:00					20		12		32		20:00					3		2		5	
08:15					23		8		31		20:15					3		1		4	
08:30					22		11		33		20:30					3		2		5	
08:45					19	84	11	42	30	126	20:45					4	13	2	7	6	20
09:00					18		10		28		21:00					3		1		4	
09:15					17		19		36		21:15					0		0		0	
09:30					20		11		31		21:30					2		4		6	
09:45					12	67	13	53	25	120	21:45					6	11	9	14	15	25
10:00					16		31		47		22:00					5		7		12	
10:15					14		11		25		22:15					6		2		8	
10:30					12		21		33		22:30					2		4		6	
10:45					24	66	15	78	39	144	22:45					4	17	7	20	11	37
11:00					19		20		39		23:00					0		2		2	
11:15					17		14		31		23:15					0		0		0	
11:30					19		20		39		23:30					1		1		2	
11:45					21	76	21	75	42	151	23:45					1	2	1	4	2	6
TOTALS						539		353		892	TOTALS						584		711		1295
SPLIT %						60.4%		39.6%		40.8%	SPLIT %						45.1%		54.9%		59.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,123	1,064	2,187

AM Peak Hour			05:15	11:45	11:45	PM Peak Hour			15:00	15:45	15:15
AM Pk Volume			117	86	162	PM Pk Volume			103	145	228
Pk Hr Factor			0.770	0.694	0.900	Pk Hr Factor			0.888	0.884	0.905
7 - 9 Volume	0	0	161	90	251	4 - 6 Volume	0	0	125	251	376
7 - 9 Peak Hour			07:30	07:00	07:30	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	95	48	142	4 - 6 Pk Volume	0	0	73	141	214
Pk Hr Factor	0.000	0.000	0.880	0.857	0.888	Pk Hr Factor	0.000	0.000	0.830	0.860	0.849

Prepared by National Data & Surveying Services

VOLUME

Oakville Cross Rd E/O SR-29

Day: Saturday
Date: 6/1/2019

City: Oakville
Project #: CA19_8313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	770	844	1,614

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			3	2	5	12:00			19	22	41
00:15			0	2	2	12:15			10	14	24
00:30			1	0	1	12:30			19	21	40
00:45			0	0	0	12:45			18	26	44
			4	4	8				66	83	149
01:00			0	0	0	13:00			21	20	41
01:15			2	1	3	13:15			18	26	44
01:30			1	0	1	13:30			22	35	57
01:45			0	2	2	13:45			36	37	73
			3	3	6				97	118	215
02:00			0	0	0	14:00			10	24	34
02:15			0	0	0	14:15			17	29	46
02:30			0	0	0	14:30			19	34	53
02:45			1	0	1	14:45			25	28	53
			1	0	1				71	115	186
03:00			0	0	0	15:00			28	22	50
03:15			0	0	0	15:15			20	19	39
03:30			0	0	0	15:30			23	33	56
03:45			0	0	0	15:45			12	33	45
			0	0	0				83	107	190
04:00			1	0	1	16:00			11	14	25
04:15			1	3	4	16:15			10	18	28
04:30			0	0	0	16:30			13	24	37
04:45			8	1	9	16:45			13	22	35
			10	4	14				47	78	125
05:00			4	2	6	17:00			9	11	20
05:15			9	4	13	17:15			13	22	35
05:30			29	5	34	17:30			3	11	14
05:45			17	2	19	17:45			8	5	13
			59	13	72				33	49	82
06:00			8	1	9	18:00			6	8	14
06:15			7	6	13	18:15			1	6	7
06:30			9	3	12	18:30			3	2	5
06:45			7	6	13	18:45			3	4	7
			31	16	47				13	20	33
07:00			4	2	6	19:00			2	4	6
07:15			2	3	5	19:15			2	4	6
07:30			8	4	12	19:30			2	1	3
07:45			9	3	12	19:45			2	4	6
			23	12	35				8	13	21
08:00			5	7	12	20:00			2	1	3
08:15			14	7	21	20:15			2	3	5
08:30			13	5	18	20:30			0	0	0
08:45			11	12	23	20:45			1	1	2
			43	31	74				5	5	10
09:00			13	9	22	21:00			1	2	3
09:15			8	6	14	21:15			3	1	4
09:30			10	13	23	21:30			3	2	5
09:45			12	7	19	21:45			1	1	2
			43	35	78				8	6	14
10:00			11	12	23	22:00			1	2	3
10:15			12	20	32	22:15			1	1	2
10:30			10	9	19	22:30			0	1	1
10:45			11	15	26	22:45			0	0	0
			44	56	100				2	4	6
11:00			18	21	39	23:00			1	0	1
11:15			12	14	26	23:15			1	0	1
11:30			32	19	51	23:30			2	0	2
11:45			10	16	26	23:45			0	2	2
			72	70	142				4	2	6
TOTALS			333	244	577	TOTALS			437	600	1037
SPLIT %			57.7%	42.3%	35.7%	SPLIT %			42.1%	57.9%	64.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	770	844	1,614

AM Peak Hour			10:45	11:45	11:15	PM Peak Hour			13:00	13:30	13:00
AM Pk Volume			73	73	144	PM Pk Volume			97	125	215
Pk Hr Factor			0.570	0.830	0.706	Pk Hr Factor			0.674	0.845	0.736
7 - 9 Volume	0	0	66	43	109	4 - 6 Volume	0	0	80	127	207
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:30	16:30	16:30
7 - 9 Pk Volume	0	0	43	31	74	4 - 6 Pk Volume	0	0	48	79	127
Pk Hr Factor	0.000	0.000	0.768	0.646	0.804	Pk Hr Factor	0.000	0.000	0.923	0.823	0.858

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Friday
Date: 11/15/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	894	879	1,773

AM Period	NB		SB		EB		WB		TOTAL	
00:00					0		1		1	
00:15					1		0		1	
00:30					0		0		0	
00:45					0	1	0	1	0	2
01:00					0		0		0	
01:15					0		0		0	
01:30					0		0		0	
01:45					1	1	0		1	1
02:00					0		0		0	
02:15					0		1		1	
02:30					0		0		0	
02:45					0		0	1	0	1
03:00					0		0		0	
03:15					2		1		3	
03:30					0		1		1	
03:45					2	4	0	2	2	6
04:00					0		2		2	
04:15					0		1		1	
04:30					0		1		1	
04:45					1	1	1	5	2	6
05:00					3		2		5	
05:15					6		0		6	
05:30					7		4		11	
05:45					14	30	4	10	18	40
06:00					7		4		11	
06:15					15		3		18	
06:30					22		8		30	
06:45					22	66	12	27	34	93
07:00					12		7		19	
07:15					18		7		25	
07:30					16		9		25	
07:45					18	64	8	31	26	95
08:00					17		11		28	
08:15					26		26		52	
08:30					27		13		40	
08:45					17	87	9	59	26	146
09:00					13		14		27	
09:15					31		10		41	
09:30					18		13		31	
09:45					31	93	16	53	47	146
10:00					22		13		35	
10:15					20		19		39	
10:30					16		22		38	
10:45					15	73	11	65	26	138
11:00					15		16		31	
11:15					15		15		30	
11:30					17		23		40	
11:45					12	59	15	69	27	128
TOTALS						479		323		802
SPLIT %						59.7%		40.3%		45.2%

PM Period	NB		SB		EB		WB		TOTAL	
12:00					16		25		41	
12:15					16		19		35	
12:30					17		28		45	
12:45					9	58	16	88	25	146
13:00					15		22		37	
13:15					15		31		46	
13:30					14		30		44	
13:45					22	66	24	107	46	173
14:00					21		24		45	
14:15					13		23		36	
14:30					23		24		47	
14:45					14	71	11	82	25	153
15:00					20		23		43	
15:15					11		18		29	
15:30					23		34		57	
15:45					19	73	22	97	41	170
16:00					12		21		33	
16:15					13		15		28	
16:30					22		14		36	
16:45					21	68	22	72	43	140
17:00					24		29		53	
17:15					5		14		19	
17:30					3		13		16	
17:45					5	37	10	66	15	103
18:00					12		8		20	
18:15					2		3		5	
18:30					1		4		5	
18:45					3	18	3	18	6	36
19:00					0		1		1	
19:15					2		6		8	
19:30					1		1		2	
19:45					1	4	1	9	2	13
20:00					1		3		4	
20:15					2		0		2	
20:30					3		5		8	
20:45					2	8	1	9	3	17
21:00					1		2		3	
21:15					2		1		3	
21:30					0		0		0	
21:45					2	5	2	5	4	10
22:00					2		1		3	
22:15					0		0		0	
22:30					0		0		0	
22:45					2	4	1	2	3	6
23:00					1		0		1	
23:15					1		0		1	
23:30					0		1		1	
23:45					1	3	0	1	1	4
TOTALS						415		556		971
SPLIT %						42.7%		57.3%		54.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	894	879	1,773

AM Peak Hour			09:15	11:45	09:45
AM Pk Volume			102	87	159
Pk Hr Factor			0.823	0.777	0.846
7 - 9 Volume	0	0	151	90	241
7 - 9 Peak Hour			07:45	08:00	07:45
7 - 9 Pk Volume	0	0	88	59	146
Pk Hr Factor	0.000	0.000	0.815	0.567	0.702

PM Peak Hour			16:15	13:15	13:15
PM Pk Volume			80	109	181
Pk Hr Factor			0.833	0.879	0.984
4 - 6 Volume	0	0	105	138	243
4 - 6 Peak Hour			16:15	16:15	16:15
4 - 6 Pk Volume	0	0	80	80	160
Pk Hr Factor	0.000	0.000	0.833	0.690	0.755

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Saturday
Date: 11/16/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	638	716	1,354

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			10		18		28	
00:15			1		1		2		12:15			9		21		30	
00:30			0		0		0		12:30			18		26		44	
00:45			1	2	1	2	2	4	12:45			13	50	29	94	42	144
01:00			0		1		1		13:00			21		21		42	
01:15			0		0		0		13:15			17		24		41	
01:30			0		0		0		13:30			17		14		31	
01:45			0		0	1	0	1	13:45			19	74	18	77	37	151
02:00			0		0		0		14:00			18		23		41	
02:15			0		0		0		14:15			22		17		39	
02:30			0		0		0		14:30			13		20		33	
02:45			1	1	1	1	2	2	14:45			27	80	20	80	47	160
03:00			0		1		1		15:00			18		18		36	
03:15			1		0		1		15:15			19		19		38	
03:30			0		0		0		15:30			21		18		39	
03:45			0	1	0	1	0	2	15:45			18	76	22	77	40	153
04:00			0		1		1		16:00			13		15		28	
04:15			0		0		0		16:15			11		22		33	
04:30			0		1		1		16:30			12		23		35	
04:45			1	1	0	2	1	3	16:45			21	57	15	75	36	132
05:00			1		0		1		17:00			16		17		33	
05:15			0		0		0		17:15			8		24		32	
05:30			1		0		1		17:30			10		11		21	
05:45			2	4	2	2	4	6	17:45			17	51	7	59	24	110
06:00			4		1		5		18:00			4		8		12	
06:15			1		5		6		18:15			1		4		5	
06:30			4		8		12		18:30			2		3		5	
06:45			5	14	11	25	16	39	18:45			2	9	2	17	4	26
07:00			3		1		4		19:00			0		3		3	
07:15			5		3		8		19:15			10		1		11	
07:30			3		2		5		19:30			1		7		8	
07:45			4	15	5	11	9	26	19:45			2	13	2	13	4	26
08:00			7		4		11		20:00			3		0		3	
08:15			11		4		15		20:15			2		0		2	
08:30			9		6		15		20:30			2		0		2	
08:45			10	37	8	22	18	59	20:45			4	11	5	5	9	16
09:00			7		6		13		21:00			1		1		2	
09:15			14		7		21		21:15			0		3		3	
09:30			14		4		18		21:30			0		8		8	
09:45			8	43	5	22	13	65	21:45			1	2	3	15	4	17
10:00			5		4		9		22:00			1		3		4	
10:15			11		9		20		22:15			2		5		7	
10:30			13		13		26		22:30			2		3		5	
10:45			18	47	20	46	38	93	22:45			1	6	1	12	2	18
11:00			11		18		29		23:00			1		0		1	
11:15			11		17		28		23:15			0		0		0	
11:30			13		7		20		23:30			1		0		1	
11:45			7	42	14	56	21	98	23:45			0	2	1	1	1	3
TOTALS				207		191		**398**	**TOTALS**				431		525		**956**
SPLIT %				52.0%		48.0%		**29.4%**	**SPLIT %**				45.1%		54.9%		**70.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	638	716	1,354

AM Peak Hour				10:15		11:45		**11:45**	**PM Peak Hour**				14:45		12:30		**12:30**
AM Pk Volume				53		79		**123**	**PM Pk Volume**				85		100		**169**
Pk Hr Factor				0.736		0.760		**0.699**	**Pk Hr Factor**				0.787		0.862		**0.960**
7 - 9 Volume	0	0		52		33		**85**	**4 - 6 Volume**	0	0		108		134		**242**
7 - 9 Peak Hour				08:00		08:00		**08:00**	**4 - 6 Peak Hour**				16:15		16:30		**16:15**
7 - 9 Pk Volume	0	0		37		22		**59**	**4 - 6 Pk Volume**	0	0		60		79		**137**
Pk Hr Factor	0.000	0.000		0.841		0.688		**0.819**	**Pk Hr Factor**	0.000	0.000		0.714		0.823		**0.951**

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Sunday
Date: 11/17/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	377	403	780

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			9		11		20	
00:15			0		1		1		12:15			6		13		19	
00:30			0		1		1		12:30			6		12		18	
00:45			0	1	0	2	0	3	12:45			17	38	11	47	28	85
01:00			0		0		0		13:00			9		6		15	
01:15			1		0		1		13:15			10		16		26	
01:30			1		0		1		13:30			8		9		17	
01:45			0	2	0		0	2	13:45			12	39	9	40	21	79
02:00			0		0		0		14:00			10		8		18	
02:15			0		0		0		14:15			14		17		31	
02:30			0		0		0		14:30			10		16		26	
02:45			0		0		0		14:45			16	50	14	55	30	105
03:00			0		0		0		15:00			5		10		15	
03:15			1		0		1		15:15			9		11		20	
03:30			0		0		0		15:30			10		8		18	
03:45			0	1	0		0	1	15:45			7	31	10	39	17	70
04:00			1		1		2		16:00			8		20		28	
04:15			1		0		1		16:15			10		8		18	
04:30			1		0		1		16:30			10		12		22	
04:45			0	3	0	1	0	4	16:45			10	38	15	55	25	93
05:00			0		0		0		17:00			6		14		20	
05:15			0		1		1		17:15			6		13		19	
05:30			1		0		1		17:30			7		2		9	
05:45			0	1	0	1	0	2	17:45			8	27	5	34	13	61
06:00			1		0		1		18:00			4		5		9	
06:15			0		0		0		18:15			1		1		2	
06:30			3		0		3		18:30			1		2		3	
06:45			3	7	2	2	5	9	18:45			3	9	3	11	6	20
07:00			1		0		1		19:00			1		0		1	
07:15			0		1		1		19:15			0		3		3	
07:30			4		3		7		19:30			0		2		2	
07:45			0	5	3	7	3	12	19:45			1	2	2	7	3	9
08:00			5		6		11		20:00			2		0		2	
08:15			8		2		10		20:15			0		3		3	
08:30			9		4		13		20:30			1		0		1	
08:45			3	25	6	18	9	43	20:45			1	4	0	3	1	7
09:00			1		7		8		21:00			1		0		1	
09:15			6		4		10		21:15			1		1		2	
09:30			4		2		6		21:30			1		1		2	
09:45			5	16	7	20	12	36	21:45			3	6	0	2	3	8
10:00			7		2		9		22:00			0		1		1	
10:15			3		9		12		22:15			1		1		2	
10:30			18		3		21		22:30			0		2		2	
10:45			12	40	8	22	20	62	22:45			0	1	0	4	0	5
11:00			8		6		14		23:00			0		0		0	
11:15			8		13		21		23:15			0		0		0	
11:30			8		9		17		23:30			0		0		0	
11:45			7	31	5	33	12	64	23:45			0		0		0	
TOTALS				132		106		**238**	**TOTALS**				245		297		**542**
SPLIT %				55.5%		44.5%		**30.5%**	**SPLIT %**				45.2%		54.8%		**69.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	377	403	780

AM Peak Hour			10:30	11:45	**10:30**	**PM Peak Hour**			14:00	14:15	**14:00**
AM Pk Volume			46	41	**76**	**PM Pk Volume**			50	57	**105**
Pk Hr Factor			0.639	0.788	**0.905**	**Pk Hr Factor**			0.781	0.838	**0.847**
7 - 9 Volume	0	0	30	25	**55**	**4 - 6 Volume**	0	0	65	89	**154**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	25	18	**43**	**4 - 6 Pk Volume**	0	0	38	55	**93**
Pk Hr Factor	0.000	0.000	0.694	0.750	**0.827**	**Pk Hr Factor**	0.000	0.000	0.950	0.688	**0.830**

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Monday
Date: 11/18/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	765	683	1,448

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			11		18		29	
00:15			0		1		1		12:15			12		12		24	
00:30			1		0		1		12:30			15		19		34	
00:45			0	1	1	2	1	3	12:45			12	50	9	58	21	108
01:00			0		0		0		13:00			17		14		31	
01:15			0		0		0		13:15			23		10		33	
01:30			0		0		0		13:30			13		20		33	
01:45			0		0		0		13:45			11	64	18	62	29	126
02:00			0		0		0		14:00			8		12		20	
02:15			0		0		0		14:15			13		15		28	
02:30			0		0		0		14:30			13		14		27	
02:45			0		0		0		14:45			13	47	15	56	28	103
03:00			0		0		0		15:00			25		17		42	
03:15			0		0		0		15:15			11		16		27	
03:30			0		1		1		15:30			18		24		42	
03:45			1	1	0	1	1	2	15:45			9	63	24	81	33	144
04:00			0		1		1		16:00			13		12		25	
04:15			1		0		1		16:15			7		9		16	
04:30			0		1		1		16:30			16		14		30	
04:45			0	1	0	2	0	3	16:45			8	44	26	61	34	105
05:00			3		1		4		17:00			19		19		38	
05:15			2		5		7		17:15			2		6		8	
05:30			7		1		8		17:30			3		8		11	
05:45			16	28	9	16	25	44	17:45			5	29	5	38	10	67
06:00			9		5		14		18:00			0		4		4	
06:15			22		3		25		18:15			1		7		8	
06:30			23		13		36		18:30			2		3		5	
06:45			30	84	10	31	40	115	18:45			0	3	2	16	2	19
07:00			13		14		27		19:00			1		0		1	
07:15			11		8		19		19:15			0		3		3	
07:30			15		15		30		19:30			2		2		4	
07:45			22	61	14	51	36	112	19:45			0	3	2	7	2	10
08:00			19		5		24		20:00			0		2		2	
08:15			17		8		25		20:15			2		0		2	
08:30			24		7		31		20:30			1		0		1	
08:45			22	82	13	33	35	115	20:45			2	5	1	3	3	8
09:00			18		14		32		21:00			2		0		2	
09:15			14		14		28		21:15			1		0		1	
09:30			10		10		20		21:30			1		0		1	
09:45			14	56	8	46	22	102	21:45			0	4	0		0	4
10:00			15		13		28		22:00			2		1		3	
10:15			12		7		19		22:15			0		1		1	
10:30			17		15		32		22:30			1		0		1	
10:45			16	60	15	50	31	110	22:45			0	3	0	2	0	5
11:00			19		16		35		23:00			1		0		1	
11:15			23		11		34		23:15			0		1		1	
11:30			14		21		35		23:30			0		0		0	
11:45			19	75	18	66	37	141	23:45			0	1	0	1	0	2
TOTALS				449		298		**747**	**TOTALS**				316		385		**701**
SPLIT %				60.1%		39.9%		**51.6%**	**SPLIT %**				45.1%		54.9%		**48.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	765	683	1,448

AM Peak Hour				06:15		11:30		**11:00**	**PM Peak Hour**				12:30		15:00		**15:00**
AM Pk Volume				88		69		**141**	**PM Pk Volume**				67		81		**144**
Pk Hr Factor				0.733		0.821		**0.953**	**Pk Hr Factor**				0.728		0.844		**0.857**
7 - 9 Volume	0	0		143		84		**227**	**4 - 6 Volume**	0	0		73		99		**172**
7 - 9 Peak Hour				07:45		07:00		**07:45**	**4 - 6 Peak Hour**				16:15		16:15		**16:15**
7 - 9 Pk Volume	0	0		82		51		**116**	**4 - 6 Pk Volume**	0	0		50		68		**118**
Pk Hr Factor	0.000	0.000		0.854		0.850		**0.806**	**Pk Hr Factor**	0.000	0.000		0.658		0.654		**0.776**

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Tuesday
Date: 11/19/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	756	693	1,449

AM Period	NB		SB		EB		WB		TOTAL	
00:00					1		1		2	
00:15					1		1		2	
00:30					0		0		0	
00:45					0	2	0	2	0	4
01:00					0		0		0	
01:15					0		1		1	
01:30					0		0		0	
01:45					1	1	0	1	1	2
02:00					0		1		1	
02:15					1		1		2	
02:30					0		0		0	
02:45					0	1	0	2	0	3
03:00					0		0		0	
03:15					1		1		2	
03:30					0		1		1	
03:45					0	1	0	2	0	3
04:00					1		0		1	
04:15					0		0		0	
04:30					0		1		1	
04:45					0	1	0	1	0	2
05:00					0		2		2	
05:15					2		0		2	
05:30					8		2		10	
05:45					17	27	8	12	25	39
06:00					8		3		11	
06:15					20		10		30	
06:30					24		16		40	
06:45					24	76	9	38	33	114
07:00					12		4		16	
07:15					18		6		24	
07:30					12		16		28	
07:45					22	64	5	31	27	95
08:00					23		18		41	
08:15					22		11		33	
08:30					17		13		30	
08:45					21	83	17	59	38	142
09:00					27		9		36	
09:15					21		13		34	
09:30					11		9		20	
09:45					11	70	16	47	27	117
10:00					17		14		31	
10:15					13		12		25	
10:30					14		21		35	
10:45					18	62	9	56	27	118
11:00					11		19		30	
11:15					9		21		30	
11:30					18		16		34	
11:45					18	56	21	77	39	133
TOTALS						444		328		772
SPLIT %						57.5%		42.5%		53.3%

PM Period	NB		SB		EB		WB		TOTAL	
12:00					7		12		19	
12:15					14		15		29	
12:30					6		13		19	
12:45					19	46	17	57	36	103
13:00					13		19		32	
13:15					22		10		32	
13:30					18		10		28	
13:45					8	61	10	49	18	110
14:00					10		18		28	
14:15					16		13		29	
14:30					10		15		25	
14:45					13	49	13	59	26	108
15:00					10		12		22	
15:15					11		16		27	
15:30					16		28		44	
15:45					17	54	18	74	35	128
16:00					17		10		27	
16:15					8		10		18	
16:30					10		16		26	
16:45					17	52	19	55	36	107
17:00					11		15		26	
17:15					8		12		20	
17:30					7		9		16	
17:45					6	32	8	44	14	76
18:00					0		9		9	
18:15					2		5		7	
18:30					3		1		4	
18:45					0	5	1	16	1	21
19:00					1		1		2	
19:15					1		0		1	
19:30					0		0		0	
19:45					0	2	2	3	2	5
20:00					0		1		1	
20:15					1		2		3	
20:30					3		0		3	
20:45					2	6	1	4	3	10
21:00					1		0		1	
21:15					2		1		3	
21:30					1		0		1	
21:45					0	4	1	2	1	6
22:00					1		0		1	
22:15					0		0		0	
22:30					0		0		0	
22:45					0	1	1	1	1	2
23:00					0		1		1	
23:15					0		0		0	
23:30					0		0		0	
23:45					0		0	1	0	1
TOTALS						312		365		677
SPLIT %						46.1%		53.9%		46.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	756	693	1,449

AM Peak Hour			08:15	11:00	08:00
AM Pk Volume			87	77	142
Pk Hr Factor			0.806	0.917	0.866
7 - 9 Volume	0	0	147	90	237
7 - 9 Peak Hour			07:45	08:00	08:00
7 - 9 Pk Volume	0	0	84	59	142
Pk Hr Factor	0.000	0.000	0.913	0.819	0.866

PM Peak Hour			12:45	15:00	15:15
PM Pk Volume			72	74	133
Pk Hr Factor			0.818	0.661	0.756
4 - 6 Volume	0	0	84	99	183
4 - 6 Peak Hour			16:00	16:30	16:30
4 - 6 Pk Volume	0	0	52	62	108
Pk Hr Factor	0.000	0.000	0.765	0.816	0.750

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Wednesday
Date: 11/20/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	778	618	1,396

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			8	13	21
00:15			0	0	0	12:15			18	8	26
00:30			0	1	1	12:30			13	18	31
00:45			0	0	1	0 1	12:45			16 55	14 53	30 108
01:00			0	1	1	13:00			17	15	32
01:15			0	0	0	13:15			16	10	26
01:30			1	0	1	13:30			18	20	38
01:45			1 2	1 2	2 4	13:45			5 56	14 59	19 115
02:00			0	0	0	14:00			9	15	24
02:15			0	0	0	14:15			10	19	29
02:30			0	0	0	14:30			16	13	29
02:45			1 1	1 1	2 2	14:45			11 46	15 62	26 108
03:00			0	0	0	15:00			12	14	26
03:15			0	0	0	15:15			13	17	30
03:30			0	0	0	15:30			19	26	45
03:45			3 3	0	3 3	15:45			11 55	9 66	20 121
04:00			1	1	2	16:00			19	15	34
04:15			1	1	2	16:15			12	5	17
04:30			0	1	1	16:30			8	13	21
04:45			1 3	1 4	2 7	16:45			6 45	8 41	14 86
05:00			0	1	1	17:00			13	26	39
05:15			3	0	3	17:15			10	4	14
05:30			10	1	11	17:30			3	8	11
05:45			16 29	2 4	18 33	17:45			5 31	7 45	12 76
06:00			17	4	21	18:00			1	6	7
06:15			20	2	22	18:15			1	1	2
06:30			31	6	37	18:30			1	3	4
06:45			26 94	15 27	41 121	18:45			2 5	1 11	3 16
07:00			13	6	19	19:00			1	0	1
07:15			14	12	26	19:15			3	0	3
07:30			18	14	32	19:30			2	1	3
07:45			22 67	4 36	26 103	19:45			0 6	0 1	0 7
08:00			25	17	42	20:00			1	2	3
08:15			16	16	32	20:15			1	1	2
08:30			25	8	33	20:30			3	0	3
08:45			16 82	9 50	25 132	20:45			2 7	1 4	3 11
09:00			14	14	28	21:00			1	1	2
09:15			13	10	23	21:15			0	1	1
09:30			22	11	33	21:30			1	0	1
09:45			10 59	8 43	18 102	21:45			1 3	1 3	2 6
10:00			15	16	31	22:00			1	0	1
10:15			21	7	28	22:15			2	0	2
10:30			12	6	18	22:30			0	1	1
10:45			11 59	10 39	21 98	22:45			0 3	1 2	1 5
11:00			14	23	37	23:00			0	0	0
11:15			10	14	24	23:15			0	0	0
11:30			23	14	37	23:30			0	0	0
11:45			20 67	13 64	33 131	23:45			0	0	0
TOTALS			466	271	**737**	**TOTALS**			312	347	**659**
SPLIT %			63.2%	36.8%	**52.8%**	**SPLIT %**			47.3%	52.7%	**47.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	778	618	1,396

AM Peak Hour			06:00	11:00	**07:45**	**PM Peak Hour**			12:45	14:45	**15:15**
AM Pk Volume			94	64	**133**	**PM Pk Volume**			67	72	**129**
Pk Hr Factor			0.758	0.696	**0.792**	**Pk Hr Factor**			0.931	0.692	**0.717**
7 - 9 Volume	0	0	149	86	**235**	**4 - 6 Volume**	0	0	76	86	**162**
7 - 9 Peak Hour			07:45	07:30	**07:45**	**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	88	51	**133**	**4 - 6 Pk Volume**	0	0	45	52	**91**
Pk Hr Factor	0.000	0.000	0.880	0.750	**0.792**	**Pk Hr Factor**	0.000	0.000	0.592	0.500	**0.583**

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Thursday
Date: 11/21/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	847	703	1,550

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			18		22		40	
00:15			0		1		1		12:15			17		16		33	
00:30			0		0		0		12:30			22		25		47	
00:45			0		0	1	0	1	12:45			24	81	12	75	36	156
01:00			0		1		1		13:00			19		18		37	
01:15			0		0		0		13:15			18		8		26	
01:30			0		0		0		13:30			16		12		28	
01:45			0		0	1	0	1	13:45			14	67	8	46	22	113
02:00			0		0		0		14:00			11		20		31	
02:15			0		0		0		14:15			13		22		35	
02:30			0		2		2		14:30			12		17		29	
02:45			0		0	2	0	2	14:45			17	53	11	70	28	123
03:00			1		0		1		15:00			13		21		34	
03:15			0		0		0		15:15			20		16		36	
03:30			0		1		1		15:30			16		23		39	
03:45			1	2	1	2	2	4	15:45			11	60	10	70	21	130
04:00			1		0		1		16:00			16		10		26	
04:15			0		1		1		16:15			8		10		18	
04:30			0		1		1		16:30			9		19		28	
04:45			2	3	0	2	2	5	16:45			7	40	10	49	17	89
05:00			1		2		3		17:00			17		20		37	
05:15			4		0		4		17:15			14		23		37	
05:30			10		3		13		17:30			5		12		17	
05:45			18	33	1	6	19	39	17:45			1	37	3	58	4	95
06:00			24		2		26		18:00			5		1		6	
06:15			17		1		18		18:15			1		4		5	
06:30			27		6		33		18:30			3		6		9	
06:45			21	89	15	24	36	113	18:45			1	10	1	12	2	22
07:00			13		5		18		19:00			1		2		3	
07:15			15		10		25		19:15			2		0		2	
07:30			24		12		36		19:30			3		1		4	
07:45			10	62	12	39	22	101	19:45			0	6	1	4	1	10
08:00			30		9		39		20:00			1		1		2	
08:15			16		16		32		20:15			0		0		0	
08:30			25		9		34		20:30			1		0		1	
08:45			16	87	13	47	29	134	20:45			0	2	0	1	0	3
09:00			22		10		32		21:00			1		0		1	
09:15			10		13		23		21:15			1		0		1	
09:30			18		11		29		21:30			0		2		2	
09:45			20	70	18	52	38	122	21:45			0	2	0	2	0	4
10:00			15		15		30		22:00			3		1		4	
10:15			12		17		29		22:15			1		0		1	
10:30			18		16		34		22:30			1		1		2	
10:45			23	68	18	66	41	134	22:45			0	5	1	3	1	8
11:00			17		22		39		23:00			0		1		1	
11:15			16		13		29		23:15			1		2		3	
11:30			16		18		34		23:30			0		0		0	
11:45			20	69	15	68	35	137	23:45			0	1	0	3	0	4
TOTALS				483		310		793	TOTALS				364		393		757
SPLIT %				60.9%		39.1%		51.2%	SPLIT %				48.1%		51.9%		48.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	847	703	1,550

AM Peak Hour			06:00	11:45	11:45	PM Peak Hour			12:30	12:00	12:00
AM Pk Volume			89	78	155	PM Pk Volume			83	75	156
Pk Hr Factor			0.824	0.780	0.824	Pk Hr Factor			0.865	0.750	0.830
7 - 9 Volume	0	0	149	86	235	4 - 6 Volume	0	0	77	107	184
7 - 9 Peak Hour			08:00	07:30	08:00	4 - 6 Peak Hour			16:30	16:30	16:30
7 - 9 Pk Volume	0	0	87	49	134	4 - 6 Pk Volume	0	0	47	72	119
Pk Hr Factor	0.000	0.000	0.725	0.766	0.859	Pk Hr Factor	0.000	0.000	0.691	0.783	0.804

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Friday
Date: 11/22/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	895	772	1,667

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					14		15		29	
00:15					2		0		2		12:15					16		15		31	
00:30					1		1		2		12:30					18		21		39	
00:45					0	3	0	1	0	4	12:45					20	68	13	64	33	132
01:00					0		1		1		13:00					15		14		29	
01:15					0		1		1		13:15					16		18		34	
01:30					0		0		0		13:30					22		17		39	
01:45					0		0	2	0	2	13:45					14	67	18	67	32	134
02:00					0		0		0		14:00					20		13		33	
02:15					0		0		0		14:15					18		17		35	
02:30					0		0		0		14:30					14		21		35	
02:45					1	1	0		1	1	14:45					18	70	22	73	40	143
03:00					2		2		4		15:00					20		24		44	
03:15					0		0		0		15:15					18		18		36	
03:30					1		0		1		15:30					19		25		44	
03:45					1	4	1	3	2	7	15:45					15	72	19	86	34	158
04:00					1		1		2		16:00					21		18		39	
04:15					0		0		0		16:15					12		10		22	
04:30					0		3		3		16:30					6		16		22	
04:45					4	5	0	4	4	9	16:45					10	49	30	74	40	123
05:00					2		2		4		17:00					6		22		28	
05:15					2		0		2		17:15					3		17		20	
05:30					9		2		11		17:30					10		11		21	
05:45					21	34	2	6	23	40	17:45					10	29	7	57	17	86
06:00					23		4		27		18:00					6		7		13	
06:15					22		9		31		18:15					3		1		4	
06:30					25		11		36		18:30					1		0		1	
06:45					27	97	19	43	46	140	18:45					3	13	1	9	4	22
07:00					18		7		25		19:00					4		5		9	
07:15					13		9		22		19:15					2		0		2	
07:30					8		8		16		19:30					2		1		3	
07:45					27	66	14	38	41	104	19:45					3	11	3	9	6	20
08:00					23		12		35		20:00					0		2		2	
08:15					20		14		34		20:15					2		1		3	
08:30					24		10		34		20:30					4		1		5	
08:45					25	92	10	46	35	138	20:45					1	7	0	4	1	11
09:00					14		11		25		21:00					0		0		0	
09:15					25		17		42		21:15					0		1		1	
09:30					19		12		31		21:30					1		0		1	
09:45					17	75	13	53	30	128	21:45					0	1	1	2	1	3
10:00					10		22		32		22:00					1		0		1	
10:15					13		12		25		22:15					0		0		0	
10:30					21		9		30		22:30					0		0		0	
10:45					25	69	19	62	44	131	22:45					0	1	0		0	1
11:00					10		13		23		23:00					0		0		0	
11:15					12		16		28		23:15					0		1		1	
11:30					15		16		31		23:30					0		0		0	
11:45					22	59	22	67	44	126	23:45					2	2	1	2	3	4
TOTALS						505		325		**830**	**TOTALS**						390		447		**837**
SPLIT %						60.8%		39.2%		**49.8%**	**SPLIT %**						46.6%		53.4%		**50.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	895	772	1,667

AM Peak Hour			06:00	11:45	**07:45**	**PM Peak Hour**			14:45	14:45	**14:45**
AM Pk Volume			97	73	**144**	**PM Pk Volume**			75	89	**164**
Pk Hr Factor			0.898	0.830	**0.878**	**Pk Hr Factor**			0.938	0.890	**0.932**
7 - 9 Volume	0	0	158	84	**242**	**4 - 6 Volume**	0	0	78	131	**209**
7 - 9 Peak Hour			07:45	07:45	**07:45**	**4 - 6 Peak Hour**			16:00	16:30	**16:00**
7 - 9 Pk Volume	0	0	94	50	**144**	**4 - 6 Pk Volume**	0	0	49	85	**123**
Pk Hr Factor	0.000	0.000	0.870	0.893	**0.878**	**Pk Hr Factor**	0.000	0.000	0.583	0.708	**0.769**

Prepared by NDS/ATD

VOLUME

Oakville Cross Rd E/O SR-29

Day: Saturday
Date: 11/23/2019

City: Rutherford
Project #: CA19_8585_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	607	637	1,244

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					8		12		20	
00:15					0		0		0		12:15					12		13		25	
00:30					1		0		1		12:30					8		19		27	
00:45					1	2	0		1	2	12:45					8	36	15	59	23	95
01:00					0		1		1		13:00					18		16		34	
01:15					0		0		0		13:15					16		14		30	
01:30					0		0		0		13:30					8		17		25	
01:45					0		0	1	0	1	13:45					14	56	14	61	28	117
02:00					0		0		0		14:00					9		19		28	
02:15					1		0		1		14:15					18		15		33	
02:30					0		1		1		14:30					19		15		34	
02:45					0	1	0	1	0	2	14:45					24	70	23	72	47	142
03:00					0		0		0		15:00					11		17		28	
03:15					0		0		0		15:15					19		20		39	
03:30					0		1		1		15:30					17		18		35	
03:45					0		1	2	1	2	15:45					11	58	21	76	32	134
04:00					0		0		0		16:00					7		27		34	
04:15					1		0		1		16:15					11		13		24	
04:30					0		0		0		16:30					16		20		36	
04:45					2	3	1	1	3	4	16:45					8	42	23	83	31	125
05:00					0		0		0		17:00					15		16		31	
05:15					1		2		3		17:15					6		10		16	
05:30					3		2		5		17:30					5		7		12	
05:45					9	13	1	5	10	18	17:45					7	33	6	39	13	72
06:00					17		1		18		18:00					7		3		10	
06:15					5		4		9		18:15					4		2		6	
06:30					7		3		10		18:30					3		0		3	
06:45					11	40	4	12	15	52	18:45					2	16	3	8	5	24
07:00					5		1		6		19:00					1		1		2	
07:15					4		7		11		19:15					3		2		5	
07:30					2		8		10		19:30					1		0		1	
07:45					8	19	9	25	17	44	19:45					1	6	0	3	1	9
08:00					9		5		14		20:00					1		0		1	
08:15					13		2		15		20:15					0		2		2	
08:30					14		3		17		20:30					1		3		4	
08:45					15	51	11	21	26	72	20:45					2	4	3	8	5	12
09:00					6		5		11		21:00					2		1		3	
09:15					9		9		18		21:15					1		1		2	
09:30					11		5		16		21:30					0		2		2	
09:45					14	40	10	29	24	69	21:45					2	5	0	4	2	9
10:00					13		9		22		22:00					0		1		1	
10:15					11		7		18		22:15					1		0		1	
10:30					7		13		20		22:30					1		1		2	
10:45					11	42	15	44	26	86	22:45					0	2	2	4	2	6
11:00					18		21		39		23:00					1		0		1	
11:15					18		22		40		23:15					0		0		0	
11:30					17		14		31		23:30					0		0		0	
11:45					13	66	22	79	35	145	23:45					1	2	0		1	2
TOTALS						277		220		497	TOTALS						330		417		747
SPLIT %						55.7%		44.3%		40.0%	SPLIT %						44.2%		55.8%		60.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	607	637	1,244

AM Peak Hour			11:00	11:00	11:00	PM Peak Hour			14:30	15:15	14:45
AM Pk Volume			66	79	145	PM Pk Volume			73	86	149
Pk Hr Factor			0.917	0.898	0.906	Pk Hr Factor			0.760	0.796	0.793
7 - 9 Volume	0	0	70	46	116	4 - 6 Volume	0	0	75	122	197
7 - 9 Peak Hour			08:00	07:15	08:00	4 - 6 Peak Hour			16:15	16:00	16:00
7 - 9 Pk Volume	0	0	51	29	72	4 - 6 Pk Volume	0	0	50	83	125
Pk Hr Factor	0.000	0.000	0.850	0.806	0.692	Pk Hr Factor	0.000	0.000	0.781	0.769	0.868

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Friday
Date: 11/15/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	179	210	389

AM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0	
00:15					0		0		0	
00:30					0		0		0	
00:45					0		0		0	
01:00					0		0		0	
01:15					0		0		0	
01:30					0		0		0	
01:45					0		0		0	
02:00					0		0		0	
02:15					0		0		0	
02:30					0		0		0	
02:45					0		0		0	
03:00					0		0		0	
03:15					0		0		0	
03:30					0		1		1	
03:45					0		0	1	0	1
04:00					0		1		1	
04:15					1		1		2	
04:30					0		0		0	
04:45					0	1	0	2	0	3
05:00					0		0		0	
05:15					0		0		0	
05:30					1		0		1	
05:45					3	4	0		3	4
06:00					0		0		0	
06:15					0		0		0	
06:30					0		1		1	
06:45					5	5	0	1	5	6
07:00					4		0		4	
07:15					0		0		0	
07:30					3		0		3	
07:45					4	11	0		4	11
08:00					4		0		4	
08:15					9		0		9	
08:30					10		1		11	
08:45					0	23	0	1	0	24
09:00					2		0		2	
09:15					1		2		3	
09:30					5		3		8	
09:45					5	13	0	5	5	18
10:00					4		2		6	
10:15					4		2		6	
10:30					10		3		13	
10:45					7	25	3	10	10	35
11:00					5		6		11	
11:15					2		4		6	
11:30					0		4		4	
11:45					6	13	6	20	12	33
TOTALS						95		40		135
SPLIT %						70.4%		29.6%		34.7%

PM Period	NB		SB		EB		WB		TOTAL	
12:00					5		4		9	
12:15					7		10		17	
12:30					5		4		9	
12:45					2	19	4	22	6	41
13:00					6		2		8	
13:15					7		6		13	
13:30					5		2		7	
13:45					4	22	7	17	11	39
14:00					5		7		12	
14:15					4		3		7	
14:30					2		6		8	
14:45					6	17	8	24	14	41
15:00					6		12		18	
15:15					4		12		16	
15:30					3		10		13	
15:45					0	13	8	42	8	55
16:00					3		7		10	
16:15					3		5		8	
16:30					2		2		4	
16:45					3	11	12	26	15	37
17:00					0		24		24	
17:15					0		6		6	
17:30					0		2		2	
17:45					0		1	33	1	33
18:00					0		0		0	
18:15					0		0		0	
18:30					0		0		0	
18:45					1	1	0		1	1
19:00					0		2		2	
19:15					0		1		1	
19:30					0		0		0	
19:45					0		0	3	0	3
20:00					0		0		0	
20:15					0		0		0	
20:30					0		0		0	
20:45					0		2	2	2	2
21:00					0		0		0	
21:15					0		0		0	
21:30					1		1		2	
21:45					0	1	0	1	0	2
22:00					0		0		0	
22:15					0		0		0	
22:30					0		0		0	
22:45					0		0		0	
23:00					0		0		0	
23:15					0		0		0	
23:30					0		0		0	
23:45					0		0		0	
TOTALS						84		170		254
SPLIT %						33.1%		66.9%		65.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	179	210	389

AM Peak Hour			07:45	11:30	11:45
AM Pk Volume			27	24	47
Pk Hr Factor			0.675	0.600	0.691
7 - 9 Volume	0	0	34	1	35
7 - 9 Peak Hour			07:45	07:45	07:45
7 - 9 Pk Volume	0	0	27	1	28
Pk Hr Factor	0.000	0.000	0.675	0.250	0.636

PM Peak Hour			13:00	16:30	14:45
PM Pk Volume			22	44	61
Pk Hr Factor			0.786	0.458	0.847
4 - 6 Volume	0	0	11	59	70
4 - 6 Peak Hour			16:00	16:30	16:15
4 - 6 Pk Volume	0	0	11	44	51
Pk Hr Factor	0.000	0.000	0.917	0.458	0.531

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Saturday
Date: 11/16/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	213	232	445

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			2	5	7
00:15			0	0	0	12:15			10	9	19
00:30			0	0	0	12:30			9	10	19
00:45			0	0	0	12:45			10	31	10	34	20	65
01:00			0	0	0	13:00			8	5	13
01:15			0	0	0	13:15			8	5	13
01:30			0	0	0	13:30			15	8	23
01:45			0	0	0	13:45			12	43	15	33	27	76
02:00			0	0	0	14:00			10	10	20
02:15			0	0	0	14:15			8	6	14
02:30			0	0	0	14:30			3	10	13
02:45			0	0	0	14:45			4	25	9	35	13	60
03:00			0	0	0	15:00			12	14	26
03:15			0	0	0	15:15			8	12	20
03:30			0	0	0	15:30			8	8	16
03:45			0	0	0	15:45			5	33	15	49	20	82
04:00			0	0	0	16:00			3	4	7
04:15			0	0	0	16:15			2	3	5
04:30			0	0	0	16:30			1	9	10
04:45			0	0	0	16:45			1	7	4	20	5	27
05:00			0	0	0	17:00			0	9	9
05:15			0	0	0	17:15			0	9	9
05:30			0	0	0	17:30			1	1	2
05:45			0	0	0	17:45			1	2	4	23	5	25
06:00			0	0	0	18:00			0	1	1
06:15			0	0	0	18:15			0	0	0
06:30			0	1	1	18:30			0	0	0
06:45			0	0	1	0	1	18:45			0	0	1	0	1
07:00			0	0	0	19:00			0	0	0
07:15			1	0	1	19:15			0	0	0
07:30			1	0	1	19:30			0	2	2
07:45			2	4	0	2	4	19:45			0	1	3	1	3
08:00			2	0	2	20:00			0	0	0
08:15			7	0	7	20:15			0	0	0
08:30			6	0	6	20:30			0	0	0
08:45			0	15	0	0	15	20:45			0	1	1	1	1
09:00			0	0	0	21:00			0	0	0
09:15			1	1	2	21:15			0	0	0
09:30			1	0	1	21:30			0	0	0
09:45			3	5	0	1	3	6	21:45			0	0	0	
10:00			9	2	11	22:00			0	0	0
10:15			6	1	7	22:15			0	0	0
10:30			3	1	4	22:30			0	0	0
10:45			6	24	3	7	9	31	22:45			1	1	0	1	1
11:00			11	2	13	23:00			0	1	1
11:15			2	8	10	23:15			0	0	0
11:30			2	10	12	23:30			0	0	0
11:45			8	23	3	23	11	46	23:45			0	0	1	0	1
TOTALS				71	32	**103**	**TOTALS**				142	200	**342**
SPLIT %				68.9%	31.1%	**23.1%**	**SPLIT %**				41.5%	58.5%	**76.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	213	232	445

AM Peak Hour			11:45	11:30	**11:45**	**PM Peak Hour**			13:15	15:00	**13:30**
AM Pk Volume			29	27	**56**	**PM Pk Volume**			45	49	**84**
Pk Hr Factor			0.725	0.675	**0.737**	**Pk Hr Factor**			0.750	0.817	**0.778**
7 - 9 Volume	0	0	19	0	**19**	**4 - 6 Volume**	0	0	9	43	**52**
7 - 9 Peak Hour			07:45		**07:45**	**4 - 6 Peak Hour**			16:00	16:30	**16:30**
7 - 9 Pk Volume	0	0	17	0	**17**	**4 - 6 Pk Volume**	0	0	7	31	**33**
Pk Hr Factor	0.000	0.000	0.607	0.000	**0.607**	**Pk Hr Factor**	0.000	0.000	0.583	0.861	**0.825**

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Sunday
Date: 11/17/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	137	148	285

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			7	7	14
00:15			0	0	0	12:15			4	6	10
00:30			0	0	0	12:30			3	6	9
00:45			0	0	0	12:45			1	15	3	22	4	37
01:00			0	0	0	13:00			8	6	14
01:15			0	0	0	13:15			7	9	16
01:30			0	0	0	13:30			9	6	15
01:45			0	0	0	13:45			7	31	8	29	15	60
02:00			0	0	0	14:00			3	4	7
02:15			0	0	0	14:15			9	3	12
02:30			0	0	0	14:30			4	8	12
02:45			0	0	0	14:45			2	18	5	20	7	38
03:00			0	0	0	15:00			8	6	14
03:15			0	0	0	15:15			1	10	11
03:30			0	0	0	15:30			4	5	9
03:45			0	0	0	15:45			1	14	6	27	7	41
04:00			0	0	0	16:00			2	3	5
04:15			0	0	0	16:15			0	1	1
04:30			0	0	0	16:30			0	1	1
04:45			0	0	0	16:45			0	2	2	7	2	9
05:00			0	0	0	17:00			0	11	11
05:15			0	0	0	17:15			2	7	9
05:30			0	0	0	17:30			0	0	0
05:45			0	0	0	17:45			0	2	0	18	0	20
06:00			0	0	0	18:00			0	0	0
06:15			0	0	0	18:15			0	0	0
06:30			0	0	0	18:30			0	0	0
06:45			1	1	0	1	1	18:45			0	0	0
07:00			0	0	0	19:00			0	0	0
07:15			0	0	0	19:15			0	0	0
07:30			0	0	0	19:30			0	0	0
07:45			0	0	0	19:45			0	0	0
08:00			1	0	1	20:00			0	0	0
08:15			6	0	6	20:15			0	0	0
08:30			3	0	3	20:30			0	0	0
08:45			0	10	0	0	10	20:45			0	0	0
09:00			0	0	0	21:00			0	0	0
09:15			0	0	0	21:15			0	0	0
09:30			2	2	4	21:30			0	0	0
09:45			1	3	0	2	1	5	21:45			0	0	0
10:00			8	2	10	22:00			0	0	0
10:15			3	3	6	22:15			0	0	0
10:30			4	1	5	22:30			0	0	0
10:45			6	21	0	6	6	27	22:45			0	0	0
11:00			5	3	8	23:00			0	0	0
11:15			3	3	6	23:15			0	0	0
11:30			7	5	12	23:30			0	0	0
11:45			5	20	6	17	11	37	23:45			0	0	0
TOTALS				55	25	**80**	**TOTALS**			82	123	**205**
SPLIT %				68.8%	31.3%	**28.1%**	**SPLIT %**			40.0%	60.0%	**71.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	137	148	285

AM Peak Hour			11:30	11:45	**11:30**	**PM Peak Hour**			13:00	13:00	**13:00**
AM Pk Volume			23	25	**47**	**PM Pk Volume**			31	29	**60**
Pk Hr Factor			0.821	0.893	**0.839**	**Pk Hr Factor**			0.861	0.806	**0.938**
7 - 9 Volume	0	0	10	0	**10**	**4 - 6 Volume**	0	0	4	25	**29**
7 - 9 Peak Hour			07:45		**07:45**	**4 - 6 Peak Hour**			16:00	16:30	**16:30**
7 - 9 Pk Volume	0	0	10	0	**10**	**4 - 6 Pk Volume**	0	0	2	21	**23**
Pk Hr Factor	0.000	0.000	0.417	0.000	**0.417**	**Pk Hr Factor**	0.000	0.000	0.250	0.477	**0.523**

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Monday
Date: 11/18/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	113	127	240

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					2		7		9	
00:15					0		0		0		12:15					1		1		2	
00:30					0		0		0		12:30					3		3		6	
00:45					0		0		0		12:45					5	11	1	12	6	23
01:00					0		0		0		13:00					2		1		3	
01:15					0		0		0		13:15					2		3		5	
01:30					0		0		0		13:30					1		1		2	
01:45					0		0		0		13:45					4	9	2	7	6	16
02:00					0		0		0		14:00					1		1		2	
02:15					0		0		0		14:15					2		3		5	
02:30					0		0		0		14:30					3		3		6	
02:45					0		0		0		14:45					4	10	4	11	8	21
03:00					0		0		0		15:00					3		1		4	
03:15					0		0		0		15:15					2		4		6	
03:30					0		0		0		15:30					2		9		11	
03:45					0		1	1	1	1	15:45					2	9	1	15	3	24
04:00					0		0		0		16:00					1		5		6	
04:15					0		0		0		16:15					1		8		9	
04:30					0		0		0		16:30					1		15		16	
04:45					0		0		0		16:45					0	3	8	36	8	39
05:00					0		0		0		17:00					0		15		15	
05:15					0		0		0		17:15					1		1		2	
05:30					0		0		0		17:30					0		2		2	
05:45					0		0		0		17:45					0	1	1	19	1	20
06:00					0		0		0		18:00					0		0		0	
06:15					0		0		0		18:15					0		0		0	
06:30					2		1		3		18:30					0		0		0	
06:45					6	8	0	1	6	9	18:45					0		0		0	
07:00					2		0		2		19:00					0		0		0	
07:15					1		0		1		19:15					0		2		2	
07:30					5		0		5		19:30					0		1		1	
07:45					8	16	0		8	16	19:45					0		0	3	0	3
08:00					6		0		6		20:00					0		0		0	
08:15					9		0		9		20:15					0		0		0	
08:30					8		0		8		20:30					0		0		0	
08:45					0	23	0		0	23	20:45					0		0		0	
09:00					0		0		0		21:00					0		0		0	
09:15					1		0		1		21:15					0		2		2	
09:30					0		0		0		21:30					0		0		0	
09:45					1	2	2	2	3	4	21:45					0		0	2	0	2
10:00					1		3		4		22:00					0		0		0	
10:15					2		0		2		22:15					0		0		0	
10:30					0		3		3		22:30					0		0		0	
10:45					4	7	1	7	5	14	22:45					0		0		0	
11:00					3		1		4		23:00					0		0		0	
11:15					4		1		5		23:15					0		0		0	
11:30					6		6		12		23:30					0		0		0	
11:45					1	14	3	11	4	25	23:45					0		0		0	
TOTALS						70		22		92	TOTALS						43		105		148
SPLIT %						76.1%		23.9%		38.3%	SPLIT %						29.1%		70.9%		61.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	113	127	240

AM Peak Hour			07:45	11:15	07:45	PM Peak Hour			12:30	16:15	16:15
AM Pk Volume			31	17	31	PM Pk Volume			12	46	48
Pk Hr Factor			0.861	0.607	0.861	Pk Hr Factor			0.600	0.767	0.750
7 - 9 Volume	0	0	39	0	39	4 - 6 Volume	0	0	4	55	59
7 - 9 Peak Hour			07:45		07:45	4 - 6 Peak Hour			16:00	16:15	16:15
7 - 9 Pk Volume	0	0	31	0	31	4 - 6 Pk Volume	0	0	3	46	48
Pk Hr Factor	0.000	0.000	0.861	0.000	0.861	Pk Hr Factor	0.000	0.000	0.750	0.767	0.750

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Tuesday
Date: 11/19/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	120	132	252

AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			0	0	0		12:00			2	4	6	
00:15			0	0	0		12:15			2	3	5	
00:30			0	0	0		12:30			2	3	5	
00:45			0	0	0		12:45			1	7	4	14	5	21
01:00			0	0	0		13:00			1	1	2	
01:15			0	0	0		13:15			8	2	10	
01:30			0	0	0		13:30			2	2	4	
01:45			0	0	0		13:45			2	13	1	6	3	19
02:00			0	0	0		14:00			4	2	6	
02:15			0	0	0		14:15			4	1	5	
02:30			0	0	0		14:30			2	10	12	
02:45			0	0	0		14:45			5	15	3	16	8	31
03:00			0	0	0		15:00			2	2	4	
03:15			0	0	0		15:15			0	5	5	
03:30			0	0	0		15:30			0	5	5	
03:45			0	0	0		15:45			1	3	3	15	4	18
04:00			0	0	0		16:00			2	6	8	
04:15			0	0	0		16:15			1	5	6	
04:30			0	0	0		16:30			0	11	11	
04:45			0	0	0		16:45			0	3	14	36	14	39
05:00			0	0	0		17:00			0	11	11	
05:15			0	0	0		17:15			0	3	3	
05:30			0	0	0		17:30			0	1	1	
05:45			0	0	0		17:45			0	1	16	1	16
06:00			0	0	0		18:00			0	1	1	
06:15			2	0	2		18:15			0	0	0	
06:30			1	0	1		18:30			0	1	1	
06:45			4	7	0	4	7	18:45			0	0	2	0	2
07:00			4	1	5		19:00			0	1	1	
07:15			1	0	1		19:15			0	0	0	
07:30			6	0	6		19:30			0	0	0	
07:45			13	24	0	1	13	25	19:45			0	0	1	0	1
08:00			9	1	10		20:00			0	0	0	
08:15			12	0	12		20:15			0	0	0	
08:30			6	0	6		20:30			0	0	0	
08:45			0	27	3	4	3	31	20:45			0	0	0	
09:00			2	0	2		21:00			0	0	0	
09:15			0	2	2		21:15			0	0	0	
09:30			0	1	1		21:30			0	0	0	
09:45			2	4	1	4	3	8	21:45			0	0	0	
10:00			2	2	4		22:00			0	0	0	
10:15			2	1	3		22:15			0	0	0	
10:30			2	2	4		22:30			0	0	0	
10:45			2	8	0	5	2	13	22:45			0	0	0	
11:00			2	3	5		23:00			0	0	0	
11:15			3	0	3		23:15			0	0	0	
11:30			2	5	7		23:30			0	0	0	
11:45			2	9	4	12	6	21	23:45			0	0	0	
TOTALS				79	26		**105**	**TOTALS**			41	106		**147**
SPLIT %				75.2%	24.8%		**41.7%**	**SPLIT %**			27.9%	72.1%		**58.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	120	132	252

AM Peak Hour			07:30	11:30	**07:30**		**PM Peak Hour**			13:15	16:15	**16:15**
AM Pk Volume			40	16	**41**		**PM Pk Volume**			16	41	**42**
Pk Hr Factor			0.769	0.800	**0.788**		**Pk Hr Factor**			0.500	0.732	**0.750**
7 - 9 Volume	0	0	51	5	**56**		**4 - 6 Volume**	0	0	3	52	**55**
7 - 9 Peak Hour			07:30	08:00	**07:30**		**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	40	4	**41**		**4 - 6 Pk Volume**	0	0	3	41	**42**
Pk Hr Factor	0.000	0.000	0.769	0.333	**0.788**		**Pk Hr Factor**	0.000	0.000	0.375	0.732	**0.750**

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Wednesday
Date: 11/20/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	112	119	231

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			0	3	3
00:15			0	0	0	12:15			4	0	4
00:30			0	0	0	12:30			2	4	6
00:45			0	0	0	12:45			3	2	5
01:00			0	0	0	13:00			1	4	5
01:15			0	0	0	13:15			0	1	1
01:30			0	0	0	13:30			2	1	3
01:45			0	0	0	13:45			4	3	7
02:00			0	0	0	14:00			5	6	11
02:15			0	0	0	14:15			1	1	2
02:30			0	0	0	14:30			2	2	4
02:45			0	0	0	14:45			0	2	2
03:00			0	0	0	15:00			1	1	2
03:15			0	0	0	15:15			1	0	1
03:30			0	0	0	15:30			1	4	5
03:45			0	0	0	15:45			1	3	4
04:00			0	0	0	16:00			3	4	7
04:15			0	0	0	16:15			1	4	5
04:30			0	0	0	16:30			0	8	8
04:45			0	0	0	16:45			2	12	14
05:00			0	0	0	17:00			0	10	10
05:15			0	0	0	17:15			0	7	7
05:30			0	0	0	17:30			1	1	2
05:45			0	0	0	17:45			1	1	2
06:00			1	0	1	18:00			0	1	1
06:15			1	0	1	18:15			0	0	0
06:30			3	0	3	18:30			0	2	2
06:45			4	0	4	18:45			0	0	0
07:00			1	0	1	19:00			0	0	0
07:15			2	0	2	19:15			0	0	0
07:30			6	0	6	19:30			0	0	0
07:45			8	0	8	19:45			0	1	1
08:00			9	0	9	20:00			0	0	0
08:15			7	1	8	20:15			0	0	0
08:30			2	2	4	20:30			0	0	0
08:45			0	0	0	20:45			0	0	0
09:00			4	0	4	21:00			0	0	0
09:15			2	1	3	21:15			0	1	1
09:30			3	0	3	21:30			0	1	1
09:45			4	1	5	21:45			0	0	0
10:00			3	1	4	22:00			0	0	0
10:15			1	3	4	22:15			0	0	0
10:30			2	4	6	22:30			0	0	0
10:45			4	3	7	22:45			0	0	0
11:00			2	3	5	23:00			0	0	0
11:15			3	6	9	23:15			0	0	0
11:30			2	1	3	23:30			0	0	0
11:45			2	3	5	23:45			0	0	0
TOTALS			76	29	**105**	**TOTALS**			36	90	**126**
SPLIT %			72.4%	27.6%	**45.5%**	**SPLIT %**			28.6%	71.4%	**54.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	112	119	231

AM Peak Hour			07:30	10:30	**07:30**	**PM Peak Hour**			13:30	16:30	**16:30**
AM Pk Volume			30	16	**31**	**PM Pk Volume**			12	37	**39**
Pk Hr Factor			0.833	0.667	**0.861**	**Pk Hr Factor**			0.600	0.771	**0.696**
7 - 9 Volume	0	0	35	3	**38**	**4 - 6 Volume**	0	0	8	47	**55**
7 - 9 Peak Hour			07:30	07:45	**07:30**	**4 - 6 Peak Hour**			16:00	16:30	**16:30**
7 - 9 Pk Volume	0	0	30	3	**31**	**4 - 6 Pk Volume**	0	0	6	37	**39**
Pk Hr Factor	0.000	0.000	0.833	0.375	**0.861**	**Pk Hr Factor**	0.000	0.000	0.500	0.771	**0.696**

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Thursday
Date: 11/21/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	119	136	255

AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			0	0	0		12:00			6	6	12	
00:15			0	0	0		12:15			8	4	12	
00:30			0	0	0		12:30			6	8	14	
00:45			0	0	0		12:45			1	21	2	20	3	41
01:00			0	0	0		13:00			1	2	3	
01:15			0	0	0		13:15			2	2	4	
01:30			0	0	0		13:30			2	2	4	
01:45			0	0	0		13:45			5	10	4	10	9	20
02:00			0	0	0		14:00			7	6	13	
02:15			0	0	0		14:15			3	3	6	
02:30			0	0	0		14:30			2	3	5	
02:45			0	0	0		14:45			4	16	3	15	7	31
03:00			0	0	0		15:00			1	6	7	
03:15			0	0	0		15:15			1	2	3	
03:30			0	0	0		15:30			0	4	4	
03:45			0	0	0		15:45			2	4	5	17	7	21
04:00			0	0	0		16:00			1	2	3	
04:15			0	0	0		16:15			0	8	8	
04:30			0	0	0		16:30			1	7	8	
04:45			0	0	0		16:45			0	2	10	27	10	29
05:00			0	0	0		17:00			1	8	9	
05:15			0	0	0		17:15			1	8	9	
05:30			0	0	0		17:30			0	0	0	
05:45			0	0	0		17:45			0	2	1	17	1	19
06:00			0	0	0		18:00			0	2	2	
06:15			0	0	0		18:15			0	0	0	
06:30			0	0	0		18:30			0	1	1	
06:45			3	3	0	3	3	18:45			0	0	3	0	3
07:00			0	0	0		19:00			1	2	3	
07:15			1	0	1		19:15			0	0	0	
07:30			4	0	4		19:30			0	0	0	
07:45			9	14	0	9	14	19:45			0	1	0	2	0	3
08:00			6	0	6		20:00			0	0	0	
08:15			9	0	9		20:15			0	0	0	
08:30			6	0	6		20:30			0	0	0	
08:45			1	22	0	1	22	20:45			0	0	0	
09:00			1	1	2		21:00			0	0	0	
09:15			0	1	1		21:15			0	0	0	
09:30			3	0	3		21:30			0	0	0	
09:45			1	5	3	5	4	10	21:45			0	0	0	
10:00			5	2	7		22:00			0	0	0	
10:15			2	4	6		22:15			0	0	0	
10:30			2	1	3		22:30			0	0	0	
10:45			4	13	2	9	6	22	22:45			0	0	0	
11:00			1	1	2		23:00			0	0	0	
11:15			1	5	6		23:15			0	0	0	
11:30			1	2	3		23:30			0	0	0	
11:45			3	6	3	11	6	17	23:45			0	0	0	
TOTALS				63	25	88		TOTALS			56	111	167	
SPLIT %				71.6%	28.4%	34.5%		SPLIT %			33.5%	66.5%	65.5%	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	119	136	255

AM Peak Hour			07:45	11:45	11:45		PM Peak Hour			12:00	16:15	12:00	
AM Pk Volume			30	21	44		PM Pk Volume			21	33	41	
Pk Hr Factor			0.833	0.656	0.786		Pk Hr Factor			0.656	0.825	0.732	
7 - 9 Volume	0	0	36	0	36		4 - 6 Volume	0	0	4	44	48	
7 - 9 Peak Hour			07:45		07:45		4 - 6 Peak Hour			16:30	16:15	16:30	
7 - 9 Pk Volume	0	0	30	0	30		4 - 6 Pk Volume	0	0	3	33	36	
Pk Hr Factor	0.000	0.000	0.833	0.000	0.833		Pk Hr Factor	0.000	0.000	0.750	0.825	0.900	

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Friday
Date: 11/22/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	158	177	335

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			1	4	5
00:15			0	0	0	12:15			4	4	8
00:30			0	0	0	12:30			6	5	11
00:45			0	0	0	12:45			8 19	3 16	11 35
01:00			0	0	0	13:00			2	3	5
01:15			0	0	0	13:15			5	1	6
01:30			0	0	0	13:30			3	3	6
01:45			0	0	0	13:45			4 14	2 9	6 23
02:00			0	0	0	14:00			6	6	12
02:15			0	0	0	14:15			4	6	10
02:30			0	0	0	14:30			5	7	12
02:45			0	0	0	14:45			7 22	7 26	14 48
03:00			0	0	0	15:00			4	4	8
03:15			0	0	0	15:15			7	5	12
03:30			0	0	0	15:30			4	8	12
03:45			0	1 1	1 1	15:45			2 17	7 24	9 41
04:00			0	0	0	16:00			1	3	4
04:15			1	1	2	16:15			1	8	9
04:30			0	0	0	16:30			2	7	9
04:45			0 1	0 1	0 2	16:45			0 4	14 32	14 36
05:00			0	0	0	17:00			0	21	21
05:15			0	0	0	17:15			0	6	6
05:30			0	0	0	17:30			0	1	1
05:45			0	0	0	17:45			0	1 29	1 29
06:00			1	0	1	18:00			0	0	0
06:15			0	0	0	18:15			0	0	0
06:30			0	0	0	18:30			0	0	0
06:45			3 4	0	3 4	18:45			0	0	0
07:00			2	0	2	19:00			0	0	0
07:15			2	0	2	19:15			0	0	0
07:30			4	0	4	19:30			0	0	0
07:45			3 11	0	3 11	19:45			0	0	0
08:00			10	1	11	20:00			0	1	1
08:15			10	0	10	20:15			0	0	0
08:30			6	1	7	20:30			0	0	0
08:45			2 28	1 3	3 31	20:45			0	0 1	0 1
09:00			0	1	1	21:00			0	0	0
09:15			2	2	4	21:15			0	1	1
09:30			1	4	5	21:30			0	0	0
09:45			1 4	1 8	2 12	21:45			0	0 1	0 1
10:00			7	3	10	22:00			0	0	0
10:15			13	5	18	22:15			0	0	0
10:30			0	6	6	22:30			0	0	0
10:45			5 25	1 15	6 40	22:45			0	0	0
11:00			1	0	1	23:00			0	0	0
11:15			2	2	4	23:15			0	0	0
11:30			4	5	9	23:30			0	0	0
11:45			2 9	4 11	6 20	23:45			0	0	0
TOTALS			82	39	**121**	**TOTALS**			76	138	**214**
SPLIT %			67.8%	32.2%	**36.1%**	**SPLIT %**			35.5%	64.5%	**63.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	158	177	335

AM Peak Hour			07:45	11:30	**10:00**	**PM Peak Hour**			14:30	16:15	**16:15**
AM Pk Volume			29	17	**40**	**PM Pk Volume**			23	50	**53**
Pk Hr Factor			0.725	0.850	**0.556**	**Pk Hr Factor**			0.821	0.595	**0.631**
7 - 9 Volume	0	0	39	3	**42**	**4 - 6 Volume**	0	0	4	61	**65**
7 - 9 Peak Hour			07:45	08:00	**07:45**	**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	29	3	**31**	**4 - 6 Pk Volume**	0	0	4	50	**53**
Pk Hr Factor	0.000	0.000	0.725	0.750	**0.705**	**Pk Hr Factor**	0.000	0.000	0.500	0.595	**0.631**

Prepared by NDS/ATD

VOLUME

Cakebread Cellars Winery Gated Dwy @ 8300 St Helena Hwy

Day: Saturday
Date: 11/23/2019

City: Rutherford
Project #: CA19_8585_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	175	187	362

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			3	4	7
00:15			0	0	0	12:15			5	4	9
00:30			0	0	0	12:30			6	3	9
00:45			0	0	0	12:45			13	6	19
01:00			0	0	0	13:00			8	7	15
01:15			0	0	0	13:15			13	6	19
01:30			0	0	0	13:30			6	5	11
01:45			0	0	0	13:45			9	10	19
02:00			0	0	0	14:00			9	6	15
02:15			0	0	0	14:15			5	6	11
02:30			0	0	0	14:30			5	8	13
02:45			0	0	0	14:45			5	12	17
03:00			0	0	0	15:00			9	7	16
03:15			0	0	0	15:15			5	11	16
03:30			0	0	0	15:30			6	15	21
03:45			0	0	0	15:45			8	6	14
04:00			0	0	0	16:00			3	3	6
04:15			0	0	0	16:15			0	11	11
04:30			0	0	0	16:30			0	3	3
04:45			0	0	0	16:45			1	5	6
05:00			0	0	0	17:00			1	14	15
05:15			0	0	0	17:15			2	12	14
05:30			0	0	0	17:30			0	2	2
05:45			0	0	0	17:45			0	0	0
06:00			0	0	0	18:00			0	0	0
06:15			0	0	0	18:15			0	0	0
06:30			0	0	0	18:30			0	2	2
06:45			0	0	0	18:45			0	1	1
07:00			0	0	0	19:00			0	0	0
07:15			1	0	1	19:15			0	0	0
07:30			0	0	0	19:30			0	0	0
07:45			1	0	1	19:45			0	0	0
08:00			2	0	2	20:00			0	0	0
08:15			11	0	11	20:15			0	0	0
08:30			3	0	3	20:30			0	0	0
08:45			0	0	0	20:45			0	0	0
09:00			3	2	5	21:00			0	0	0
09:15			2	0	2	21:15			0	0	0
09:30			0	0	0	21:30			0	0	0
09:45			3	2	5	21:45			0	0	0
10:00			2	0	2	22:00			0	0	0
10:15			2	1	3	22:15			0	0	0
10:30			6	0	6	22:30			0	0	0
10:45			2	1	3	22:45			0	0	0
11:00			7	2	9	23:00			0	0	0
11:15			1	3	4	23:15			0	0	0
11:30			4	1	5	23:30			0	0	0
11:45			3	6	9	23:45			0	0	0
TOTALS			53	18	**71**	**TOTALS**			122	169	**291**
SPLIT %			74.6%	25.4%	**19.6%**	**SPLIT %**			41.9%	58.1%	**80.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	175	187	362

AM Peak Hour			07:45	11:45	**11:45**	**PM Peak Hour**			12:30	14:45	**14:45**
AM Pk Volume			17	17	**34**	**PM Pk Volume**			40	45	**70**
Pk Hr Factor			0.386	0.708	**0.944**	**Pk Hr Factor**			0.769	0.750	**0.833**
7 - 9 Volume	0	0	18	0	**18**	**4 - 6 Volume**	0	0	7	50	**57**
7 - 9 Peak Hour			07:45		**07:45**	**4 - 6 Peak Hour**			16:00	16:30	**16:30**
7 - 9 Pk Volume	0	0	17	0	**17**	**4 - 6 Pk Volume**	0	0	4	34	**38**
Pk Hr Factor	0.000	0.000	0.386	0.000	**0.386**	**Pk Hr Factor**	0.000	0.000	0.333	0.607	**0.633**

Appendix C: Weekday Friday PM and Weekend Saturday Midday Intersection LOS Sheets

Intersection	
Int Delay, s/veh	60.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	23	91	0	57	5	681	110	87	839	3
Future Vol, veh/h	5	1	23	91	0	57	5	681	110	87	839	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	6	1	26	105	0	66	6	783	126	100	964	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2057	2087	966	2037	2025	846	967	0	0	909	0	0
Stage 1	1166	1166	-	858	858	-	-	-	-	-	-	-
Stage 2	891	921	-	1179	1167	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	40	52	305	~ 41	57	358	700	-	-	737	-	-
Stage 1	233	265	-	347	369	-	-	-	-	-	-	-
Stage 2	333	345	-	229	264	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	29	45	305	~ 33	49	358	700	-	-	737	-	-
Mov Cap-2 Maneuver	29	45	-	~ 33	49	-	-	-	-	-	-	-
Stage 1	231	229	-	344	366	-	-	-	-	-	-	-
Stage 2	270	342	-	180	228	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.6	$ 762.9	0.1	1
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	31	305	33	358	737	-	-
HCM Lane V/C Ratio	0.008	-	-	0.222	0.087	3.17	0.183	0.136	-	-
HCM Control Delay (s)	10.2	-	-	151.7	17.9	$ 1229.9	17.3	10.7	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.3	12.2	0.7	0.5	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	11	796	9	6	953
Future Vol, veh/h	33	11	796	9	6	953
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	36	12	865	10	7	1036

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1920	870	0	0	875	0
Stage 1	870	-	-	-	-	-
Stage 2	1050	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	73	347	-	-	759	-
Stage 1	405	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	72	347	-	-	759	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	261	759	-
HCM Lane V/C Ratio	-	-	0.183	0.009	-
HCM Control Delay (s)	-	-	21.9	9.8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	32.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	32	74	2	44	4	713	30	51	994	7
Future Vol, veh/h	7	5	32	74	2	44	4	713	30	51	994	7
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	5	34	78	2	46	4	751	32	54	1046	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1957	1949	1050	1952	1936	767	1053	0	0	783	0	0
Stage 1	1158	1158	-	775	775	-	-	-	-	-	-	-
Stage 2	799	791	-	1177	1161	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	47	63	272	~ 47	64	397	650	-	-	822	-	-
Stage 1	235	267	-	386	404	-	-	-	-	-	-	-
Stage 2	375	397	-	230	266	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	38	58	272	~ 36	59	397	650	-	-	822	-	-
Mov Cap-2 Maneuver	38	58	-	~ 36	59	-	-	-	-	-	-	-
Stage 1	234	249	-	384	402	-	-	-	-	-	-	-
Stage 2	327	395	-	184	248	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	57.4	$ 511.7	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	650	-	-	113	36	397	822	-	-
HCM Lane V/C Ratio	0.006	-	-	0.41	2.222	0.117	0.065	-	-
HCM Control Delay (s)	10.6	-	-	57.4	$ 799.1	15.3	9.7	-	-
HCM Lane LOS	B	-	-	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.7	8.9	0.4	0.2	-	-

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

Intersection	
Int Delay, s/veh	29

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	9	65	1	54	21	791	107	66	884	5
Future Vol, veh/h	5	2	9	65	1	54	21	791	107	66	884	5
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	2	10	71	1	59	23	860	116	72	961	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2102	2130	964	2078	2074	918	966	0	0	976	0	0
Stage 1	1108	1108	-	964	964	-	-	-	-	-	-	-
Stage 2	994	1022	-	1114	1110	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	37	49	306	~ 38	53	325	701	-	-	695	-	-
Stage 1	251	282	-	303	330	-	-	-	-	-	-	-
Stage 2	291	310	-	249	281	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	42	306	~ 32	46	325	701	-	-	695	-	-
Mov Cap-2 Maneuver	27	42	-	~ 32	46	-	-	-	-	-	-	-
Stage 1	243	253	-	293	319	-	-	-	-	-	-	-
Stage 2	230	300	-	214	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.5	$ 467.4	0.2	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	701	-	-	30	306	32	325	695	-	-
HCM Lane V/C Ratio	0.033	-	-	0.254	0.032	2.242	0.181	0.103	-	-
HCM Control Delay (s)	10.3	-	-	161.8	17.2	$ 834.6	18.5	10.8	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.1	8.2	0.6	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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	28	877	19	13	958
Future Vol, veh/h	17	28	877	19	13	958
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	18	30	953	21	14	1041

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2033	964	0	0	974	0
Stage 1	964	-	-	-	-	-
Stage 2	1069	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	62	306	-	-	696	-
Stage 1	365	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	306	-	-	696	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	326	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	476	696	-
HCM Lane V/C Ratio	-	-	0.103	0.02	-
HCM Control Delay (s)	-	-	13.4	10.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	12.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	48	0	48	4	813	26	54	1050	3
Future Vol, veh/h	1	0	7	48	0	48	4	813	26	54	1050	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	7	51	0	51	4	856	27	57	1105	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2124	2112	1107	2102	2100	870	1108	0	0	883	0	0
Stage 1	1221	1221	-	878	878	-	-	-	-	-	-	-
Stage 2	903	891	-	1224	1222	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	36	50	252	~ 37	51	347	619	-	-	754	-	-
Stage 1	217	249	-	339	362	-	-	-	-	-	-	-
Stage 2	328	357	-	216	249	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	29	46	252	~ 34	47	347	619	-	-	754	-	-
Mov Cap-2 Maneuver	29	46	-	~ 34	47	-	-	-	-	-	-	-
Stage 1	216	230	-	337	360	-	-	-	-	-	-	-
Stage 2	278	355	-	194	230	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.1	262.5	0.1	0.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	619	-	-	128	34	347	754	-	-
HCM Lane V/C Ratio	0.007	-	-	0.066	1.486	0.146	0.075	-	-
HCM Control Delay (s)	10.9	-	-	35.1	$ 507.9	17.1	10.2	-	-
HCM Lane LOS	B	-	-	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	5.5	0.5	0.2	-	-

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

Intersection	
Int Delay, s/veh	129.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	23	114	0	63	5	724	122	91	929	3
Future Vol, veh/h	5	1	23	114	0	63	5	724	122	91	929	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	6	1	26	131	0	72	6	832	140	105	1068	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2230	2264	1070	2207	2195	902	1071	0	0	972	0	0
Stage 1	1280	1280	-	914	914	-	-	-	-	-	-	-
Stage 2	950	984	-	1293	1281	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	30	40	265	~ 31	44	332	640	-	-	697	-	-
Stage 1	201	233	-	323	348	-	-	-	-	-	-	-
Stage 2	309	323	-	197	233	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	34	265	~ 24	37	332	640	-	-	697	-	-
Mov Cap-2 Maneuver	21	34	-	~ 24	37	-	-	-	-	-	-	-
Stage 1	199	198	-	320	345	-	-	-	-	-	-	-
Stage 2	239	320	-	150	198	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.7	$ 1508.1	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	640	-	-	22	265	24	332	697	-	-
HCM Lane V/C Ratio	0.009	-	-	0.313	0.1	5.46	0.218	0.15	-	-
HCM Control Delay (s)	10.7	-	-	230.8	20.1	$ 2331.2	18.8	11.1	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0.3	16.4	0.8	0.5	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	11	851	9	6	1066
Future Vol, veh/h	33	11	851	9	6	1066
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	36	12	925	10	7	1159

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2103	930	0	0	935	0
Stage 1	930	-	-	-	-	-
Stage 2	1173	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	56	320	-	-	720	-
Stage 1	379	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	55	320	-	-	720	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	290	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	229	720	-
HCM Lane V/C Ratio	-	-	0.209	0.009	-
HCM Control Delay (s)	-	-	24.8	10	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Intersection	
Int Delay, s/veh	47.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	32	74	2	47	4	765	30	58	1100	7
Future Vol, veh/h	7	5	32	74	2	47	4	765	30	58	1100	7
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	5	34	78	2	49	4	805	32	61	1158	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2139	2129	1162	2132	2116	821	1165	0	0	837	0	0
Stage 1	1284	1284	-	829	829	-	-	-	-	-	-	-
Stage 2	855	845	-	1303	1287	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	35	49	234	~ 35	50	370	589	-	-	784	-	-
Stage 1	200	232	-	361	381	-	-	-	-	-	-	-
Stage 2	349	375	-	195	231	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	45	234	~ 26	46	370	589	-	-	784	-	-
Mov Cap-2 Maneuver	27	45	-	~ 26	46	-	-	-	-	-	-	-
Stage 1	199	214	-	358	378	-	-	-	-	-	-	-
Stage 2	299	372	-	150	213	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	86	$ 779.3	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	589	-	-	87	26	370	784	-	-
HCM Lane V/C Ratio	0.007	-	-	0.532	3.077	0.134	0.078	-	-
HCM Control Delay (s)	11.2	-	-	86	$ 1251.2	16.2	10	-	-
HCM Lane LOS	B	-	-	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	9.8	0.5	0.3	-	-

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

Intersection	
Int Delay, s/veh	73.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	9	86	1	61	21	877	131	72	960	5
Future Vol, veh/h	5	2	9	86	1	61	21	877	131	72	960	5
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	2	10	93	1	66	23	953	142	78	1043	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2306	2343	1046	2278	2274	1024	1048	0	0	1095	0	0
Stage 1	1202	1202	-	1070	1070	-	-	-	-	-	-	-
Stage 2	1104	1141	-	1208	1204	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	26	36	274	~ 28	39	282	653	-	-	626	-	-
Stage 1	222	254	-	264	294	-	-	-	-	-	-	-
Stage 2	253	272	-	221	254	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	17	30	274	~ 22	33	282	653	-	-	626	-	-
Mov Cap-2 Maneuver	17	30	-	~ 22	33	-	-	-	-	-	-	-
Stage 1	214	222	-	255	284	-	-	-	-	-	-	-
Stage 2	186	262	-	185	222	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	136.6	$ 1091.8	0.2	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	653	-	-	19	274	22	282	626	-	-
HCM Lane V/C Ratio	0.035	-	-	0.4	0.036	4.298	0.235	0.125	-	-
HCM Control Delay (s)	10.7	-	-	288.4	18.5	$ 1842.1	21.6	11.6	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.1	12	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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	28	987	19	13	1055
Future Vol, veh/h	17	28	987	19	13	1055
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	18	30	1073	21	14	1147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2259	1084	0	0	1094	0
Stage 1	1084	-	-	-	-	-
Stage 2	1175	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	44	260	-	-	627	-
Stage 1	320	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	43	260	-	-	627	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	289	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	405	627	-
HCM Lane V/C Ratio	-	-	0.121	0.023	-
HCM Control Delay (s)	-	-	15.1	10.9	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	20.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	48	0	54	4	917	26	59	1142	3
Future Vol, veh/h	1	0	7	48	0	54	4	917	26	59	1142	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	7	51	0	57	4	965	27	62	1202	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2343	2328	1204	2318	2316	979	1205	0	0	992	0	0
Stage 1	1328	1328	-	987	987	-	-	-	-	-	-	-
Stage 2	1015	1000	-	1331	1329	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	25	36	221	~ 26	37	300	569	-	-	685	-	-
Stage 1	188	221	-	294	322	-	-	-	-	-	-	-
Stage 2	284	317	-	188	221	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	19	33	221	~ 23	33	300	569	-	-	685	-	-
Mov Cap-2 Maneuver	19	33	-	~ 23	33	-	-	-	-	-	-	-
Stage 1	187	201	-	292	320	-	-	-	-	-	-	-
Stage 2	229	315	-	165	201	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.5	$ 437.5	0	0.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	569	-	-	95	23	300	685	-	-
HCM Lane V/C Ratio	0.007	-	-	0.089	2.197	0.189	0.091	-	-
HCM Control Delay (s)	11.4	-	-	46.5	$ 907.5	19.8	10.8	-	-
HCM Lane LOS	B	-	-	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	6.4	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	60.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	23	91	0	57	5	687	110	87	839	3
Future Vol, veh/h	5	1	23	91	0	57	5	687	110	87	839	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	6	1	26	105	0	66	6	790	126	100	964	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2064	2094	966	2044	2032	853	967	0	0	916	0	0
Stage 1	1166	1166	-	865	865	-	-	-	-	-	-	-
Stage 2	898	928	-	1179	1167	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	39	51	305	~ 41	56	354	700	-	-	732	-	-
Stage 1	233	265	-	344	367	-	-	-	-	-	-	-
Stage 2	330	343	-	229	264	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	28	44	305	~ 33	48	354	700	-	-	732	-	-
Mov Cap-2 Maneuver	28	44	-	~ 33	48	-	-	-	-	-	-	-
Stage 1	231	229	-	341	364	-	-	-	-	-	-	-
Stage 2	267	340	-	180	228	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.8	$ 763	0.1	1
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	30	305	33	354	732	-	-
HCM Lane V/C Ratio	0.008	-	-	0.23	0.087	3.17	0.185	0.137	-	-
HCM Control Delay (s)	10.2	-	-	157.7	17.9	$ 1229.9	17.5	10.7	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.3	12.2	0.7	0.5	-	-

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

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	17	796	10	6	953
Future Vol, veh/h	51	17	796	10	6	953
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	55	18	865	11	7	1036

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1921	871	0	0	876	0
Stage 1	871	-	-	-	-	-
Stage 2	1050	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	72	346	-	-	758	-
Stage 1	405	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	71	346	-	-	758	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	261	758	-
HCM Lane V/C Ratio	-	-	0.283	0.009	-
HCM Control Delay (s)	-	-	24.2	9.8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0	-

Intersection	
Int Delay, s/veh	33.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	32	74	2	44	4	714	30	52	1011	7
Future Vol, veh/h	7	5	32	74	2	44	4	714	30	52	1011	7
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	5	34	78	2	46	4	752	32	55	1064	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1978	1970	1068	1973	1957	768	1071	0	0	784	0	0
Stage 1	1178	1178	-	776	776	-	-	-	-	-	-	-
Stage 2	800	792	-	1197	1181	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	45	61	266	~ 46	63	397	640	-	-	821	-	-
Stage 1	229	261	-	386	403	-	-	-	-	-	-	-
Stage 2	374	396	-	224	260	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	57	266	~ 35	58	397	640	-	-	821	-	-
Mov Cap-2 Maneuver	36	57	-	~ 35	58	-	-	-	-	-	-	-
Stage 1	228	244	-	384	401	-	-	-	-	-	-	-
Stage 2	327	394	-	179	243	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	60.5	$ 532.8	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	640	-	-	109	35	397	821	-	-
HCM Lane V/C Ratio	0.007	-	-	0.425	2.286	0.117	0.067	-	-
HCM Control Delay (s)	10.7	-	-	60.5	$ 832.4	15.3	9.7	-	-
HCM Lane LOS	B	-	-	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.8	9	0.4	0.2	-	-

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

Intersection	
Int Delay, s/veh	28.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	9	65	1	54	21	797	107	66	884	5
Future Vol, veh/h	5	2	9	65	1	54	21	797	107	66	884	5
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	2	10	71	1	59	23	866	116	72	961	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2108	2136	964	2084	2080	924	966	0	0	982	0	0
Stage 1	1108	1108	-	970	970	-	-	-	-	-	-	-
Stage 2	1000	1028	-	1114	1110	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	37	48	306	~ 38	52	322	701	-	-	691	-	-
Stage 1	251	282	-	301	328	-	-	-	-	-	-	-
Stage 2	289	308	-	249	281	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	42	306	~ 32	45	322	701	-	-	691	-	-
Mov Cap-2 Maneuver	27	42	-	~ 32	45	-	-	-	-	-	-	-
Stage 1	243	253	-	291	317	-	-	-	-	-	-	-
Stage 2	228	298	-	214	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.5	$ 467.4	0.2	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	701	-	-	30	306	32	322	691	-	-
HCM Lane V/C Ratio	0.033	-	-	0.254	0.032	2.242	0.182	0.104	-	-
HCM Control Delay (s)	10.3	-	-	161.8	17.2	$ 834.6	18.7	10.8	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.1	8.2	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	34	877	20	13	958
Future Vol, veh/h	35	34	877	20	13	958
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	38	37	953	22	14	1041

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2033	964	0	0	975	0
Stage 1	964	-	-	-	-	-
Stage 2	1069	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	62	306	-	-	696	-
Stage 1	365	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	306	-	-	696	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	326	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	355	696	-
HCM Lane V/C Ratio	-	-	0.211	0.02	-
HCM Control Delay (s)	-	-	17.8	10.3	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Intersection	
Int Delay, s/veh	13.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	48	0	48	4	814	26	55	1067	3
Future Vol, veh/h	1	0	7	48	0	48	4	814	26	55	1067	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	7	51	0	51	4	857	27	58	1123	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2145	2133	1125	2123	2121	871	1126	0	0	884	0	0
Stage 1	1241	1241	-	879	879	-	-	-	-	-	-	-
Stage 2	904	892	-	1244	1242	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	34	48	246	~ 36	49	346	609	-	-	753	-	-
Stage 1	211	244	-	338	361	-	-	-	-	-	-	-
Stage 2	327	356	-	210	243	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	44	246	~ 33	45	346	609	-	-	753	-	-
Mov Cap-2 Maneuver	27	44	-	~ 33	45	-	-	-	-	-	-	-
Stage 1	210	225	-	336	358	-	-	-	-	-	-	-
Stage 2	277	354	-	188	224	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.7	275	0.1	0.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	609	-	-	122	33	346	753	-	-
HCM Lane V/C Ratio	0.007	-	-	0.069	1.531	0.146	0.077	-	-
HCM Control Delay (s)	11	-	-	36.7	$ 532.7	17.2	10.2	-	-
HCM Lane LOS	B	-	-	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	5.6	0.5	0.2	-	-

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

Intersection	
Int Delay, s/veh	129.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	23	114	0	63	5	730	122	91	929	3
Future Vol, veh/h	5	1	23	114	0	63	5	730	122	91	929	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	6	1	26	131	0	72	6	839	140	105	1068	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2237	2271	1070	2214	2202	909	1071	0	0	979	0	0
Stage 1	1280	1280	-	921	921	-	-	-	-	-	-	-
Stage 2	957	991	-	1293	1281	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	30	40	265	~ 31	44	329	640	-	-	693	-	-
Stage 1	201	233	-	320	345	-	-	-	-	-	-	-
Stage 2	306	320	-	197	233	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	34	265	~ 24	37	329	640	-	-	693	-	-
Mov Cap-2 Maneuver	21	34	-	~ 24	37	-	-	-	-	-	-	-
Stage 1	199	198	-	317	342	-	-	-	-	-	-	-
Stage 2	236	317	-	150	198	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.7	$ 1508.2	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	640	-	-	22	265	24	329	693	-	-
HCM Lane V/C Ratio	0.009	-	-	0.313	0.1	5.46	0.22	0.151	-	-
HCM Control Delay (s)	10.7	-	-	230.8	20.1	$ 2331.2	19	11.1	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0.3	16.4	0.8	0.5	-	-

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

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	17	851	10	6	1066
Future Vol, veh/h	51	17	851	10	6	1066
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	55	18	925	11	7	1159

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2104	931	0	0	936	0
Stage 1	931	-	-	-	-	-
Stage 2	1173	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	56	319	-	-	720	-
Stage 1	379	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 55	319	-	-	720	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	290	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	229	720	-
HCM Lane V/C Ratio	-	-	0.323	0.009	-
HCM Control Delay (s)	-	-	28	10	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.3	0	-

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

Intersection	
Int Delay, s/veh	49

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	32	74	2	47	4	766	30	59	1117	7
Future Vol, veh/h	7	5	32	74	2	47	4	766	30	59	1117	7
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	5	34	78	2	49	4	806	32	62	1176	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2160	2150	1180	2153	2137	822	1183	0	0	838	0	0
Stage 1	1304	1304	-	830	830	-	-	-	-	-	-	-
Stage 2	856	846	-	1323	1307	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	34	47	228	~ 34	48	369	580	-	-	784	-	-
Stage 1	194	227	-	360	381	-	-	-	-	-	-	-
Stage 2	348	374	-	190	226	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	43	228	~ 25	44	369	580	-	-	784	-	-
Mov Cap-2 Maneuver	27	43	-	~ 25	44	-	-	-	-	-	-	-
Stage 1	193	209	-	357	378	-	-	-	-	-	-	-
Stage 2	298	371	-	145	208	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	89.4	$ 819.7	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	580	-	-	85	25	369	784	-	-
HCM Lane V/C Ratio	0.007	-	-	0.545	3.2	0.134	0.079	-	-
HCM Control Delay (s)	11.3	-	-	89.4	$ 1316.6	16.3	10	-	-
HCM Lane LOS	B	-	-	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.4	9.9	0.5	0.3	-	-

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

Intersection	
Int Delay, s/veh	73.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	9	86	1	61	21	877	131	72	960	5
Future Vol, veh/h	5	2	9	86	1	61	21	877	131	72	960	5
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	5	2	10	93	1	66	23	953	142	78	1043	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2306	2343	1046	2278	2274	1024	1048	0	0	1095	0	0
Stage 1	1202	1202	-	1070	1070	-	-	-	-	-	-	-
Stage 2	1104	1141	-	1208	1204	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	26	36	274	~ 28	39	282	653	-	-	626	-	-
Stage 1	222	254	-	264	294	-	-	-	-	-	-	-
Stage 2	253	272	-	221	254	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	17	30	274	~ 22	33	282	653	-	-	626	-	-
Mov Cap-2 Maneuver	17	30	-	~ 22	33	-	-	-	-	-	-	-
Stage 1	214	222	-	255	284	-	-	-	-	-	-	-
Stage 2	186	262	-	185	222	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	136.6	$ 1091.8	0.2	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	653	-	-	19	274	22	282	626	-	-
HCM Lane V/C Ratio	0.035	-	-	0.4	0.036	4.298	0.235	0.125	-	-
HCM Control Delay (s)	10.7	-	-	288.4	18.5	$ 1842.1	21.6	11.6	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.1	12	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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	34	987	20	13	1055
Future Vol, veh/h	35	34	987	20	13	1055
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	38	37	1073	22	14	1147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2259	1084	0	0	1095	0
Stage 1	1084	-	-	-	-	-
Stage 2	1175	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	44	260	-	-	626	-
Stage 1	320	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	43	260	-	-	626	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	289	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	302	626	-
HCM Lane V/C Ratio	-	-	0.248	0.023	-
HCM Control Delay (s)	-	-	20.8	10.9	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1	0.1	-

Intersection	
Int Delay, s/veh	20.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	48	0	54	4	917	26	59	1142	3
Future Vol, veh/h	1	0	7	48	0	54	4	917	26	59	1142	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	7	51	0	57	4	965	27	62	1202	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2343	2328	1204	2318	2316	979	1205	0	0	992	0	0
Stage 1	1328	1328	-	987	987	-	-	-	-	-	-	-
Stage 2	1015	1000	-	1331	1329	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	25	36	221	~ 26	37	300	569	-	-	685	-	-
Stage 1	188	221	-	294	322	-	-	-	-	-	-	-
Stage 2	284	317	-	188	221	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	19	33	221	~ 23	33	300	569	-	-	685	-	-
Mov Cap-2 Maneuver	19	33	-	~ 23	33	-	-	-	-	-	-	-
Stage 1	187	201	-	292	320	-	-	-	-	-	-	-
Stage 2	229	315	-	165	201	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.5	$ 437.5	0	0.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	569	-	-	95	23	300	685	-	-
HCM Lane V/C Ratio	0.007	-	-	0.089	2.197	0.189	0.091	-	-
HCM Control Delay (s)	11.4	-	-	46.5	$ 907.5	19.8	10.8	-	-
HCM Lane LOS	B	-	-	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	6.4	0.7	0.3	-	-

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

Intersection	
Int Delay, s/veh	258.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	26	126	0	71	6	816	137	103	1043	3
Future Vol, veh/h	6	1	26	126	0	71	6	816	137	103	1043	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	1	30	145	0	82	7	938	157	118	1199	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2509	2546	1201	2483	2469	1017	1202	0	0	1095	0	0
Stage 1	1437	1437	-	1031	1031	-	-	-	-	-	-	-
Stage 2	1072	1109	-	1452	1438	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	19	26	222	~ 20	29	285	570	-	-	626	-	-
Stage 1	163	196	-	278	307	-	-	-	-	-	-	-
Stage 2	263	282	-	160	196	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	21	222	~ 14	23	285	570	-	-	626	-	-
Mov Cap-2 Maneuver	11	21	-	~ 14	23	-	-	-	-	-	-	-
Stage 1	161	159	-	275	303	-	-	-	-	-	-	-
Stage 2	185	279	-	~ 112	159	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	133.4	$ 3036.6	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	570	-	-	12	222	14	285	626	-	-
HCM Lane V/C Ratio	0.012	-	-	0.67	0.135	10.345	0.286	0.189	-	-
HCM Control Delay (s)	11.4	-	-	$ 540.7	23.3	$ 4734.9	22.6	12.1	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	0.5	19.2	1.2	0.7	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	11	959	9	6	1195
Future Vol, veh/h	33	11	959	9	6	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	36	12	1042	10	7	1299

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2360	1047	0	0	1052	0
Stage 1	1047	-	-	-	-	-
Stage 2	1313	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	38	273	-	-	650	-
Stage 1	334	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	273	-	-	650	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	330	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.9	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	192	650	-
HCM Lane V/C Ratio	-	-	0.249	0.01	-
HCM Control Delay (s)	-	-	29.9	10.6	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0	-

Intersection	
Int Delay, s/veh	112.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	36	84	2	53	5	861	34	65	1234	8
Future Vol, veh/h	8	6	36	84	2	53	5	861	34	65	1234	8
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	8	6	38	88	2	56	5	906	36	68	1299	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2402	2391	1303	2395	2377	924	1307	0	0	942	0	0
Stage 1	1439	1439	-	934	934	-	-	-	-	-	-	-
Stage 2	963	952	-	1461	1443	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	22	33	193	~ 23	34	322	520	-	-	716	-	-
Stage 1	163	195	-	315	341	-	-	-	-	-	-	-
Stage 2	303	334	-	158	194	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	16	30	193	~ 14	30	322	520	-	-	716	-	-
Mov Cap-2 Maneuver	16	30	-	~ 14	30	-	-	-	-	-	-	-
Stage 1	161	176	-	312	338	-	-	-	-	-	-	-
Stage 2	247	331	-	111	176	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	221.2	$ 1860.4	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	520	-	-	56	14	322	716	-	-
HCM Lane V/C Ratio	0.01	-	-	0.94	6.466	0.173	0.096	-	-
HCM Control Delay (s)	12	-	-	221.2	$ 2995.6	18.5	10.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.2	12.3	0.6	0.3	-	-

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

Intersection	
Int Delay, s/veh	146.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	10	95	1	68	24	984	145	81	1080	6
Future Vol, veh/h	6	2	10	95	1	68	24	984	145	81	1080	6
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	2	11	103	1	74	26	1070	158	88	1174	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2593	2634	1178	2561	2558	1149	1181	0	0	1228	0	0
Stage 1	1354	1354	-	1201	1201	-	-	-	-	-	-	-
Stage 2	1239	1280	-	1360	1357	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	16	23	229	~ 17	26	238	581	-	-	557	-	-
Stage 1	182	215	-	223	255	-	-	-	-	-	-	-
Stage 2	212	233	-	181	214	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	9	18	229	~ 13	21	238	581	-	-	557	-	-
Mov Cap-2 Maneuver	9	18	-	~ 13	21	-	-	-	-	-	-	-
Stage 1	174	181	-	213	244	-	-	-	-	-	-	-
Stage 2	139	223	-	143	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 328.4	$ 2196.7	0.2	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	581	-	-	10	229	13	238	557	-	-
HCM Lane V/C Ratio	0.045	-	-	0.87	0.047	8.027	0.311	0.158	-	-
HCM Control Delay (s)	11.5	-	-	$ 712.1	21.$	3733.7	26.8	12.7	-	-
HCM Lane LOS	B	-	-	F	C	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.1	14.2	1.3	0.6	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	28	1106	19	13	1185
Future Vol, veh/h	17	28	1106	19	13	1185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	18	30	1202	21	14	1288

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2529	1213	0	0	1223	0
Stage 1	1213	-	-	-	-	-
Stage 2	1316	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	30	218	-	-	560	-
Stage 1	277	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	218	-	-	560	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	270	-	-	-	-	-
Stage 2	247	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	336	560	-
HCM Lane V/C Ratio	-	-	0.146	0.025	-
HCM Control Delay (s)	-	-	17.5	11.6	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	42.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	8	54	0	60	5	1027	30	66	1284	3
Future Vol, veh/h	1	0	8	54	0	60	5	1027	30	66	1284	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	8	57	0	63	5	1081	32	69	1352	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2631	2615	1354	2603	2600	1097	1355	0	0	1113	0	0
Stage 1	1492	1492	-	1107	1107	-	-	-	-	-	-	-
Stage 2	1139	1123	-	1496	1493	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	15	24	180	~ 16	24	256	498	-	-	616	-	-
Stage 1	151	184	-	252	282	-	-	-	-	-	-	-
Stage 2	241	277	-	151	184	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	21	180	~ 14	21	256	498	-	-	616	-	-
Mov Cap-2 Maneuver	10	21	-	~ 14	21	-	-	-	-	-	-	-
Stage 1	149	163	-	249	279	-	-	-	-	-	-	-
Stage 2	180	274	-	128	163	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	73.3	$ 922.9	0.1	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	498	-	-	62	14	256	616	-	-
HCM Lane V/C Ratio	0.011	-	-	0.153	4.06	0.247	0.113	-	-
HCM Control Delay (s)	12.3	-	-	73.3	$ 1922.2	23.6	11.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	8	0.9	0.4	-	-

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

Intersection	
Int Delay, s/veh	283.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	26	127	0	71	6	822	137	103	1043	3
Future Vol, veh/h	6	1	26	127	0	71	6	822	137	103	1043	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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	1	30	146	0	82	7	945	157	118	1199	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2516	2553	1201	2490	2476	1024	1202	0	0	1102	0	0
Stage 1	1437	1437	-	1038	1038	-	-	-	-	-	-	-
Stage 2	1079	1116	-	1452	1438	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	19	26	222	~ 19	29	282	570	-	-	622	-	-
Stage 1	163	196	-	275	304	-	-	-	-	-	-	-
Stage 2	261	280	-	160	196	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	21	222	~ 13	23	282	570	-	-	622	-	-
Mov Cap-2 Maneuver	11	21	-	~ 13	23	-	-	-	-	-	-	-
Stage 1	161	159	-	272	300	-	-	-	-	-	-	-
Stage 2	183	277	-	~ 111	159	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	133.4	$ 3325.1	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	570	-	-	12	222	13	282	622	-	-
HCM Lane V/C Ratio	0.012	-	-	0.67	0.135	11.229	0.289	0.19	-	-
HCM Control Delay (s)	11.4	-	-	$ 540.7	23.3	$ 5171.2	22.9	12.1	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	0.5	19.4	1.2	0.7	-	-

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

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	17	959	10	6	1195
Future Vol, veh/h	51	17	959	10	6	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	55	18	1042	11	7	1299

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2361	1048	0	0	1053	0
Stage 1	1048	-	-	-	-	-
Stage 2	1313	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	~ 38	273	-	-	650	-
Stage 1	333	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 38	273	-	-	650	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	192	650	-
HCM Lane V/C Ratio	-	-	0.385	0.01	-
HCM Control Delay (s)	-	-	35	10.6	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0	-

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

Intersection	
Int Delay, s/veh	112

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	36	84	2	53	5	862	34	66	1251	8
Future Vol, veh/h	8	6	36	84	2	53	5	862	34	66	1251	8
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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	8	6	38	88	2	56	5	907	36	69	1317	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2423	2412	1321	2416	2398	925	1325	0	0	943	0	0
Stage 1	1459	1459	-	935	935	-	-	-	-	-	-	-
Stage 2	964	953	-	1481	1463	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	22	32	189	~ 22	33	322	512	-	-	715	-	-
Stage 1	158	191	-	315	340	-	-	-	-	-	-	-
Stage 2	303	334	-	154	190	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	16	29	189	~ 14	30	322	512	-	-	715	-	-
Mov Cap-2 Maneuver	16	29	-	~ 14	30	-	-	-	-	-	-	-
Stage 1	156	172	-	312	337	-	-	-	-	-	-	-
Stage 2	247	331	-	107	172	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	221.2	$ 1860.4	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	512	-	-	56	14	322	715	-	-
HCM Lane V/C Ratio	0.01	-	-	0.94	6.466	0.173	0.097	-	-
HCM Control Delay (s)	12.1	-	-	221.2	$ 2995.6	18.5	10.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.2	12.3	0.6	0.3	-	-

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

Intersection	
Int Delay, s/veh	146.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	10	95	1	68	24	990	145	81	1080	6
Future Vol, veh/h	6	2	10	95	1	68	24	990	145	81	1080	6
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	-	-	100	-	-	50	175	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	7	2	11	103	1	74	26	1076	158	88	1174	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2599	2640	1178	2567	2564	1155	1181	0	0	1234	0	0
Stage 1	1354	1354	-	1207	1207	-	-	-	-	-	-	-
Stage 2	1245	1286	-	1360	1357	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	16	23	229	~ 17	26	236	581	-	-	554	-	-
Stage 1	182	215	-	221	253	-	-	-	-	-	-	-
Stage 2	210	232	-	181	214	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	9	18	229	~ 13	21	236	581	-	-	554	-	-
Mov Cap-2 Maneuver	9	18	-	~ 13	21	-	-	-	-	-	-	-
Stage 1	174	181	-	211	242	-	-	-	-	-	-	-
Stage 2	137	222	-	143	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 328.4	$ 2196.8	0.2	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	581	-	-	10	229	13	236	554	-	-
HCM Lane V/C Ratio	0.045	-	-	0.87	0.047	8.027	0.313	0.159	-	-
HCM Control Delay (s)	11.5	-	-	$ 712.1	21.$	3733.7	27.1	12.7	-	-
HCM Lane LOS	B	-	-	F	C	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.1	14.2	1.3	0.6	-	-

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

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	34	1106	20	13	1183
Future Vol, veh/h	35	34	1106	20	13	1183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	38	37	1202	22	14	1286

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2527	1213	0	0	1224	0
Stage 1	1213	-	-	-	-	-
Stage 2	1314	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	~ 30	218	-	-	559	-
Stage 1	277	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 29	218	-	-	559	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	270	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.2	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	252	559	-
HCM Lane V/C Ratio	-	-	0.298	0.025	-
HCM Control Delay (s)	-	-	25.2	11.6	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

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

Intersection	
Int Delay, s/veh	45.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	8	54	0	60	5	1028	30	67	1301	3
Future Vol, veh/h	1	0	8	54	0	60	5	1028	30	67	1301	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	-	-	-	-	-	100	400	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	0	8	57	0	63	5	1082	32	71	1369	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2653	2637	1371	2625	2622	1098	1372	0	0	1114	0	0
Stage 1	1513	1513	-	1108	1108	-	-	-	-	-	-	-
Stage 2	1140	1124	-	1517	1514	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	15	23	176	~ 15	23	255	491	-	-	616	-	-
Stage 1	147	180	-	251	282	-	-	-	-	-	-	-
Stage 2	241	277	-	147	179	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	20	176	~ 13	20	255	491	-	-	616	-	-
Mov Cap-2 Maneuver	10	20	-	~ 13	20	-	-	-	-	-	-	-
Stage 1	146	159	-	248	279	-	-	-	-	-	-	-
Stage 2	179	274	-	124	158	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	73.3	$ 1006.9	0.1	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	491	-	-	62	13	255	616	-	-
HCM Lane V/C Ratio	0.011	-	-	0.153	4.372	0.248	0.114	-	-
HCM Control Delay (s)	12.4	-	-	73.3	$ 2099.3	23.7	11.6	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	8.1	1	0.4	-	-

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

Appendix D: Arterial Segment LOS Thresholds

TABLE 8

Generalized **Peak Hour Directional** Volumes for Florida's **Transitioning** and **Areas Over 5,000 Not In Urbanized Areas**[1]

12/18/12

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	710	800	**
2	Divided	*	1,740	1,820	**
3	Divided	*	2,670	2,740	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	330	680	720
2	Divided	*	500	1,460	1,600
3	Divided	*	810	2,280	2,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	140	320	1,000
50-84%	100	280	940	>1,000
85-100%	380	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
2	2,200	2,880	3,440	3,580
3	3,260	4,280	5,100	5,540
4	4,260	5,680	6,760	7,500
5	5,300	7,080	8,440	9,440

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	450	850	1,200	1,640
2	Divided	1,740	2,450	3,110	3,440
3	Divided	2,610	3,680	4,660	5,170

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1] Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

Appendix E: Napa County Trip Generation Sheets/Traffic Information

Existing Conditions Winery Traffic Information / Trip Generation

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

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

1. Total number of FT employees[1]: 64 x 3.05 one-way trips per employee = 195.2 daily trips
2. Total number of PT employees[1]: 13 x 1.90 one-way trips per employee = 24.7 daily trips
3. Maximum weekday visitors[1]: 450 /2.6 visitors per vehicle x 2 one-way trips = 346.2 daily trips
4. Gallons of production: 501486 /1,000 x 0.009 daily truck trips[2] x 2 one-way trips = 9.0 daily trips
5. TOTAL = 575.1 daily trips

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

6. Total number of FT employees[1]: 64 x 3.05 one-way trips per employee = 195.2 daily trips
7. Total number of PT employees[1]: 13 x 1.90 one-way trips per employee = 24.7 daily trips
8. Maximum weekday visitors[1]: 450 /2.6 visitors per vehicle x 2 one-way trips = 346.2 daily trips
9. Gallons of production: 501486 /1,000 x 0.009 daily truck trips x 2 one-way trips = 9.0 daily trips
10. Avg. annual tons of grape on-haul: 3057 / 144 truck trips x 2 one-way trips = 42.5 daily trips
11. TOTAL = 617.5 daily trips

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

12. Total number of FT Sat. employees[1]: 64 x 3.05 one-way trips per employee = 195.2 daily trips
13. Total number of PT Sat. employees[1]: 13 x 1.90 one-way trips per employee = 24.7 daily trips
14. Maximum Saturday visitors[1]: 450 /2.8 visitors per vehicle x 2 one-way trips = 321.4 daily trips
15. TOTAL = 541.3 daily trips

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

16. Total number of FT Sat. employees[1]: 64 x 3.05 one-way trips per employee = 195.2 daily trips
17. Total number of PT Sat. employees[1]: 13 x 1.90 one-way trips per employee = 24.7 daily trips
18. Maximum Saturday visitors[1]: 450 /2.8 visitors per vehicle x 2 one-way trips = 321.4 daily trips
19. Gallons of production: 501489 /1,000 x 0.009 daily truck trips x 2 one-way trips = 9.0 daily trips
20. Avg. annual tons of grape on-haul: 3057 / 144 truck trips x 2 one-way trips = 42.5 daily trips
21. TOTAL = 592.8 daily trips

Existing Conditions Winery Traffic Information / Trip Generation

Section E. PM Peak Hour Trip Generation (Friday, non-harvest season)

(Sum of daily trips from Sec. A, lines 3 and 4) x 0.38 + (No. of FTE) + (No. of PTE / 2) = 205.5 PM peak trips

Section F. PM Peak Hour Trip Generation (Friday, harvest season)

(Sum of daily trips, Sec. B, lines 8, 9, 10) x 0.38 + (No. of FTE) + (No. of PTE / 2) = 221.6 PM peak trips

Section G. PM Peak Hour Trip Generation (Saturday, non-harvest season)

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[1] The number of weekday visitors shall include guests of the largest of any event that is proposed to occur two or more times in a month, on average. Full-time and part-time employees that staff such events shall also be included in the employee numbers.

[2] Assumes 1.47 materials and supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see Traffic Information Sheet Addendum for reference.)

(Daily trips from Sec. C, line 14) x 0.57 + (No. of FTE) + (No. of PTE / 2) = 253.7 PM peak trips

Section H. PM Peak Hour Trip Generation (Saturday, harvest season)

(Sum of daily trips Sec. D, lines 18, 19, 20) x 0.57 + (No. of FTE) + (No. of PTE / 2) = 283.1 PM peak trips

Section I. Estimated Annual Trips

(Sec. A, line 5 x 206) + (Sec. B, line 11 x 55) + (Sec. C, line a5 x 82) + (Sec. D, line 21 x 22) = 209862.1 Annual trips

Proposed Project Winery Traffic Information / Trip Generation

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

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

1. Total number of FT employees[1]: 92 x 3.05 one-way trips per employee = 280.6 daily trips
2. Total number of PT employees[1]: 16 x 1.90 one-way trips per employee = 30.4 daily trips
3. Maximum weekday visitors[3]: 450 /2.6 visitors per vehicle x 2 one-way trips = 346.2 daily trips
4. Gallons of production: 800000 /1,000 x 0.009 daily truck trips[4] x 2 one-way trips = 14.4 daily trips
5. TOTAL = 671.6 daily trips

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

6. Total number of FT employees[1]: 92 x 3.05 one-way trips per employee = 280.6 daily trips
7. Total number of PT employees[1]: 28 x 1.90 one-way trips per employee = 53.2 daily trips
8. Maximum weekday visitors[1]: 450 /2.6 visitors per vehicle x 2 one-way trips = 346.2 daily trips
9. Gallons of production: 800000 /1,000 x 0.009 daily truck trips x 2 one-way trips = 14.4 daily trips
10. Avg. annual tons of grape on-haul: 4571 / 144 truck trips x 2 one-way trips = 63.5 daily trips
11. TOTAL = 757.8 daily trips

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

12. Total number of FT Sat. employees[1]: 64 x 3.05 one-way trips per employee = 195.2 daily trips
13. Total number of PT Sat. employees[1]: 17 x 1.90 one-way trips per employee = 32.3 daily trips
14. Maximum Saturday visitors[1]: 450 /2.8 visitors per vehicle x 2 one-way trips = 321.4 daily trips
15. TOTAL = 548.9 daily trips

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

16. Total number of FT Sat. employees[1]: 69 x 3.05 one-way trips per employee = 210.5 daily trips
17. Total number of PT Sat. employees[1]: 51 x 1.90 one-way trips per employee = 96.9 daily trips
18. Maximum Saturday visitors[1]: 450 /2.8 visitors per vehicle x 2 one-way trips = 321.4 daily trips
19. Gallons of production: 800000 /1,000 x 0.009 daily truck trips x 2 one-way trips = 14.4 daily trips
20. Avg. annual tons of grape on-haul: 4571 / 144 truck trips x 2 one-way trips = 63.5 daily trips
21. TOTAL = 706.7 daily trips

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[3] The number of weekday visitors shall include guests of the largest of any event that is proposed to occur two or more times in a month, on average. Full-time and part-time employees that staff such events shall also be included in the employee numbers.

[4] Assumes 1.47 materials and supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see Traffic Information Sheet Addendum for reference.)

Proposed Project Winery Traffic Information / Trip Generation

Determine Winery Peak Hour Trips. ***If the number of daily trips on either Section J, line 5, or Section L, line 15, is greater than 20, or Public Works Director determines that other circumstances such as access safety or other potential network impacts warrant further analysis, then the potential transportation impacts of your project must be evaluated in a transportation impact study (TIS) prepared in accordance with*** **Napa County Public Works TIS Guidelines.** ***Follow the direction outlined in*** **Transportation Impact Study Analysis,** ***below. If the number of daily trips on either Section J, line 5, or Section L, line 15, is equal to or less than 20, complete Sections N through Q below to determine your project's estimated peak hour trips. In lieu of completing Sections N through Q, you may opt to prepare a project-specific transportation impact analysis if you anticipate the number of peak hour trips from your proposal is different from that estimated here.***

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

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

Section P. PM Peak Hour Trip Generation (Saturday, non-harvest season)
(Daily trips from Sec. L, line 14) x 0.57 + (No. of FTE) + (No. of PTE / 2) =_____PM peak trips

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

Section R. Estimated Annual Trips
(Sec. J, line 5 x 206) + (Sec. K, line 11 x 55) + (Sec. L, line 15 x 82) + (Sec. M, line 21 x 22) =240580.1 Annual trips

Transportation Impact Study Analysis. ***If the number of daily trips on either Section J, line 5, or Section L, line 15, is greater than 20, then the potential transportation impacts of your project must be evaluated in a traffic impact study (TIS) prepared in accordance with*** **Napa County Public Works TIS Guidelines.** ***Existing trip counts on the transportation network should be collected during the harvest season (August 16 – October 31). If collected outside of the harvest season, during the months of November through February, counts shall be adjusted upward by 15 percent to estimate harvest season network volumes. If collected during the weeks between March 1 and August 15, counts shall be adjusted upward by seven percent.***

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

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

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

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

Appendix F: Cakebread Cellars Winery Employee Work Shifts (September-October)

Number of EE's Per Shift

Production	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	Total
September	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 4																											
Monday		2		2	7	3			1	4		3												4			26
Tuesday		2	3	1	7	2		1	2	4		3												3	1		29
Wednesday		2	2	1	8	2			3	4		3			1										4		30
Thursday		2	2	1	7		1		4	4		3													3		27
Friday		1	2	1	8	2			4	4		3	1												3		29
Saturday			2	2	9	1							1				1				1				2		19
Sunday			1	1	5	3			1				1								2		2				16

Culinary	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
September	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 4																											
Monday											3	1															4
Tuesday											3				2												5
Wednesday											2				2			1									5
Thursday										1	3				2												6
Friday											3	1			2	1											7
Saturday										1	2				2				1	1							7
Sunday																											0

Admin	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
September	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 4																											
Monday											4	8															12
Tuesday											4	8															12
Wednesday											3	8															11
Thursday											4	8															12
Friday											3	8															11
Saturday																											0
Sunday																											0

Direct Sales	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
September	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 4																											
Monday												3			20			1									24
Tuesday												5			18												23
Wednesday												5			20					1							26
Thursday												5			18			1									24
Friday												5			20			2									27
Saturday												2			23			1		1							27
Sunday															23			1		1							25

Facilities	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
September	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 4																											
Monday							2	1																			3
Tuesday							2	1								1											4
Wednesday							2	1								1											4
Thursday							2	1								1											4
Friday							2	1																			3
Saturday																											0
Sunday																											0

	5:30am	5:30am	6:00am	6:00am	6:30am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:00am	8:15am	8:30am	9:00am	9:00am	10:00am	10:30am	12:00pm	2:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
	2:30pm	5:30pm	4:30pm	6:00pm	6:30pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	8:00pm	4:45pm	5:00pm	1:00pm	9:00pm	5:00pm	3:30pm	5:00pm	2:00am	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Total																											
Monday	2	0	2	7	3	2	1	1	4	7	15	0	0	20	0	0	1	0	0	0	0	0	4	0	0	0	69
Tuesday	2	3	1	7	2	2	2	2	4	7	16	0	0	20	1	0	0	0	0	0	0	0	3	1	0	0	73
Wednesday	2	2	1	8	2	2	1	3	4	5	16	0	0	23	1	0	1	0	1	0	0	0	0	4	0	0	76
Thursday	2	2	1	7	0	3	1	4	5	7	16	0	0	20	1	0	1	0	0	0	0	0	0	3	0	0	73
Friday	1	2	1	8	2	2	1	4	4	6	17	1	0	22	1	0	2	0	0	0	0	0	0	3	0	0	77
Saturday	0	2	2	9	1	0	0	0	1	2	2	1	0	25	0	1	1	1	2	1	0	0	0	2	0	0	53
Sunday	0	1	1	5	3	0	0	1	0	0	0	1	0	23	0	0	1	0	1	2	0	2	0	0	0	0	41

Number of EE's Per Shift

Production	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	Total
October	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 1																					
Monday		7	8			3	4		3									4			29
Tuesday		1	10			4	4		3					2				3			27
Wednesday		1	10			6	4		3					2				4			30
Thursday		1	8			7	4		3					1				4			28
Friday		1	9			7	4		3					2				4			30
Saturday		1	10			4								2				2	2		21
Sunday			7			5											4				16

Culinary	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
October	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 1																					
Monday									2												2
Tuesday							1	2	1												4
Wednesday							1	3	1												5
Thursday							1	3													4
Friday							1	3					1								5
Saturday								2	1												3
Sunday																					0

Admin	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
October	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 1																					
Monday								4	8												12
Tuesday								4	8												12
Wednesday								4	8												12
Thursday								3	8												11
Friday								3	8												11
Saturday																					0
Sunday																					0

Direct Sales	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
October	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 1																					
Monday									4		19		1								24
Tuesday									5		18										23
Wednesday									5		17				1						23
Thursday									6		20		1								27
Friday									6		23		1		1						31
Saturday									3		26		1		1						31
Sunday											22		1		1						24

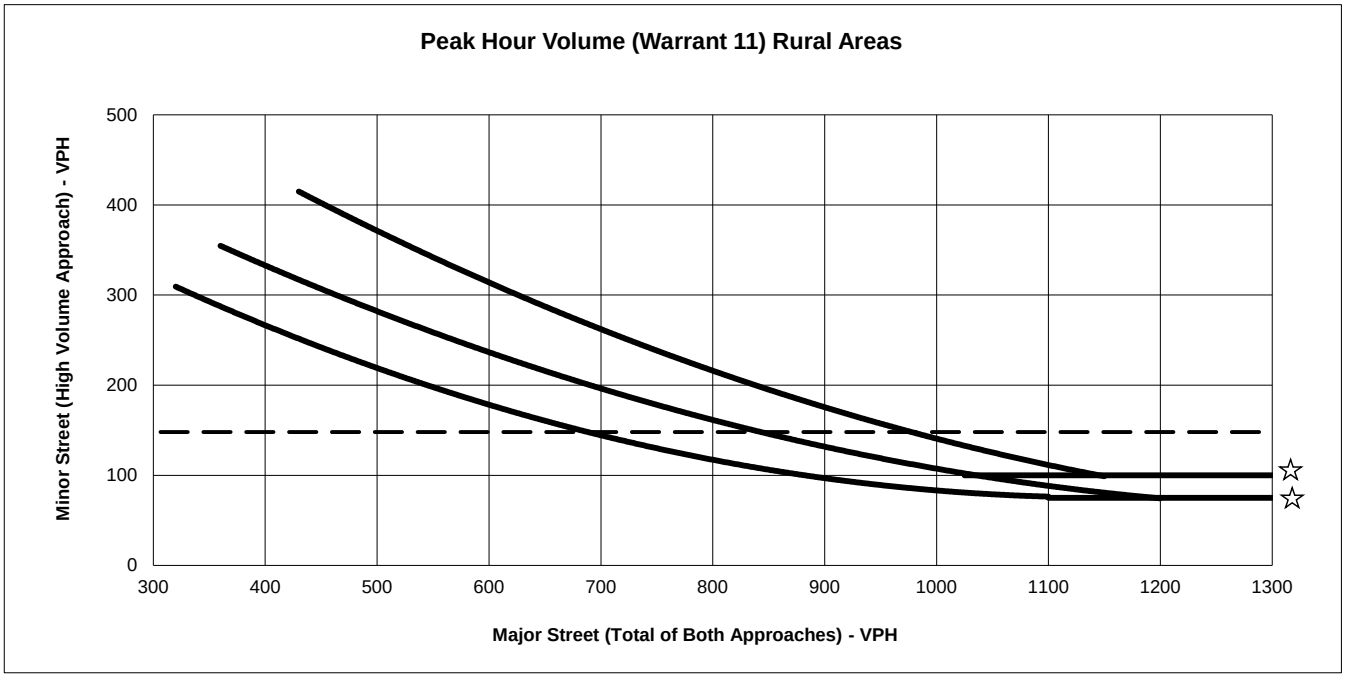
Facilities	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
October	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Week 1																					
Monday				2	1																3
Tuesday				2	1							1									4
Wednesday				2	1							1									4
Thursday				2	1							1									4
Friday				2	1																3
Saturday																					0
Sunday																					0

	5:30am	6:00am	6:30am	7:00am	7:00am	7:30am	8:00am	8:00am	8:15am	8:30am	9:00am	10:00am	10:00am	12:00pm	3:00pm	3:00pm	4:00pm	5:00pm	5:15pm	5:30pm	
	5:30pm	6:00pm	2:30pm	3:30pm	7:00pm	4:00pm	4:30pm	5:00pm	4:45pm	5:00pm	1:00pm	5:00pm	10:00pm	5:00pm	11:00pm	3:00am	4:00am	5:00am	10:15pm	11:00pm	
Total																					
Monday	7	8	2	1	3	4	4	17	0	19	0	1	0	0	0	0	4	0	0	0	70
Tuesday	1	10	2	1	4	5	6	17	0	18	1	0	2	0	0	0	3	0	0	0	70
Wednesday	1	10	2	1	6	5	7	17	0	17	1	0	2	1	0	0	4	0	0	0	74
Thursday	1	8	2	1	7	5	6	17	0	20	1	1	1	0	0	0	4	0	0	0	74
Friday	1	9	2	1	7	5	6	17	0	23	0	2	2	1	0	0	4	0	0	0	80
Saturday	1	10	0	0	4	0	2	4	0	26	0	1	2	1	0	0	2	2	0	0	55
Sunday	0	7	0	0	5	0	0	0	0	22	0	1	0	1	0	4	0	0	0	0	40

Appendix G: Signal Warrant Sheets

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

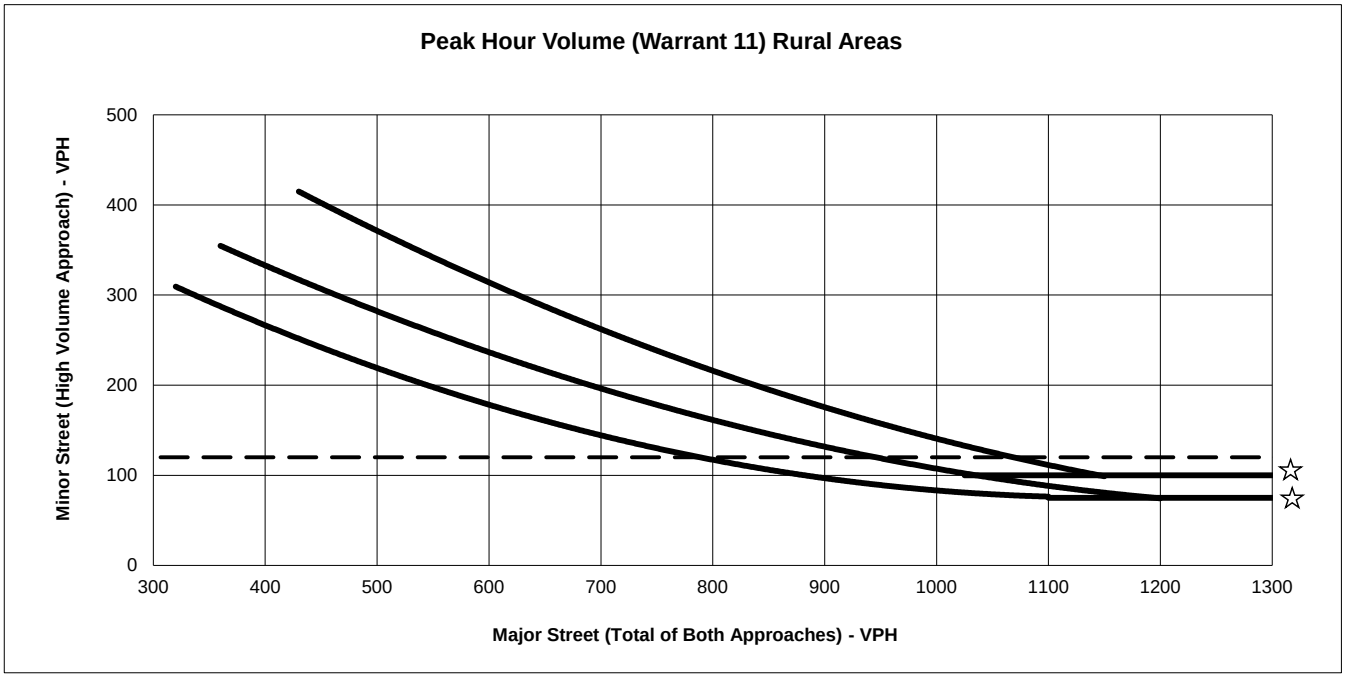


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Rutherford Road / State Route 29
Scenario:	Existing Weekday PM Peak Hour Conditions
Minor St. Volume:	148
Major St. Volume:	1725
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

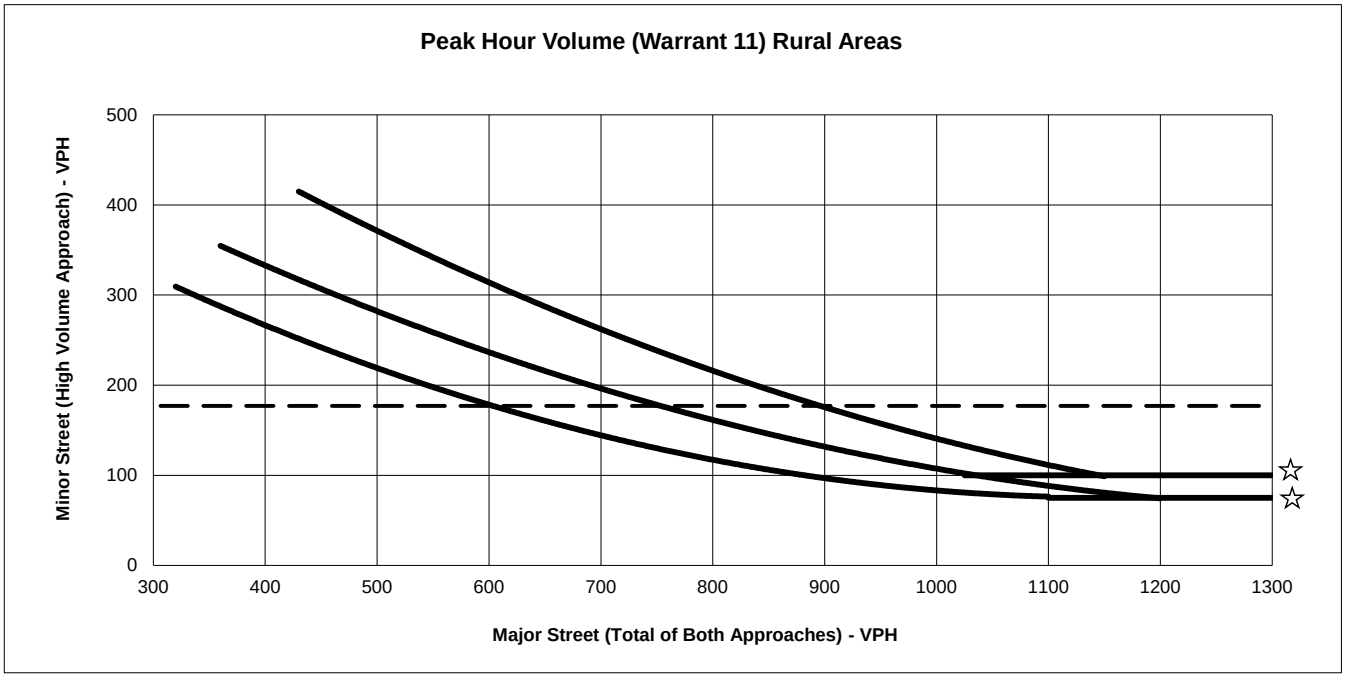


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Rutherford Road / State Route 29
Scenario:	Existing Weekdend Saturday MD Peak Hour Conditions
Minor St. Volume:	120
Major St. Volume:	1874
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

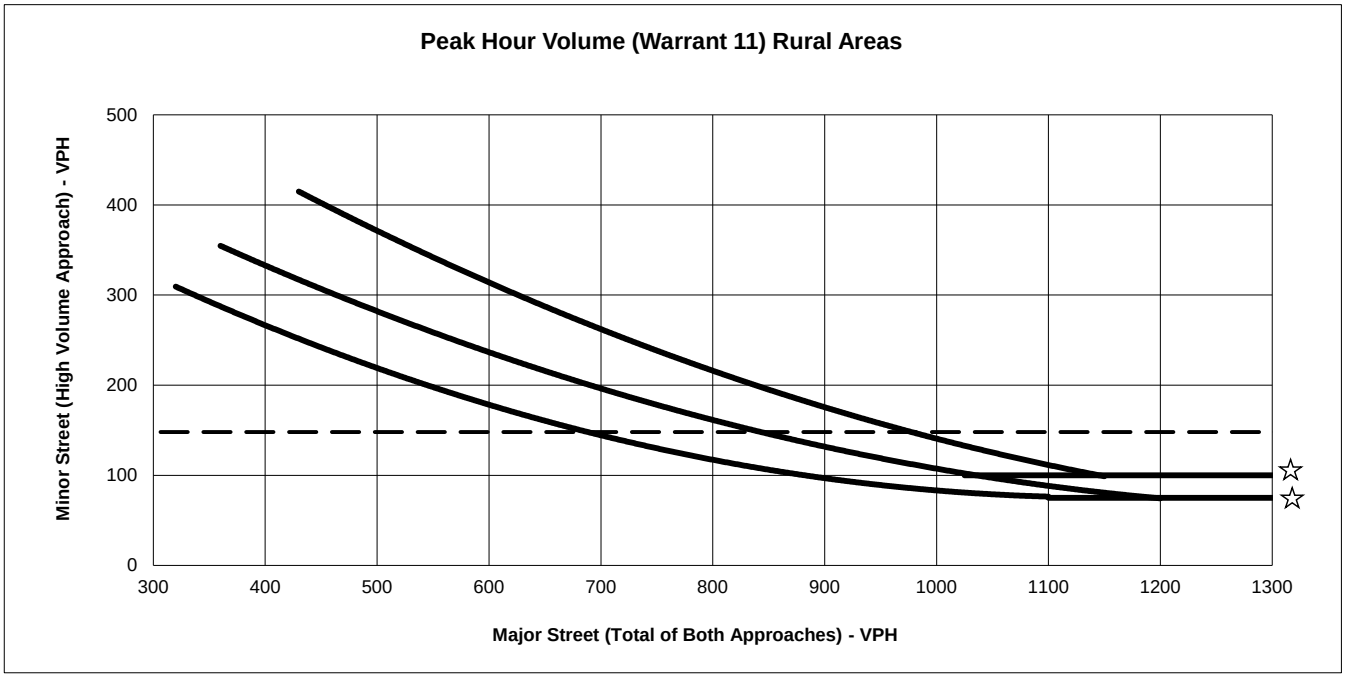


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Rutherford Road / State Route 29
Scenario:	Near-Term (NP) Weekday PM Peak Hour Conditions
Minor St. Volume:	177
Major St. Volume:	1874
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

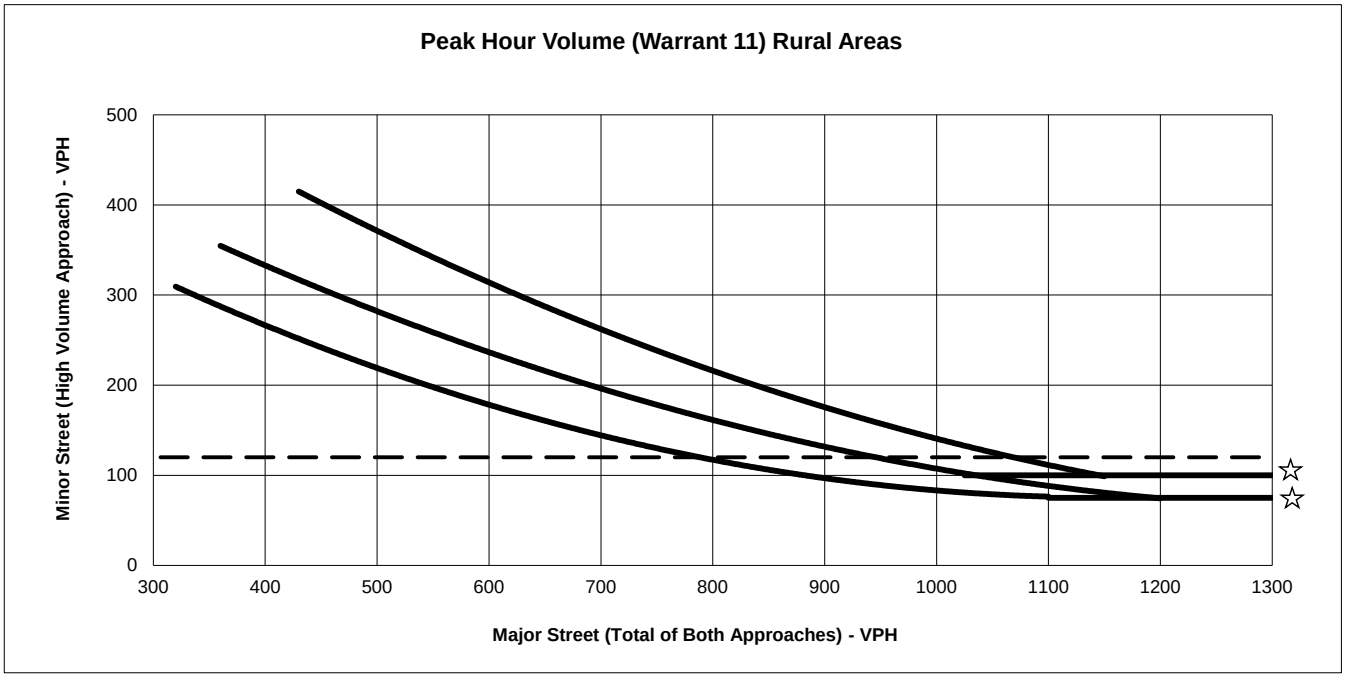


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	Rutherford Road / State Route 29
Scenario:	Near-Term Weekdend Saturday MD Peak Hour Conditions
Minor St. Volume:	148
Major St. Volume:	2066
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

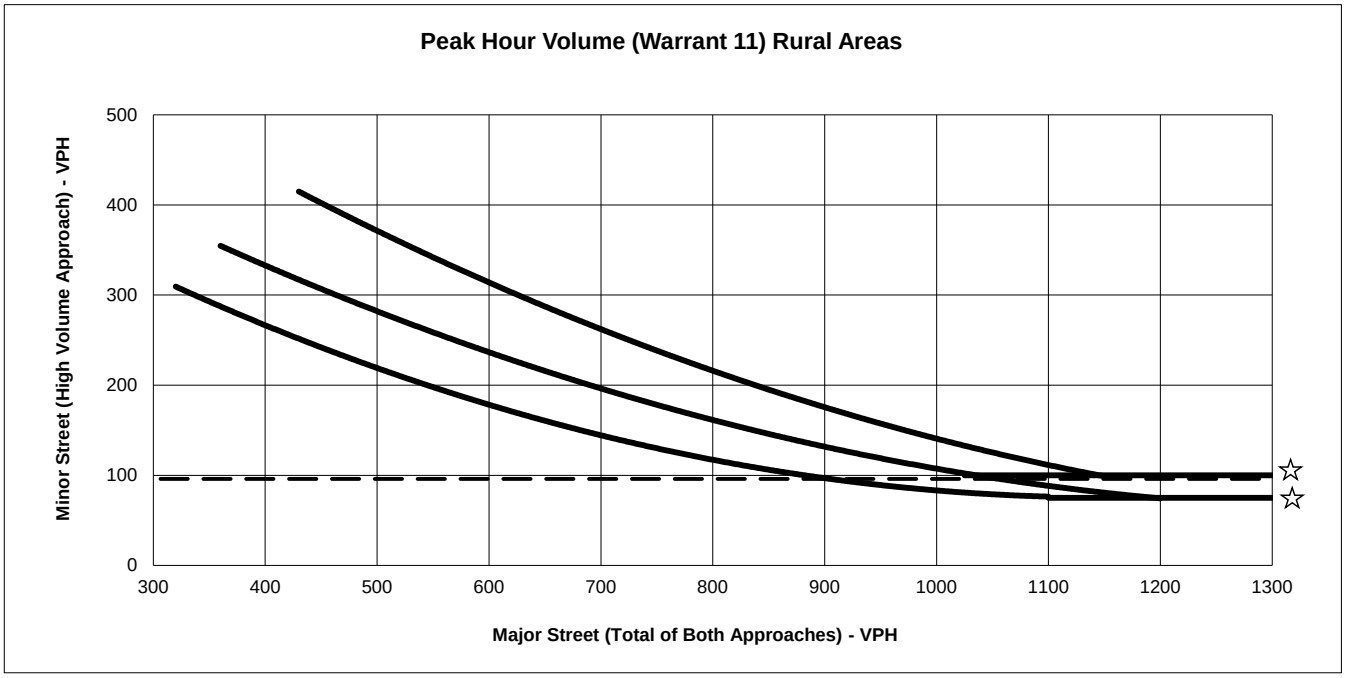


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	OCR-WL / SR-29
Scenario:	Existing Weekday PM Peak Hour Conditions
Minor St. Volume:	120
Major St. Volume:	1799
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

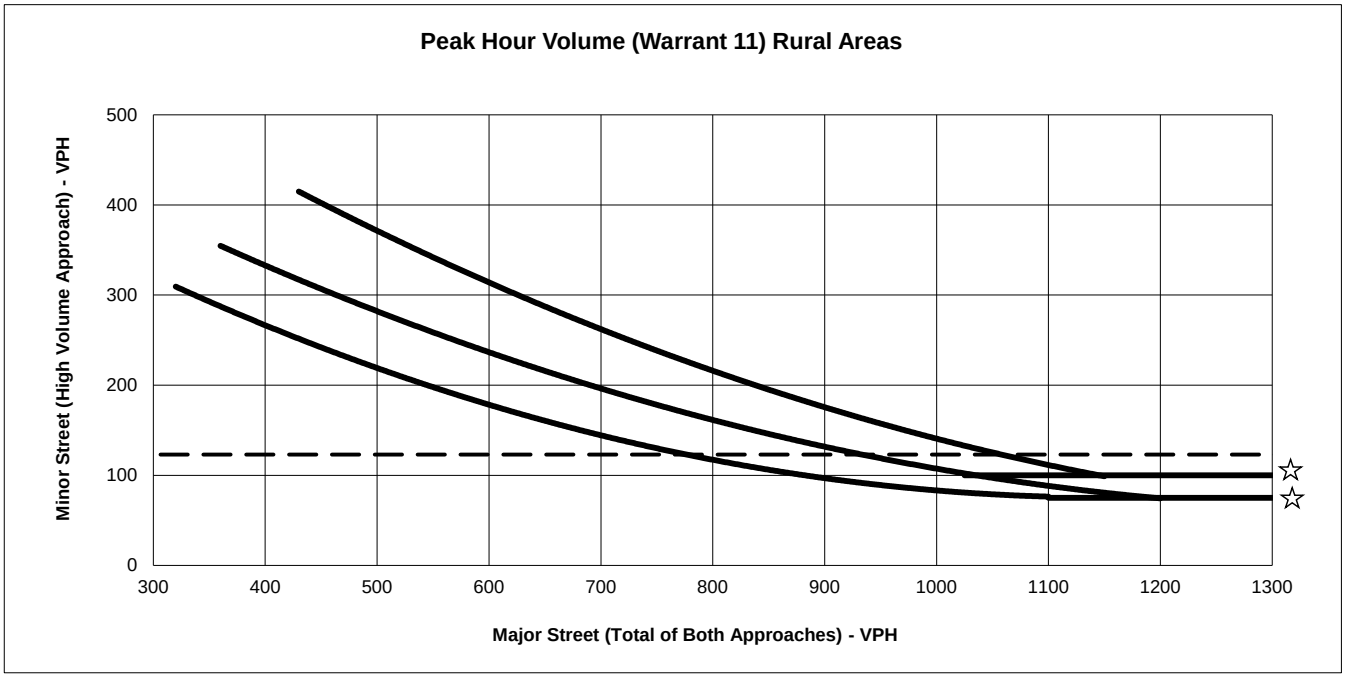


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:	OCR-WL / SR-29
Scenario:	Existing Weekdend Saturday MD Peak Hour Conditions
Minor St. Volume:	96
Major St. Volume:	1950
Warrant Met?:	**YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

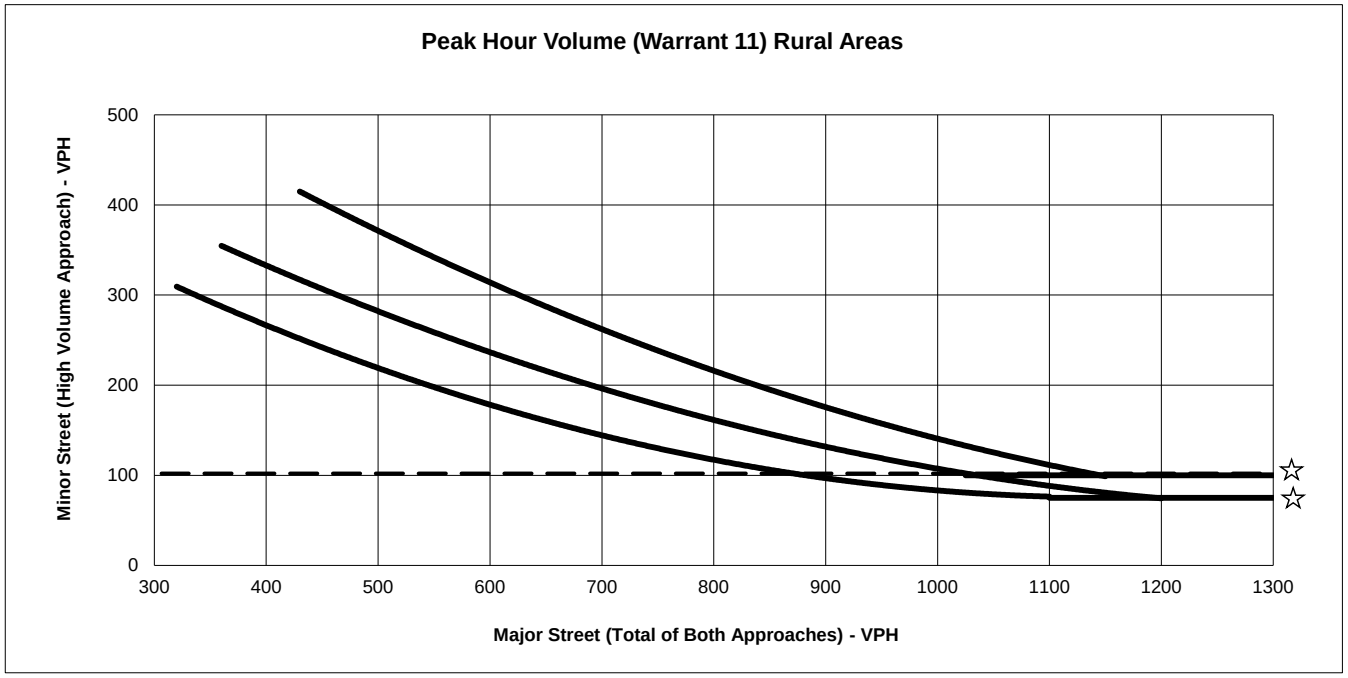


☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: OCR-WL / SR-29
Scenario: Near-Term (NP) Weekday PM Peak Hour Conditions
Minor St. Volume: 123
Major St. Volume: 1964
Warrant Met?: **YES**

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR 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.

Intersection: OCR-WL / SR-29
Scenario: Near-Term (NP) Weekdend Saturday MD Peak Hour Conditions
Minor St. Volume: 102
Major St. Volume: 2151
Warrant Met?: **YES**

Appendix H: Cakebread Cellars Winery Truck Delivery Data (2018 & 2019)

Cakebread Cellars Winery: Truck Delivery Data 2018 & 2019 Harvest/Crush Season

2018	
Harvest dates	August 22 to October 23, 2018
Total Number of grape truck deliveries	238
Average Tons per Truck	14.9 Tons
Total tons crushed	3658
Total tons delivered	3553
2019	
Harvest Dates	August 20 to October 28, 2019
Total number of grape truck deliveries	218
Tons per Truck	14.4 tons
Total Tons Crushed	3282
Tons Delivered	3137

Appendix I: Cakebread Cellars Winery Napa Valley Forward Program

From: Nicole Cummings
Sent: Monday, January 27, 2020 11:21 AM
To: CBCStaff <CBCStaff@cakebread.com>
Subject: Napa Valley Forward Commuter Program

Hi,
The Metropolitan Transportation Commission (MTC), in partnership with Napa Valley Vintners and Visit Napa Valley, is excited to announce that **Napa Valley Forward is launching today, Monday, January 27!** To show our support and continue to live up to our value of sustainability, Cakebread Cellars fully supports this effort and has registered as a Napa Valley Forward program partner. This means all Cakebread Cellars employees are eligible to sign up and participate in the program today.

Napa Valley Forward is an innovative commute program designed to help you find better, faster, enjoyable, and more affordable ways to commute to and from work. Through the program's online tool at www.Napa-Valley.Luum.com, you can get matched with a carpool or vanpool group, try VINE transit for free, and earn rewards when you use a mode other than driving to get to work. You can also check out opportunities to bike or walk to work, and take advantage of the program's Guaranteed Ride Home feature – for times when you may have an emergency or unscheduled overtime.

Cakebread Cellars will be hosting two education opportunities for all employees on Tuesday, February 4 and Wednesday, February 5 from 8:30-9:30am in the Pond Building. To show our support and commitment, we are requiring all employees who work more than 3 days per week to attend one of these events to learn about the program and the ways in which our industry is supporting sustainability programs. There is no obligation to join, and there will be fun give a ways.

If you have any questions about the program or education event, please contact myself or your Green Team member.

Thank you,
Nicole

Nicole Cummings, PHR
Human Resources Director

P: (707) 963-5221 x1485
nicole@cakebread.com