

CRANE TRANSPORTATION GROUP

TRAFFIC IMPACT REPORT

E&C WINERY USE PERMIT

SOLANO COUNTY

January 20, 2022

Prepared for: E&C WINERY

Prepared by: CRANE TRANSPORTATION GROUP
Mark D. Crane, President
California Registered Traffic Engineer (#1381)
2621 East Windrim Court
Elk Grove, CA 95758
(916) 647-3406
Mark Crane <cranetransgroup@gmail.com>

TABLE OF CONTENTS

<u>CONTENT</u>	<u>PAGE</u>
I. INTRODUCTION.....	1
II. PROPOSED PROJECT SUMMARY	1
III. SCOPE OF SERVICES	2
IV. SUMMARY OF FINDINGS	2
A. "WITHOUT PROJECT" OPERATING CONDITIONS	2
1. Year 2019 (Without Project) Circulation System Operation.....	2
2. Year 2040 (Without Project) Circulation System Operation.....	2
B. PROJECT IMPACTS	3
1. Project Trip Generation	3
2. Year 2019 (With Project - Phase 1) Circulation System Operation.....	3
3. Year 2040 (With Project - Phase 2) Circulation System Operation.....	3
C. MITIGATION MEASURES	3
D. CONCLUSIONS	3
V. PROJECT LOCATION & DESCRIPTION	4
VI. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES.....	5
A. ANALYSIS LOCATIONS.....	5
B. VOLUMES.....	6
1. Seasonal Considerations	6
2. Count Results.....	6
C. ROADWAYS	6
D. INTERSECTION LEVEL OF SERVICE	7
1. Analysis Methodology	7
2. Minimum Acceptable Operation.....	8
E. PLANNED IMPROVEMENTS	8
VII. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS	9
VIII. INTERSECTION OPERATION – WITHOUT PROJECT	9
A. EXISTING (2019) OPERATING CONDITIONS (WITHOUT PROJECT).....	9
B. YEAR 2040 OPERATING CONDITIONS (WITHOUT PROJECT)	9
IX. PROJECT IMPACT EVALUATION SIGNIFICANCE STANDARD	9
X. PROJECT TRIP GENERATION & DISTRIBUTION.....	10
A. TRIP GENERATION – TYPICAL DAY	10
B. TRIP DISTRIBUTION	13
C. PLANNED ROADWAY IMPROVEMENTS.....	15
XI. PROJECT IMPACTS.....	15
A. EXISTING (2019) "WITH PROJECT PHASE 1" CONDITIONS	15
B. YEAR 2040 CUMULATIVE "WITH PROJECT PHASE 2" CONDITIONS	15

TABLE OF CONTENTS

<u>CONTENT</u>	<u>PAGE</u>
XII. PROJECT ACCESS IMPACTS.....	15
A. PROJECT DRIVEWAYS	15
B. SIGHT LINE ADEQUACY AT PROJECT DRIVEWAYS.....	16
1. <i>Project Driveway Connections To Russell Road</i>	16
2. <i>Sight Line Criteria</i>	16
XIII. PARKING DEMAND	16
XIV. VISITOR SERVING USES AND MARKETING EVENTS.....	17
XV. CONCLUSIONS	18

ATTACHMENTS:

TABLES

1. Signalized Intersection LOS Criteria
2. Unsignalized Intersection LOS Criteria
3. Existing Intersection Level of Service Year 2019 Harvest
4. Existing Level of Service Year 2040

FIGURES

1. Regional Area Map
2. Existing Lane Geometrics & Intersection Control
3. Project Site Plan
4. Existing 2019 Weekday (Without Project) AM Peak Hour Volumes (7:30-8:30AM)
5. Existing 2019 Weekday (Without Project) PM Peak Hour Volumes (4:15-5:15PM)
6. Existing 2019 Saturday (Without Project) PM Peak Hour Volumes (2:15-3:15PM)
7. Year 2040 Weekday (Without Project) AM Peak Hour Volumes (7:30-8:30AM)
8. Year 2040 Weekday (Without Project) PM Peak Hour Volumes (4:15-5:15PM)
9. Year 2040 Saturday (Without Project) PM Peak Hour Volumes (2:15-3:15PM)
10. Weekday AM Peak Hour Phase 1 Project Increment (7:30-8:30 AM)
11. Weekday PM Peak Hour Phase 1 Project Increment (4:15-5:15 PM)
12. PM Peak Hour Phase 1 Project Increment (2:15-3:15 PM)
13. Existing 2019 (With Project) Phase 1 Weekday AM Peak Hour Volumes (7:30-8:30AM)
14. Existing 2019 (With Project) Phase 1 Weekday PM Peak Hour Volumes (4:15-5:15 PM)
15. Existing 2019 (With Project) Phase 1 Saturday PM Peak Hour Volumes (2:15-3:15PM)
16. Weekday AM Peak Hour Phase 2 Project Increment (7:30-8:30 AM)
17. Weekday PM Peak Hour Phase 2 Project Increment (4:15-5:15 PM)
18. Saturday PM Peak Hour Phase 2 Project Increment (2:15-3:15 PM)
19. Year 2040 (With Project) Phase 2 Weekday AM Peak Hour Volumes (7:30-8:30AM)
20. Year 2040 (With Project) Phase 2 Weekday PM Peak Hour Volumes (4:15-5:15 PM)
21. Year 2040 (With Project) Phase 2 Saturday PM Peak Hour Volumes (2:15-3:15 PM)

APPENDICES

- A. Intersection LOS Worksheets
- B. Phase 2 Employee, Visitation & Event Details

TRAFFIC IMPACT REPORT E&C WINERY USE PERMIT SOLANO COUNTY

I. INTRODUCTION

This report has been prepared at the request of the E and C Winery applicants to determine whether it will result in any significant circulation impacts to the local roadway network. The scope of analysis has been discussed with and approved by County planning and engineering staff and includes evaluation of major intersections near the project site for Existing (2019) and Year 2040 planning horizons (see **Figure 1. Area Map**, and **Figure 2. Intersection Lane Geometrics**).

II. PROPOSED PROJECT SUMMARY

The project consists of a new Winery to be located along the south side of Rockville Road and west side of Russell Road. It will have entrances along Russell Road less than one-quarter mile south of Rockville Road.

The Winery will be built in two phases over approximately 10 years, with an initial production capacity of 125,000 gallons and ultimate production capacity of 500,000 gallons. The facility will process grapes grown both onsite and from offsite sources. Onsite activities will include receiving and crushing grapes, fermentation, processing grape juice into wine, bottling and cooperage, sales, hospitality and administration.

The Phase 1 Winery entrance will serve employees and visitors, as well as grape/wine delivery and shipping traffic. This will be the primary visitor entrance to the Winery for all phases. A second entrance driveway will be developed during Phase 2 that will serve employees, grape/wine deliveries and shipping traffic. See **Figure 3, Site Plan**. There is an existing unimproved entrance to the property at the northwest corner of APN 027-251-290 over the irrigation channel, which will continue to be used for agricultural access.

Analysis of traffic impacts were requested by the County for Phases 1 and 2. Phase 1 is analyzed in the context of existing conditions; while Phase 2 is analyzed in the context of 2040 traffic volume conditions.

The project will result in no significant off-site circulation system operational impacts to the analyzed roadway network. Sight lines at the proposed project driveway connections to Russell Road are acceptable and meet Caltrans stopping sight distance criteria. The site has sufficient acreage to accommodate overflow parking for maximum event days.

III. SCOPE OF SERVICES

The scope of services for this traffic study was developed in consultation with the Solano County Planning and Engineering departments to determine the extent of any significant circulation impacts due to the proposed project. Evaluation was conducted for weekday AM and PM commute peak and Saturday afternoon peak traffic conditions for the following locations:

1. Russell Road/Rockville Road Russell Road/Primary Project Entrance
2. Rockville Road/Abernathy Road
3. Abernathy Road/Suisun Parkway-Chadbourne Road
4. I-80 NB Ramps/Chadbourne Road
5. I-80 SB Ramps/Chadbourne Road
6. SR 12 NB Ramps/Chadbourne Road
7. SR 12 SB Ramps/Chadbourne Road

Existing and year 2040 (the Solano County traffic model planning horizon) operating conditions were evaluated both with and without project traffic. Project entrance driveway sight lines and parking supply were evaluated.

IV. SUMMARY OF FINDINGS

A. "WITHOUT PROJECT" OPERATING CONDITIONS

Russell Road, Rockville Road, Abernathy Road and Suisun Parkway-Chadbourne Road and thereon and off-ramps with the I-80 and State Route 12 freeways are projected to have higher volumes due to the project, thus are the subject of this analysis.

1. YEAR 2019 (WITHOUT PROJECT) CIRCULATION SYSTEM OPERATION

All study intersections are expected to operate at an acceptable LOS (at or better than LOS C).

2. YEAR 2040 (WITHOUT PROJECT) CIRCULATION SYSTEM OPERATION

All study intersections are expected to operate at an acceptable LOS (at or better than LOS C).

B. PROJECT IMPACTS

1. PROJECT TRIP GENERATION

Project trips during the Friday AM peak hour will consist of a few employee trips and grape trucks; project trips during the Friday PM peak hour will consist of mostly visitors plus some outbound employees. Project trips during the Saturday PM peak hour will be entirely due to visitors.

2. YEAR 2019 (WITH PROJECT - PHASE 1) CIRCULATION SYSTEM OPERATION

Project Phase 1 traffic would **not** result in any significant Level of Service impacts to analyzed intersections during any harvest weekday or Saturday peak traffic hours. “With Project” conditions would result in all analyzed intersections operating acceptably at LOS C or better.

3. YEAR 2040 (WITH PROJECT - PHASE 2) CIRCULATION SYSTEM OPERATION

Project Phase 2 traffic would **not** in any significant Level of Service impacts to analyzed intersections during any harvest weekday or Saturday peak traffic hours. “With Project” conditions would result in all analyzed intersections operating acceptably at LOS C or better.

C. MITIGATION MEASURES

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

D. CONCLUSIONS

The project will result in no significant off-site circulation system operational impacts to the analyzed roadway network. Sight lines at the proposed project driveway connections to Russell Road are acceptable and meet Caltrans stopping sight distance criteria. The site has sufficient acreage to accommodate overflow parking for maximum event days.

V. PROJECT LOCATION & DESCRIPTION

The E&C winemaking, custom crush and hospitality facility is proposed on two parcels totaling approximately 70 acres (APN 027-251-280, 20 acres and APN 027-251-290, 49 acres). The two parcels are undeveloped agricultural land bounded by agricultural uses including rural residential improvements to the north, south, east and west. A produce farm and farm stand is located to the east and a commercial tractor supply company is located to the southeast, accessed from Russell Road. The nearest residence is on the neighboring parcel north of the project site; the residence is about 620' feet from the nearest proposed building. There are several residences across Russell Road east of the property.

The proposed project will be a two-phase development of parcel 027-251-290 for Winery, administration and hospitality purposes. The project will include a complete winemaking facility including retail sales, business administration, tours and tasting, and space for promotional events. Wine will be bottled initially by a mobile bottling service and a permanent bottling building will be developed during Phase 2.

The undeveloped portions of the properties would be maintained for agricultural uses--primarily farming or vineyard. During the July through October harvest season, the facility will operate 24 hours a day and seven days per week. During the November through June non-harvest season, the facility will operate from 5:00 AM until 11:00 PM, seven days per week.

The ultimate Phase 2 production is proposed to be 500,000 gallons.

PHASE 1

1. Capacity to produce up to 125,000 gallons of finished wine per year
2. 10,000 square foot building and canopy which will include grape receiving area, barrel storage, fermentation, administrative offices, and tasting area
3. Gardens and outdoor event space
4. Driveway access from Russell Road, internal circulation roads, visitor and employee parking
5. Pomace staging area
6. Sanitary sewage treatment and subsurface disposal system
7. Fire water storage tank
8. Storm water detention basin
9. Process wastewater treatment and effluent storage

PHASE 2

1. Capacity to produce up to 500,000 gallons of finished wine per year
2. Additional driveways for site circulation including a second entrance from Russell Road
3. Scale and scale house
4. Construction of approximately 20,000 square foot building for additional winemaking facilities which may include enclosed buildings, covered and uncovered receiving and fermentation areas, barrel storage, fruit storage, work shops and offices
5. Expand fire and domestic water storage
6. Process wastewater treatment and effluent storage, likely to be wastewater treatment ponds
7. Storm water detention basin as well as wastewater disposal and reserve area expanded as necessary
8. Additional visitor and employee parking

VISITOR-SERVING USES AND MARKETING EVENTS

A number of visitor serving uses are planned with event hours until 11 pm. These uses will be implemented during Phase 1 and are to be held in the tasting room, barrel room, event lawn and garden spaces. By Phase 2 the event areas may be expanded to include conversion of the Phase 1 Winery Building into a hospitality center. Multiple events may take place on the same day. Promotional events (with over 100 attendees) and Special Events including weddings will not be scheduled concurrently. Additional information concerning visitor-serving uses and marketing events is provided in **Section XIV** of this study.

VI. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

The following locations have been evaluated:

1. Russell Road/Rockville Road
2. Russell Road/Primary Project Entrance
3. Rockville Road/Abernathy Road
4. Abernathy Road/Suisun Parkway-Chadbourne Road
5. I-80 NB Ramps/Chadbourne Road
6. I-80 SB Ramps/Chadbourne Road
7. SR 12 NB Ramps/Chadbourne Road
8. SR 12 SB Ramps/Chadbourne Road

B. VOLUMES

1. SEASONAL CONSIDERATIONS

Project traffic impacts have been evaluated on a background of March 2019 count conditions. Based upon 2017 and 2018 years of historical information from Caltrans PeMS (Performance Measurement System) count surveys along the I-80 freeway nearest Chadbourne Road revealed very close volumes of traffic for March, September and October. In fact, 2017 March volumes slightly exceeded 2017 September and October volumes. For all times sampled, freeway counts between March and harvest season (September-October) varied only two to five percent. For this reason, seasonal adjustments were found to be unwarranted.

Project trips were derived from the applicant's projected crush season (harvest season) conditions.

2. COUNT RESULTS

Weekday 7:00 to 9:00 AM and 3:00 to 6:00 PM as well as Saturday 1:00 to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) in March 2019 at all study intersections. The peak traffic hours for the system were determined to be 7:30 to 8:30 AM and 4:15 to 5:15 PM on a weekday (Thursday) and 2:15 to 3:15 PM on a Saturday. Resultant peak hour counts are presented in **Figures 4, 5 and 6.**

C. ROADWAYS

The project site is accessed by the following roadways:

Interstate 80 (I-80) is an east-west interstate freeway with four lanes in each direction near the project site. I-80 provides regional access to the project site via the Chadbourne Road interchange.

State Route 12 is an east-west state highway with two lanes in each direction. SR 12 provides regional access to the project site via the Chadbourne Road interchange.

Russell Road is a north-south, two-lane local road that begins at Rockville Road and extends south about 2,200 feet to terminate just north of Suisun Parkway. Russell Road does not connect to Suisun Parkway. It provides primary access to the project site. Russell road is stop sign controlled at Rockville Road.

Rockville Road is an east-west collector road that begins just west of Green Valley Road and becomes West Texas Street just west of I-80. Rockville Road has one lane in each direction with a Class II bike lanes and posted speed limit from 25 to 55 mph. This road provides direct access to the project site.

Abernathy Road is a north-south collector road that begins at Mankas Corner Road and terminates at Suisun Parkway. It has one lane in each direction with a posted speed limit of 45 mph. There is a roundabout at the Abernathy Road/ Rockville Road intersection.

Suisun Parkway is an east-west major arterial road that extends from Abernathy Road west along the north side of I-80, becoming Business Center Drive at Suisun Valley Creek. The parkway was completed and opened to traffic in 2010; it has two lanes in each direction with Class II bike lanes and posted speed limit of 45 mph.

Chadbourne Road is a north-south collector road that begins at Abernathy Road and terminates south of Cordelia Road. It has two lanes in each direction with Class II bike lanes and posted speed limits from 35 mph to 45 mph.

D. INTERSECTION LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

Transportation engineers and planners commonly use a grading system called Level of Service (LOS) to measure and describe the operational status of the local roadway network. LOS is a description of the quality of a roadway facility's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

Intersections, rather than roadway segments between intersections, are almost always the capacity controlling locations for any circulation system.

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

Unsignalized Intersections. For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2017 *Highway Capacity Manual* (Transportation Research Board, National Research Council) methodology for unsignalized intersections was utilized. For side-street stop-controlled intersections, operations are defined by the Level of Service and average control delay per vehicle (measured in seconds), with delay reported for the stop sign controlled approaches or turn movements, although overall delay is also typically reported for intersections along state highways. For all-way stop-controlled intersections, operations are defined by the average control delay for the entire intersection (measured in seconds per vehicle). The delay at an unsignalized intersection incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. It should be noted that the 2017 analysis software for Unsignalized Intersections does not report overall intersection delay. However, the year 2000 software does report overall delay and was utilized to report overall intersection operation. **Table 2** summarizes the relationship between delay and LOS for Unsignalized Intersections.

2. MINIMUM ACCEPTABLE OPERATION

Solano County Roadway Improvement Standards and Land Development Requirements, Section 1-4 states:

The goal of Solano County is to maintain a Level of Service C on all roads and intersections. In addition to meeting the design widths and standards contained in this document, all projects shall be designed to maintain a Level of Service C, except where the existing Level of Service is already below C, the project should be designed such that there will be no decrease in the existing Level of Service. Level of Service should be calculated using the Transportation Research Board's most recent Highway Capacity Manual.

E. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study (Mr. Jason Riley, Engineering Services Supervisor, Solano County/Department of Resources Management, written communication).

VII. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for existing (2019) and cumulative year 2040 planning horizons at County request. The 2040 cumulative horizon reflects the County General Plan Buildout year. To conservatively represent growth projections contained in the Solano County Traffic Model, an annual growth rate of one percent was applied to reflect future land use developments in the vicinity of the project site (The Napa-Solano Traffic Model projections were provided by the Solano Transportation Authority via Vamsee Modugula, Director, Travel Demand Forecasting, TJKM, June 12, 2019, peak hour assignment procedures, Solano ABM model).

The 2040 volumes reflect 2019 traffic volumes to which this annual growth rate (a total of 21%) has been added.

Resultant Year 2040 “Without Project” weekday AM and PM peak hour, and Saturday PM peak hour volumes are presented in **Figures 7, 8 and 9**, respectively.

VIII. INTERSECTION OPERATION – WITHOUT PROJECT

A. EXISTING (2019) OPERATING CONDITIONS (WITHOUT PROJECT)

Table 3 presents existing condition (2019) intersection LOS analysis results. All study intersections are expected to operate at an acceptable LOS (at or better than LOS C). Detailed LOS calculation worksheets are provided in **Appendix A**.

B. YEAR 2040 OPERATING CONDITIONS (WITHOUT PROJECT)

Table 4 presents future condition (2040) intersection LOS analysis results. All study intersections are expected to operate at an acceptable LOS, at or better than LOS C. Detailed LOS calculation worksheets are provided in **Appendix A**.

IX. PROJECT IMPACT EVALUATION SIGNIFICANCE STANDARD

According to *Section 1-4 of the Solano County Roadway Improvement Standards & Land Development Requirements*, significant traffic impacts at analyzed study intersections occur when the addition of project traffic causes existing LOS to deteriorate from an acceptable level C or better to an unacceptable level D or below.

X. PROJECT TRIP GENERATION & DISTRIBUTION

A. TRIP GENERATION – TYPICAL DAY

The project would contribute new trips to the local roadway network. This analysis focuses on typical weekday and Saturday peak traffic hours during project crush conditions (harvest season activities) when staffing is greatest. **Appendix B** provides details of Phase 1 plus Phase 2 traffic activity, as determined by the applicants. The peak hours of ambient traffic on the local circulation system are as follows.

WEEKDAY AM PEAK HOUR	WEEKDAY PM PEAK HOUR	SATURDAY PM PEAK HOUR
7:30 - 8:30	4:15 - 5:15	2:15 - 3:15

PHASE 1

PROJECT EMPLOYEES AND WORK SCHEDULES DURING HARVEST

EMPLOYEE CATEGORY (FULL & PART TIME)	WEEKDAY		SATURDAY	
	NUMBER OF EMPLOYEES	SCHEDULE	NUMBER OF EMPLOYEES	SCHEDULE
Administration & Marketing	2	9:00 AM - 5:00 PM	0	NA
Production	3	7:00 AM - 4:00 PM	0	NA
Tours and Tasting (Hospitality)	2	10:00 AM - 5:00 PM	5	10:00 AM - 5:00 PM
TOTAL	7		5	

Source: E&C Winery applicants in consultation with Crane Transportation Group

PHASE 1**ADMINISTRATIVE, MARKETING, HOSPITALITY AND
PRODUCTION EMPLOYEES**

Due to shift schedules, most employees arrive either before or after the AM peak hour (7:30-8:30); assumes five employees leave during the PM peak hour (4:15 – 5:15). Employee trips are conservatively projected at one passenger per vehicle. Assumes no employee inbound and outbound activity during the Saturday PM peak hour (2:15-3:15) when the primary Winery activity is visitor-serving.

PHASE 1 VISITORS

65 on weekdays @ 2.6 per car = 50 two-way vehicle trips per day. Assume 20% or 10 vehicle trips occur during the 4:15 - 5:15 PM peak hour (Standard per car factors developed for wineries by Napa County for projections of weekday and Saturday visitors).

110 on Saturdays @ 2.8 per car = 80 two-way per day vehicle trips. Assumes 20% or 16 vehicle trips occur during the 2:15 -3:15 PM peak hour (Projection of visitor flow by E and C Winery project applicant).

PHASE 1 GRAPE DELIVERY TRUCKS

5 on weekdays; none on Saturdays.

PHASE 1 SUMMARY**TOTAL PROJECT PEAK HOUR HARVEST TRIP GENERATION
DURING AMBIENT PEAK TRAFFIC HOURS**

TRAFFIC ACTIVITY	FRIDAY				SATURDAY	
	AM PEAK HOUR (7:30-8:30)		PM PEAK HOUR (4:15-5:15)		PM PEAK HOUR (3:15-4:15)	
	IN	OUT	IN	OUT	IN	OUT
Employees	1	0	0	5	0	0
Visitors	0	0	2	8	8	8
Grape Trucks	2	2	0	0	0	0
TOTAL	3	2	2	13	8	8

Source: Crane Transportation Group

PHASE 2**PROJECT EMPLOYEES AND WORK SCHEDULES DURING HARVEST**

EMPLOYEE CATEGORY (FULL & PART TIME)	WEEKDAY		SATURDAY	
	NUMBER OF EMPLOYEES	SCHEDULE	NUMBER OF EMPLOYEES	SCHEDULE
Administration & Marketing	3	9:00 AM - 5:00 PM	0	NA
Production	11	7:00 AM - 4:00 PM	0	NA
Tours and Tasting (Hospitality)	3	10:00 AM - 5:00 PM	5	10:00 AM - 5:00 PM
TOTAL	17		5	

Source: E&C Winery applicants in consultation with Crane Transportation Group

PHASE 2**ADMINISTRATIVE, MARKETING, HOSPITALITY AND
PRODUCTION EMPLOYEES**

Due to shift schedules, most employees arrive either before or after the AM peak hour (7:30 - 8:30); assumes about one-half of employees leave during the PM peak hour (4:15 - 5:15). Employee trips are conservatively projected at one passenger per vehicle. Assumes no inbound and outbound employee trips during the Saturday PM peak hour (2:15 - 3:15) when the primary Winery activity is visitor-serving.

PHASE 2 VISITORS

65 on weekdays @ 2.6 per car = 50 two-way vehicle trip per day. Assume 20% or 10 vehicle trips per day occur during the 4:15 - 5:15 PM peak hour.

110 on Saturdays @ 2.8 per car = 80 two-way vehicle trip per day. Assume 20% or 16 vehicles occur during the 2:15 – 3:15 PM peak hour.

PHASE 2 GRAPE DELIVERY TRUCKS

As many as 20 on weekdays; none on Saturdays. Grape deliveries would occur through the night and early morning hours. Assumes grape trucks would mostly avoid peak hour traffic.

PHASE 2 SUMMARY***TOTAL PROJECT PEAK HOUR HARVEST TRIP GENERATION
DURING AMBIENT PEAK TRAFFIC HOURS**

TRAFFIC ACTIVITY	FRIDAY				SATURDAY	
	AM PEAK HOUR (7:30-8:30)		PM PEAK HOUR (4:15-5:15)		PM PEAK HOUR (3:15-4:15)	
	IN	OUT	IN	OUT	IN	OUT
Employees	1	0	0	5	0	0
Visitors	0	0	2	8	8	8
Grape Trucks	2	2	0	0	0	0
TOTAL	3	2	2	13	8	8

* Phase 2 projections are the total from Phase 1 + Phase 2 development.

Source: Crane Transportation Group

B. TRIP DISTRIBUTION

There are three traffic distribution components due to the project: employee trips, visitor trips and grape delivery truck trips. Each component is shown individually, on the figures provided, with distribution determined assuming most trips will come and go to and from the I-80 freeway, and to a lesser extent, to and from the SR-12 highway, rather than via local roads. Employee and visitor trips are projected to arrive and depart in roughly equal volumes to and from the northeast and southwest. Harvest season grape deliveries are assumed to arrive and depart throughout the night and early morning, primarily to and from the south and west on the I-80 freeway.

PHASE 1

Figures 10, 11 and 12 show the weekday AM & PM peak hour and Saturday PM peak hour distribution of project traffic by component.

- **Weekday AM Peak Hour**
Only grape delivery trucks arrive and depart during the weekday AM peak hour with employees also arriving. This time period is too early for visitors.
- **Weekday PM Peak Hour**
Visitors arrive and depart during the weekday PM peak hour (4:15 - 5:15), while employees depart during this hour.
- **Saturday PM Peak Hour**
There are no inbound or outbound employee or grape delivery trips during the Saturday peak hour. Peak hour traffic is visitor traffic, with an estimated 20% arriving and departing during the afternoon ambient traffic peak hour (2:15 – 3:15).

Figures 13, 14 and 15 show the weekday AM & PM peak hour and Saturday PM peak hour distribution of existing plus project Phase 1 volumes.

PHASE 2

Figures 16, 17 and 18 show the Weekday AM & PM peak hour and Saturday PM peak hour distribution of project by component.

- **Weekday AM Peak Hour**
Only grape delivery trucks arrive and depart during the weekday AM peak hour with employees also arriving. This time period is too early for visitors.
- **Weekday PM Peak Hour**
Visitors arrive and depart during the weekday PM peak hour (4:15 - 5:15), while employees depart during this hour.
- **Saturday PM Peak Hour**
There are no inbound or outbound employee or grape delivery trips during the Saturday peak hour. Peak hour traffic is visitor traffic, with an estimated 20% arriving and departing during the afternoon ambient traffic peak hour (2:15 – 3:15).

Figures 19, 20 and 21 show the weekday AM & PM peak hour and Saturday PM peak hour distribution of 2040 plus project Phase 2 volumes.

C. PLANNED ROADWAY IMPROVEMENTS

There are no capacity increasing roadway improvements planned by the County on the local roadway network serving the project site (Mr. Jason Riley, Engineering Services Supervisor, Solano County/Department of Resources Management, written communication, May 14, 2019).

XI. PROJECT IMPACTS

A. EXISTING (2019) "WITH PROJECT PHASE 1" CONDITIONS

Project Phase 1 traffic would not result in any significant Level of Service impacts to analyzed intersections during any Existing harvest weekday or Saturday peak traffic hours. "With Project" conditions would result in all analyzed intersections operating acceptably at LOS C or better. *Less than Significant.*

B. YEAR 2040 CUMULATIVE "WITH PROJECT PHASE 2" CONDITIONS

Project Phase 2 traffic would not result in any significant Level of Service impacts to analyzed intersections during any Year 2040 harvest weekday or Saturday peak traffic hours. "With Project" conditions would result in all analyzed intersections operating acceptably at LOS C or better. *Less than Significant.*

XII. PROJECT ACCESS IMPACTS

A. PROJECT DRIVEWAYS

The Phase 1 two-lane, east-west driveway will connect to Russell Road about 300± feet south of the north property line. It will provide access to the event lawn and garden, and parking lot, for employees and visitors. The Phase 2 two-lane, east-west driveway will be located about 300± feet south of the Phase 1 driveway, and will provide access to the Phase 1 parking lot, as well as the receiving area and fermentation canopy. The Phase 2 driveway will be extended further west during Phase 2 to provide access to the bottle building, truck dock, outdoor fermentation area and Phase 2 parking lot. See **Figure 3, Site Plan.**

B. SIGHT LINE ADEQUACY AT PROJECT DRIVEWAYS

1. PROJECT DRIVEWAY CONNECTIONS TO RUSSELL ROAD

Russell Road is level and straight at the proposed project entrances. There is no posted speed limit. Observed speeds on Russell Road at the project entrance ranged from 20 to 40 mph in both directions. Sight lines for drivers turning from the Russell Road driveway are greater than 1,000 feet to the north and south.

2. SIGHT LINE CRITERIA

Corner sight line criteria at a private driveway connection to a public road are based upon minimum stopping sight distance. Shown below are Caltrans minimum stopping sight distance Highway Design Manual criteria (Caltrans *Highway Design Manual*, 2014).

SPEED (MPH)	MINIMUM STOPPING SIGHT DISTANCE
40	300
45	360
50	430
55	500
60	580

Based upon available sight lines and observed vehicle speeds along Russell Road at the proposed project entrances, sight lines are acceptable at both locations. ***Less than Significant.***

XIII. PARKING DEMAND

The Phase 1 parking lot, shown on the site plan just south of the event lawn and garden, will be constructed to more than accommodate the projected maximum 30 spaces that would be required for employees and visitors. Phase 2 would expand the Phase 1 space, and adding parking spaces and a scale house along the south side of the parking lot. During periods of peak events the applicants anticipate provision of sufficient on-site, overflow parking to accommodate all employee and visitor parking demand. ***Less than Significant.***

XIV. VISITOR SERVING USES AND MARKETING EVENTS

Visitor serving activities during Phase 1 will be held in the tasting room, barrel room, event lawn and garden spaces. By Phase 2 the event areas may be expanded to include conversion of the Phase 1 Winery Building into a hospitality center. Promotional events (with over 100 attendees) and Special Events including weddings will not be scheduled concurrently.

1. Tours, tastings (including barrel tastings) and retail sales open to the public are planned daily in the tasting room from 9:00 AM to 5:00 PM. Peak visitor numbers are expected to be up to 75 on a weekday and up to 110 people per day on a weekend. However, these do not reflect “typical” days.
2. Food and wine pairings will be offered daily by reservation for groups of up to 25 attendees. Food service will be provided by caterers and food trucks. There will be minimal food preparation onsite until a commercial kitchen is developed.
3. Promotional events
 - Wine club and marketing events will take place in the tasting room, outdoor garden, and barrel building. The tasting room will accommodate 350 persons at any given time. The Barrel Building and the Event Lawn will accommodate up to 450 persons.
 - Winemaker dinners will take place in the barrel building. The barrel building will accommodate up to 450 persons.
4. Up to 41 Special Events /weddings are planned per year with a maximum of 300 attendees to take place at the event lawn, garden, and barrel building.
5. Amplified music would occur within enclosed buildings or outdoors in the event lawn during events. Outdoor amplified music would conclude by 10:00 PM.

SUMMARY OF VISITOR SERVING USES AND MARKETING EVENTS

Events	Tastings	Wine and food pairings	Special Events/ Weddings	Wine promotional (e.g. Wine Club, Winemaker dinners)
Frequency	Daily	Daily	Up to 41 per year	Frequency not limited by Solano County; assume 50 for environmental review
Attendees	Up to 75 total visitors on any weekday and up to 110 on a weekend day	Up to 25 persons per day	Up to 300 attendees	Up to 450 attendees.
Location	Any of the identified hospitality areas including the Event Lawn, garden, tasting room, and barrel building.			

Source: E&C Winery applicants

XV. CONCLUSIONS

The project will result in no significant off-site circulation system operational impacts to the analyzed roadway network. Sight lines at the proposed project driveway connections to Russell Road are acceptable and meet Caltrans stopping sight distance criteria. The site has sufficient acreage to accommodate overflow parking for maximum event days.

This Report is intended for presentation and use in its entirety, together with all of its supporting exhibits, schedules, and appendices. Crane Transportation Group will have no liability for any use of the Report other than in its entirety, such as providing an excerpt to a third party or quoting a portion of the Report. If you provide a portion of the Report to a third party, you agree to hold CTG harmless against any liability to such third parties based upon their use of or reliance upon a less than complete version of the Report.

TABLES

1. Signalized Intersection LOS Criteria
2. Unsignalized Intersection LOS Criteria
3. Existing Intersection Level of Service Year 2019 Harvest
4. Intersection Level of Service Year 2040

TABLE 1**SIGNALIZED INTERSECTION LOS CRITERIA**

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

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

TABLE 2**UNSIGNALIZED INTERSECTION LOS CRITERIA**

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

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

TABLE 3

**INTERSECTION LEVEL OF SERVICE
YEAR 2019 HARVEST**

INTERSECTION	WEEKDAY				SATURDAY	
	AM PEAK HOUR		PM PEAK HOUR		PM PEAK HOUR	
	Existing	Existing + Project	Existing	Existing + Project	Existing	Existing + Project
Rockville Rd/Russell Rd (Russell Rd stop-sign controlled approach)	B-12.3 ⁽¹⁾	B-12.3	B-11.6	B-11.8	A-9.4/ B-12.0 ⁽⁴⁾	A-9.5/ B-12.4
Rockville Rd/Abernathy Rd (Traffic Circle)	A-7.0 ⁽²⁾	A-7.0	A-8.6	A-8.7	A-4.7	A-4.8
Abernathy Rd/Suisun Pkwy/Chadbourne Rd (Signal)	C-20.9 ⁽³⁾	C-21.0	C-22.4	C-22.6	C-21.4	C-21.9
Chadbourne Rd/WB 80 Ramps (Signal)	B-17.2 ⁽³⁾	B-17.2	B-13.0	B-13.0	B-12.9	B-16.6
Chadbourne Rd/EB 80 Ramps (Signal)	A-8.2 ⁽³⁾	A-8.2	A-7.8	A-7.9	A-8.5	A-8.6
Chadbourne Rd/WB 12 Ramps (Signal)	B-14.5 ⁽³⁾	B-14.5	A-6.3	A-6.3	B-13.6	B-13.6
Chadbourne Rd/EB 12 Ramps (Signal)	B-11.1 ⁽³⁾	B-11.1	B-18.7	B-18.8	B-12.1	B-12.2

⁽¹⁾ Unsignalized Level of Service – control delay in seconds: Northbound stop-sign controlled approach

⁽²⁾ Traffic Circle Level of Service – average intersection delay in seconds

⁽³⁾ Signalized Level of Service – control delay in seconds

⁽⁴⁾ Unsignalized Level of Service – control delay in seconds: Northbound stop-sign controlled approach/Southbound approach

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

Source: Crane Transportation Group

TABLE 4

**INTERSECTION LEVEL OF SERVICE
YEAR 2040**

INTERSECTION	WEEKDAY				SATURDAY	
	AM PEAK HOUR		PM PEAK HOUR		PM PEAK HOUR	
	2040	2040+ Project	2040	2040 + Project	2040	2040 + Project
Rockville Rd/Russell Rd (Russell Rd stop-sign controlled approach)	B-13.8 ⁽¹⁾	B-13.2	B-12.6	B-12.9	A-9.7/ B-13.0 ⁽⁴⁾	A-9.7/ B-13.5
Rockville Rd/Abernathy Rd (Traffic Circle)	A-8.5 ⁽²⁾	A-8.6	B-12.1	B-12.3	A-5.2	A-5.4
Abernathy Rd/Suisun Pkwy/Chadbourne Rd (Signal)	C-22.3 ⁽³⁾	C-22.4	C-26.6	C-27.0	C-21.8	C-21.8
Chadbourne Rd/WB 80 Ramps (Signal)	B-19.8 ⁽³⁾	B-19.8	B-13.3	B-13.3	B-15.7	B-15.7
Chadbourne Rd/EB 80 Ramps (Signal)	A-8.6 ⁽³⁾	A-8.7	A-8.8	A-8.9	A-8.8	A-8.9
Chadbourne Rd/WB 12 Ramps (Signal)	B-15.7 ⁽³⁾	B-15.7	A-6.2	A-6.2	B-13.7	B-13.7
Chadbourne Rd/EB 12 Ramps (Signal)	B-11.4 ⁽³⁾	B-11.4	C-20.5	C-20.5	B-12.9	B-13.0

⁽¹⁾ Unsignalized Level of Service – control delay in seconds: Northbound stop-sign controlled approach

⁽²⁾ Traffic Circle Level of Service – average intersection delay in seconds

⁽³⁾ Signalized Level of Service – control delay in seconds

⁽⁴⁾ Unsignalized Level of Service – control delay in seconds: Northbound stop-sign controlled approach/Southbound approach

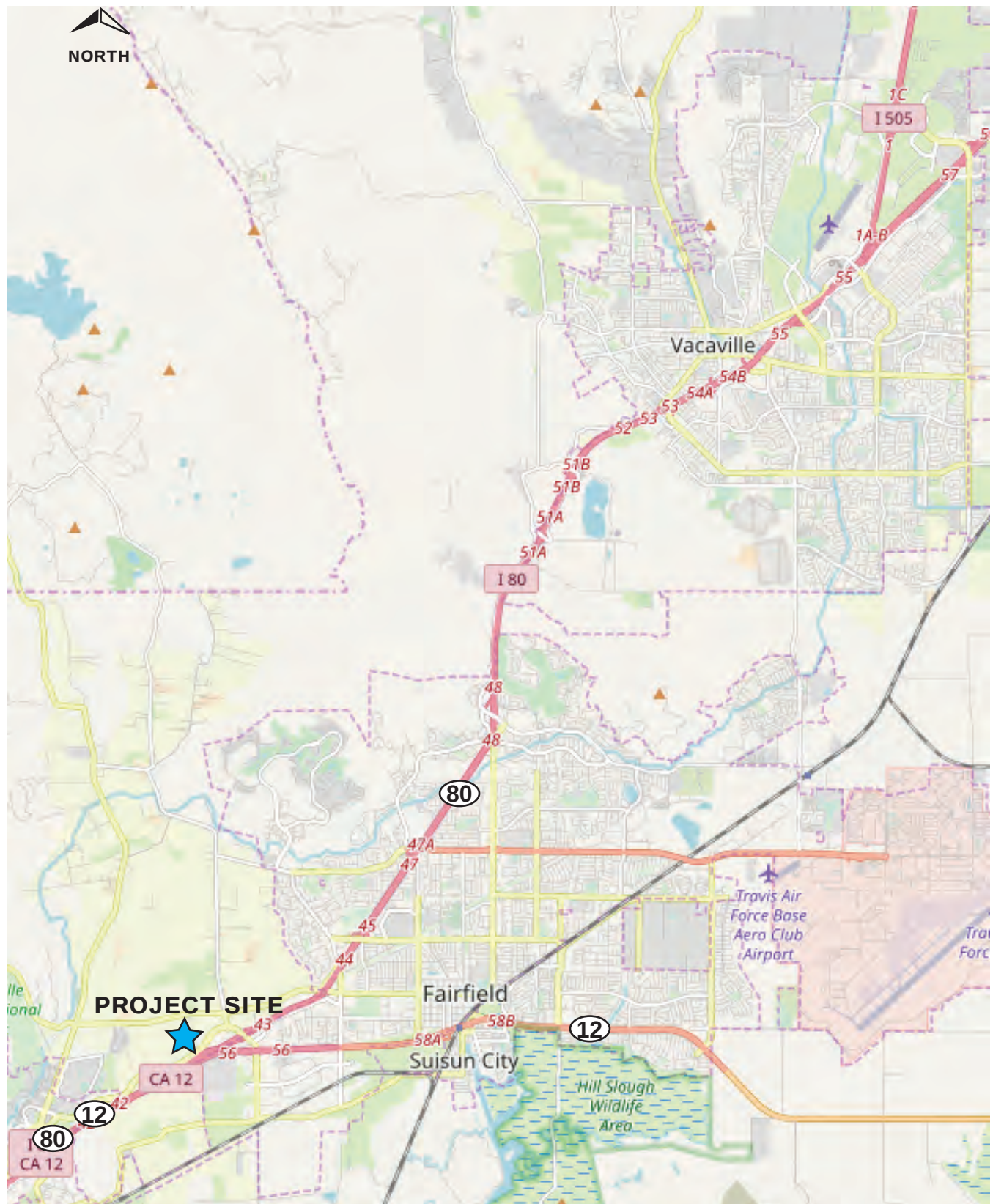
Source: 2017 Highway Capacity Manual, 6th Edition (Transportation Research Board)

Source: Crane Transportation Group

FIGURES

1. Regional Area Map
2. Existing Lane Geometrics & Intersection Control
3. Project Site Plan
4. Existing 2019 Weekday (Without Project) AM Peak Hour Volumes (7:30-8:30AM)
5. Existing 2019 Weekday (Without Project) PM Peak Hour Volumes (4:15-5:15PM)
6. Existing 2019 Saturday (Without Project) PM Peak Hour Volumes (2:15-3:15PM)
7. Year 2040 Weekday (Without Project) AM Peak Hour Volumes (7:30-8:30AM)
8. Year 2040 Weekday (Without Project) PM Peak Hour Volumes (4:15-5:15PM)
9. Year 2040 Saturday (Without Project) PM Peak Hour Volumes (2:15-3:15PM)
10. Weekday AM Peak Hour Phase 1 Project Increment (7:30-8:30 AM)
11. Weekday PM Peak Hour Phase 1 Project Increment (4:15-5:15 PM)
12. Saturday PM Peak Hour Phase 1 Project Increment (2:15-3:15 PM)
13. Existing 2019 (With Project) Phase 1 Weekday AM Peak Hour Volumes (7:30-8:30AM)
14. Existing 2019 (With Project) Phase 1 Weekday PM Peak Hour Volumes (4:15-5:15 PM)
15. Existing 2019 (With Project) Phase 1 Saturday PM Peak Hour Volumes (2:15-3:15PM)
16. Weekday AM Peak Hour Phase 2 Project Increment (7:30-8:30 AM)
17. Weekday PM Peak Hour Phase 2 Project Increment (4:15-5:15 PM)
18. Saturday PM Peak Hour Phase 2 Project Increment (2:15-3:15 PM)
19. Year 2040 (With Project) Phase 2 Weekday AM Peak Hour Volumes (7:30-8:30AM)
20. Year 2040 (With Project) Phase 2 Weekday PM Peak Hour Volumes (4:15-5:15 PM)
21. Year 2040 (With Project) Phase 2 Saturday PM Peak Hour Volumes (2:15-3:15 PM)

Not To Scale

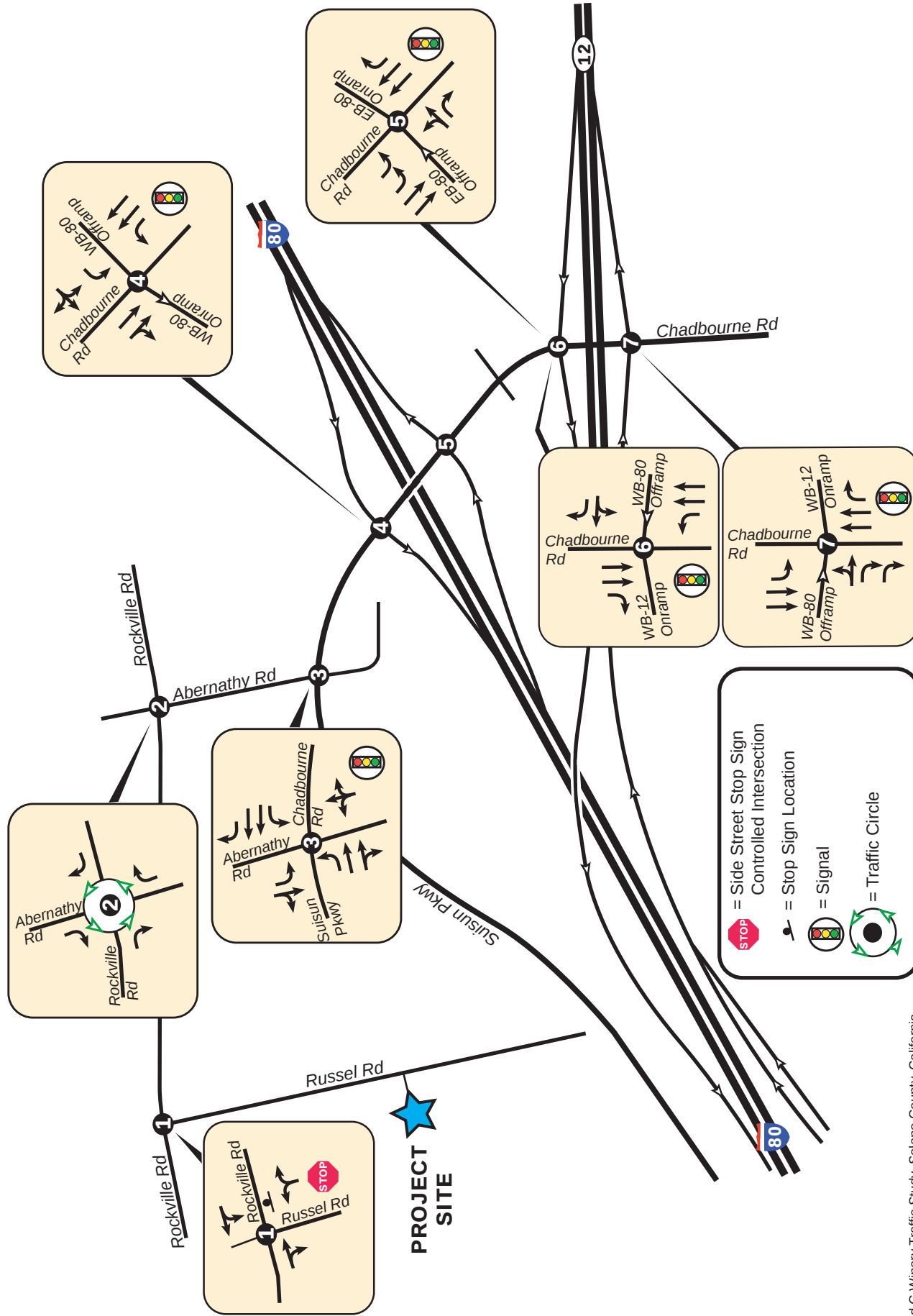


E and C Winery Traffic Study, Solano County, California

Figure 1
Regional Area Map



CRANE TRANSPORTATION GROUP



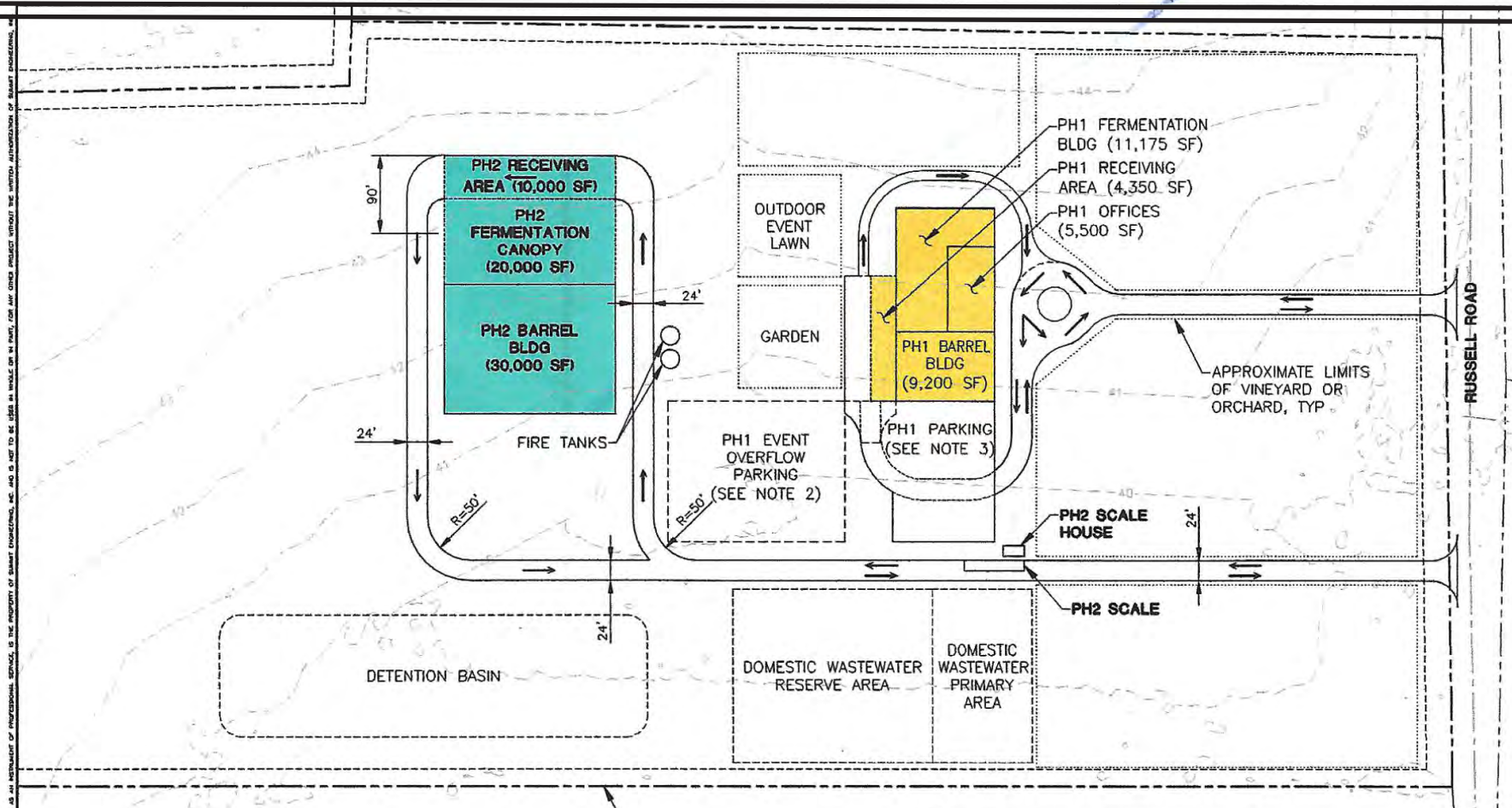
E and C Winery Traffic Study, Solano County, California

Figure 2
Existing Lane Geometrics
and Intersection Control



Project Phase 2 Site Plan

Figure 3



NOTES:

- SEE SHEET UP2.1 FOR PARKING PLAN & PROPOSED PARKING TOTALS FOR PHASE 2.
- PH1 EVENT OVERFLOW PARKING SHALL BE GRAVEL ALL-WEATHER SURFACING AND IS SHOWN SIZED AT 33,900 SF TO ACCOMMODATE 450 PEOPLE.
- NO ADDITIONAL PARKING IS PROPOSED IN PHASE 2, ALL PHASE 1 PARKING WILL SERVE PHASE 2.

PHASE 2 - PARKING DATA

LAND USE	PARKING REQUIREMENT	ANTICIPATED	NUMBER OF PARKING STALLS REQUIRED
EVENT	MAX CAPACITY 450 PEOPLE AT AN EVENT PER COUNTY PARKING CODE SECTION 28.94.8	400 PEOPLE	113 (SEE NOTE 2)
PRODUCTION (INDUSTRIAL)	1 PARKING STALL PER 2 EMPLOYEES PER COUNTY PARKING CODE 28.94.9	17 EMPLOYEES	9
TASTING (RETAIL)	1 PARKING STALL PER 200 SF OF RETAIL SPACE PER COUNTY PARKING CODE 28.94.10	5,000 SF	25

TOTAL REQUIRED PARKING = 189 STALLS
(SEE NOTE 3)

SUMMIT
Summit Engineering, Inc.
433 Austin Blvd, Suite 200 • Santa Rosa, CA 95403
707-527-0770 • www.summit-e.com

E&C WINERY
INTERSECTION OF ROCKVILLE & RUSSELL RD
ROCKVILLE, CA
APN 027-281-280 & 280

USE PERMIT

PHASE 2

2017-09-23
FOR UP SUBMITTAL
2020-11-09
UP RESUBMITTAL
2021-01-28
SF HEARING
DATE: 2018-11-12
JOB NO: 2017071
SCALE: AS SHOWN
DRAWN: TAF
CHECKED: JLG
SHEET

UP3

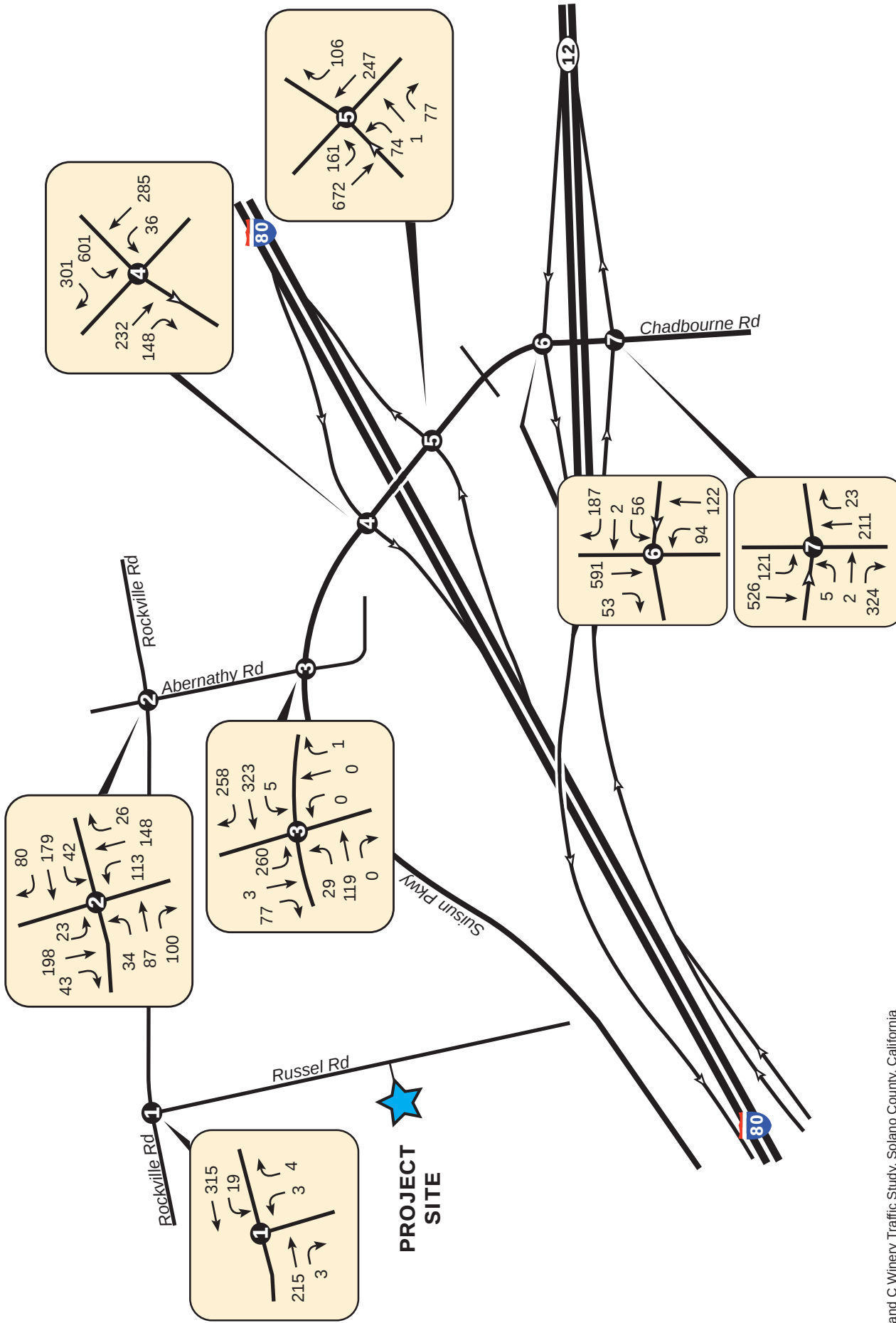


Figure 4

Existing 2019 Weekday (without Project)
AM Peak Hour Volumes (7:30-8:30 AM)

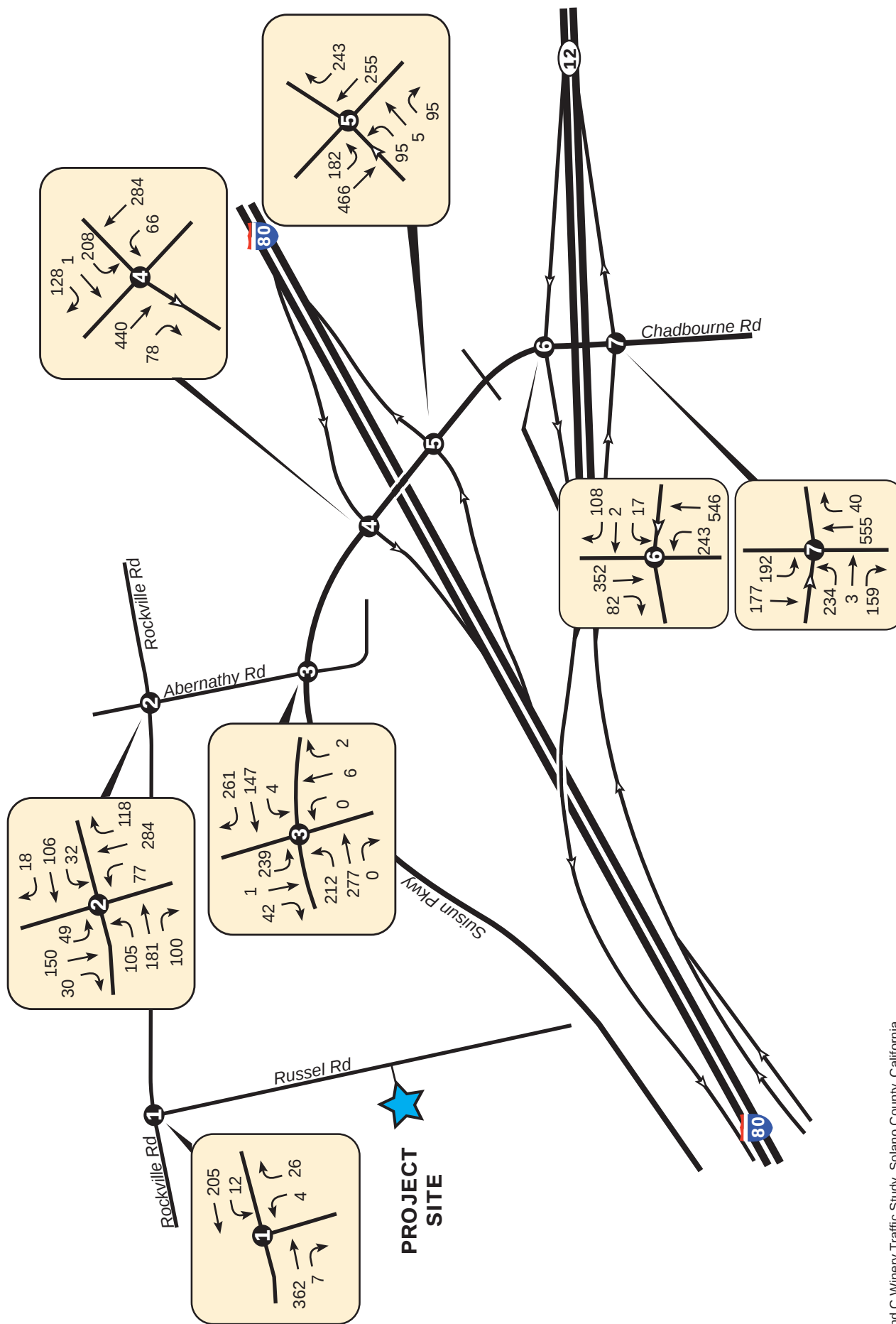


Figure 5
Existing 2019 Weekday (without Project)
PM Peak Hour Volumes (4:15-5:15 PM)

E and C Winery Traffic Study, Solano County, California

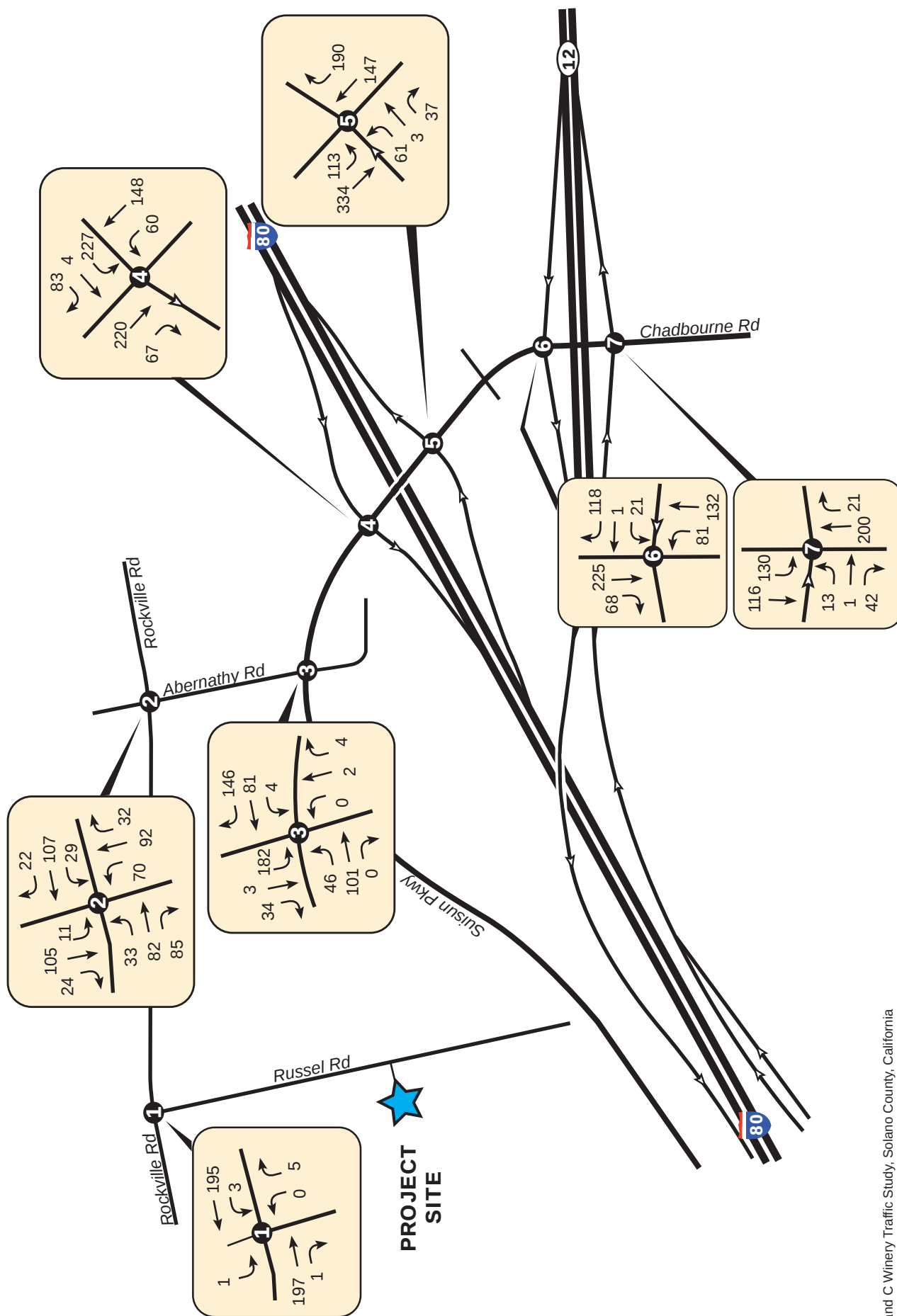
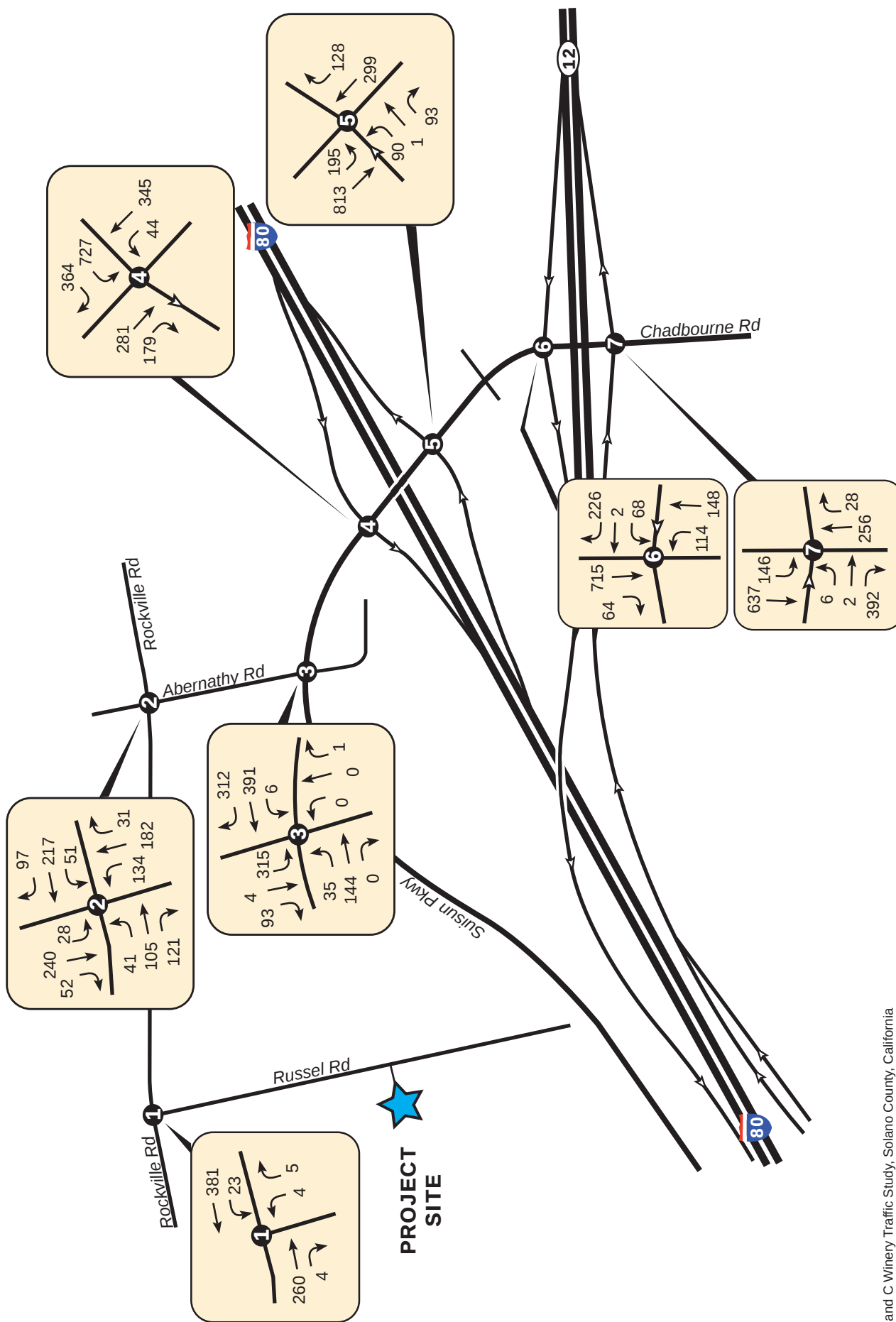


Figure 6
Existing 2019 Saturday (without Project)
PM Peak Hour Volumes (2:15-3:15 PM)



E and C Winery Traffic Study, Solano County, California

Figure 7
Year 2040 Weekday (without Project)
AM Peak Hour Volumes (7:30-8:30 AM)

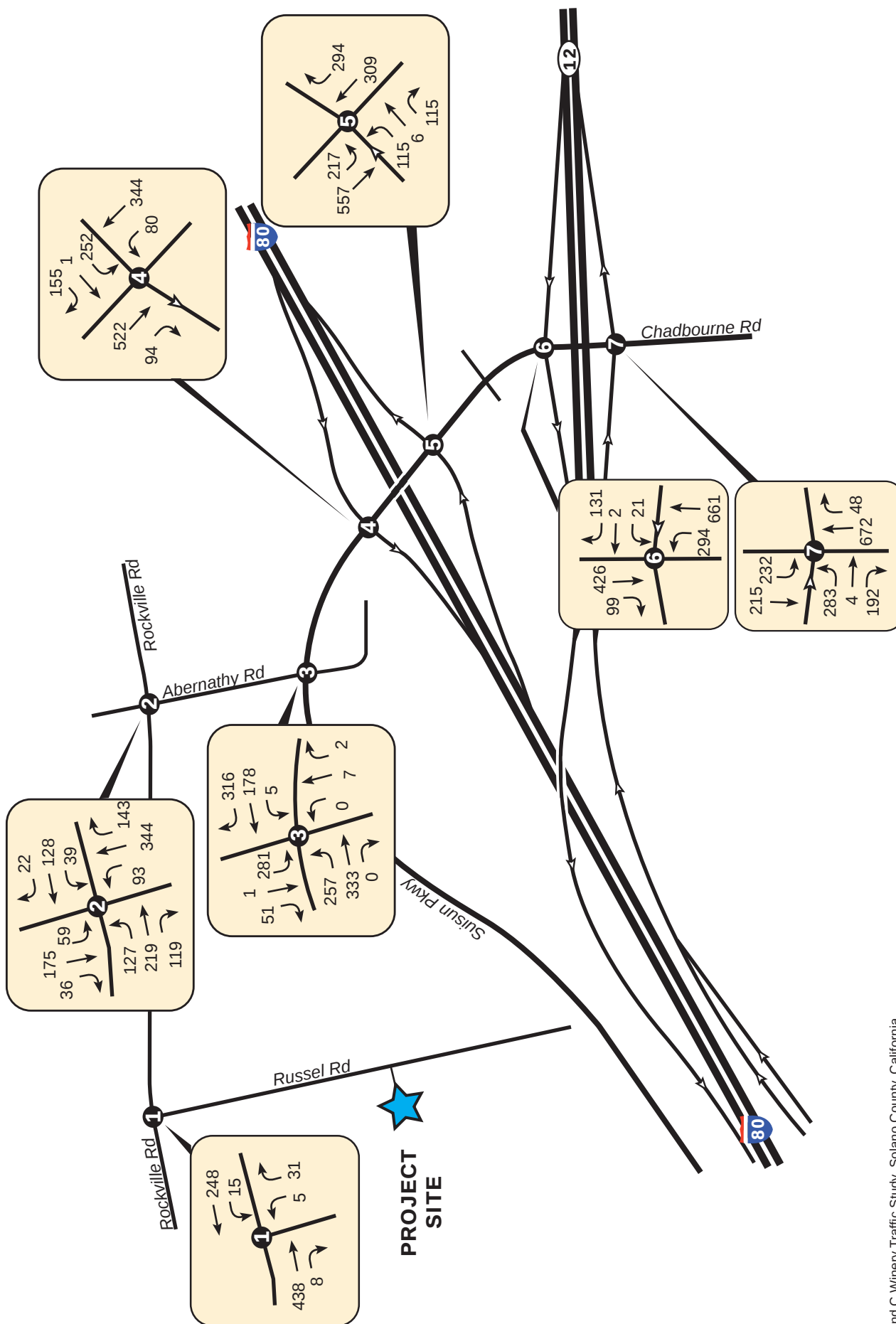


Figure 8

Year 2040 Weekday (without Project)
PM Peak Hour Volumes (4:15-5:15 PM)

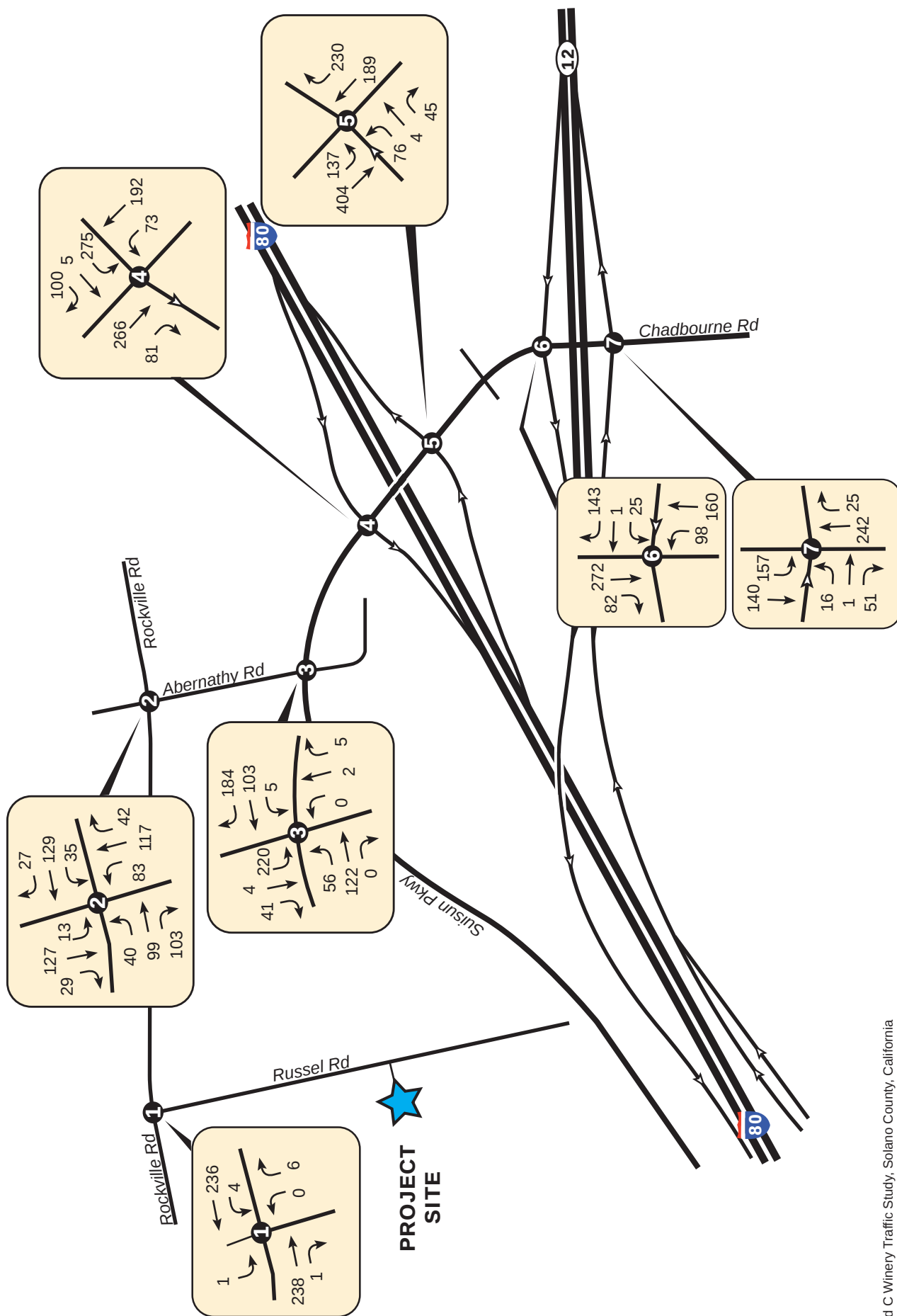
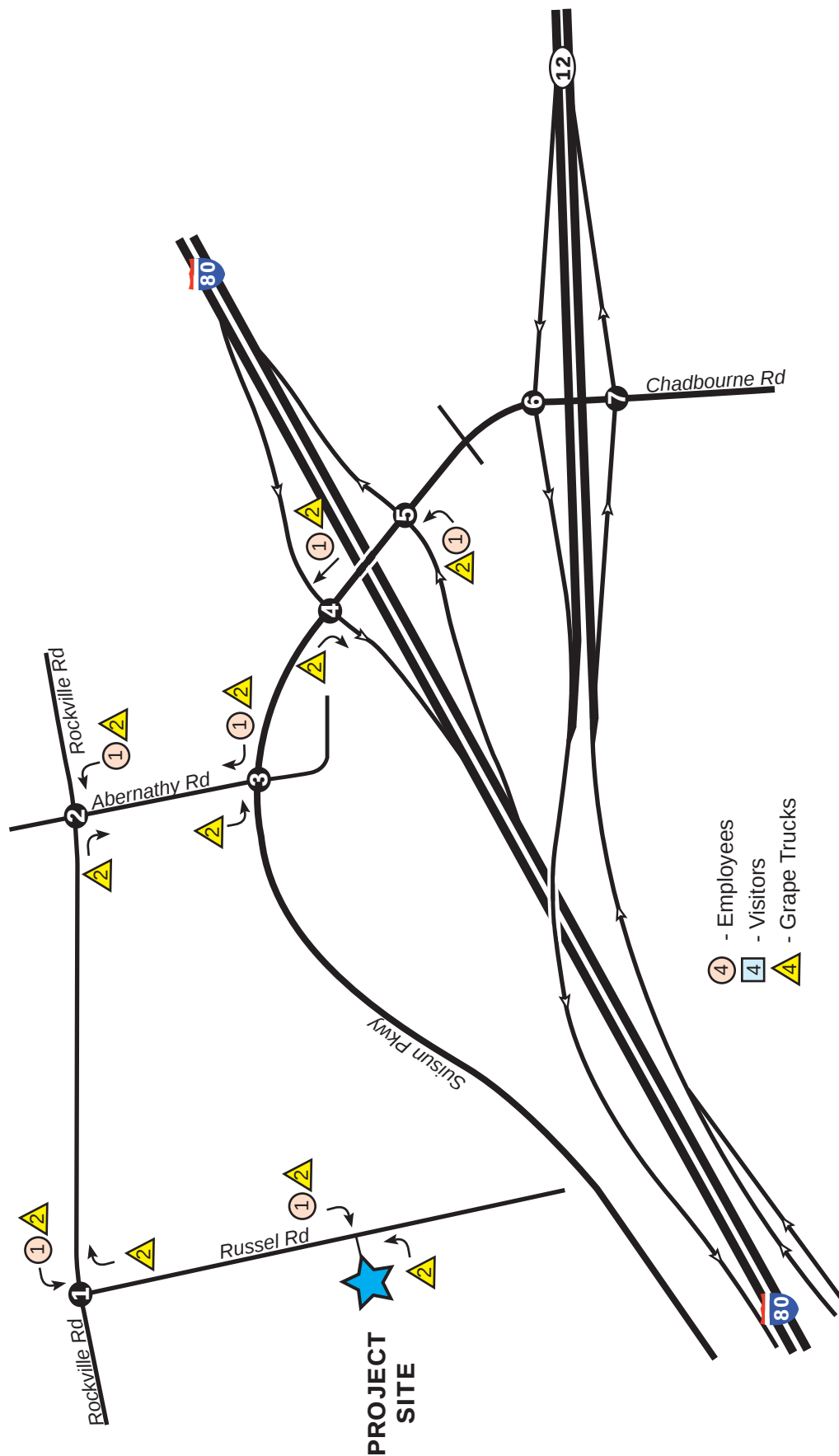


Figure 9

Year 2040 Saturday (without Project)
PM Peak Hour Volumes (2:15-3:15 PM)



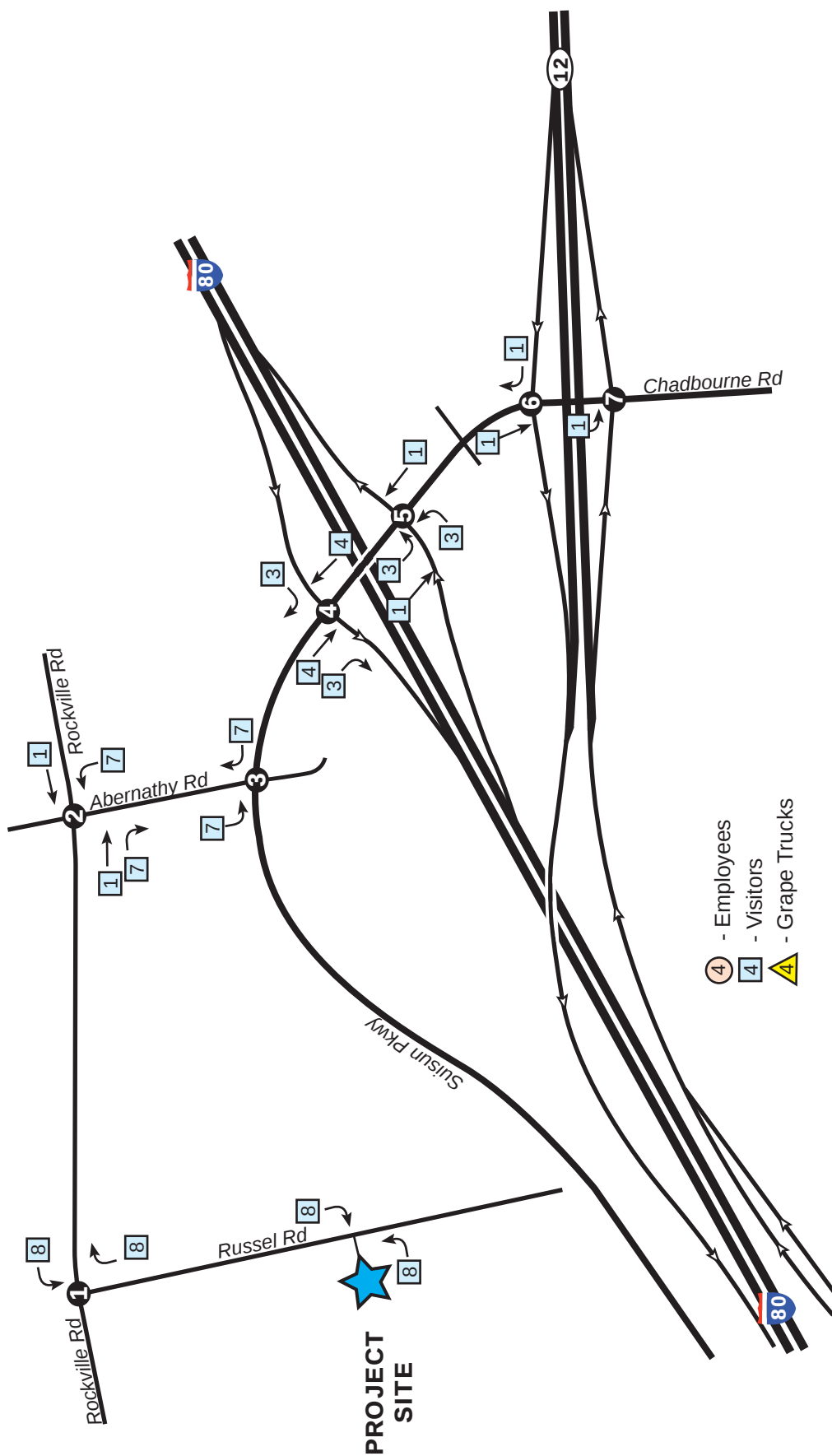
Note - No visitors enter during the AM Peak Hour
 1 employee enters during the AM Peak Hour
 2 grape trucks enter and 2 grape trucks exit during the AM Peak Hour

E and C Winery Traffic Study, Solano County, California

Figure 10
Weekday AM Peak Hour
Phase 1 Project Increment (7:30-8:30 AM)



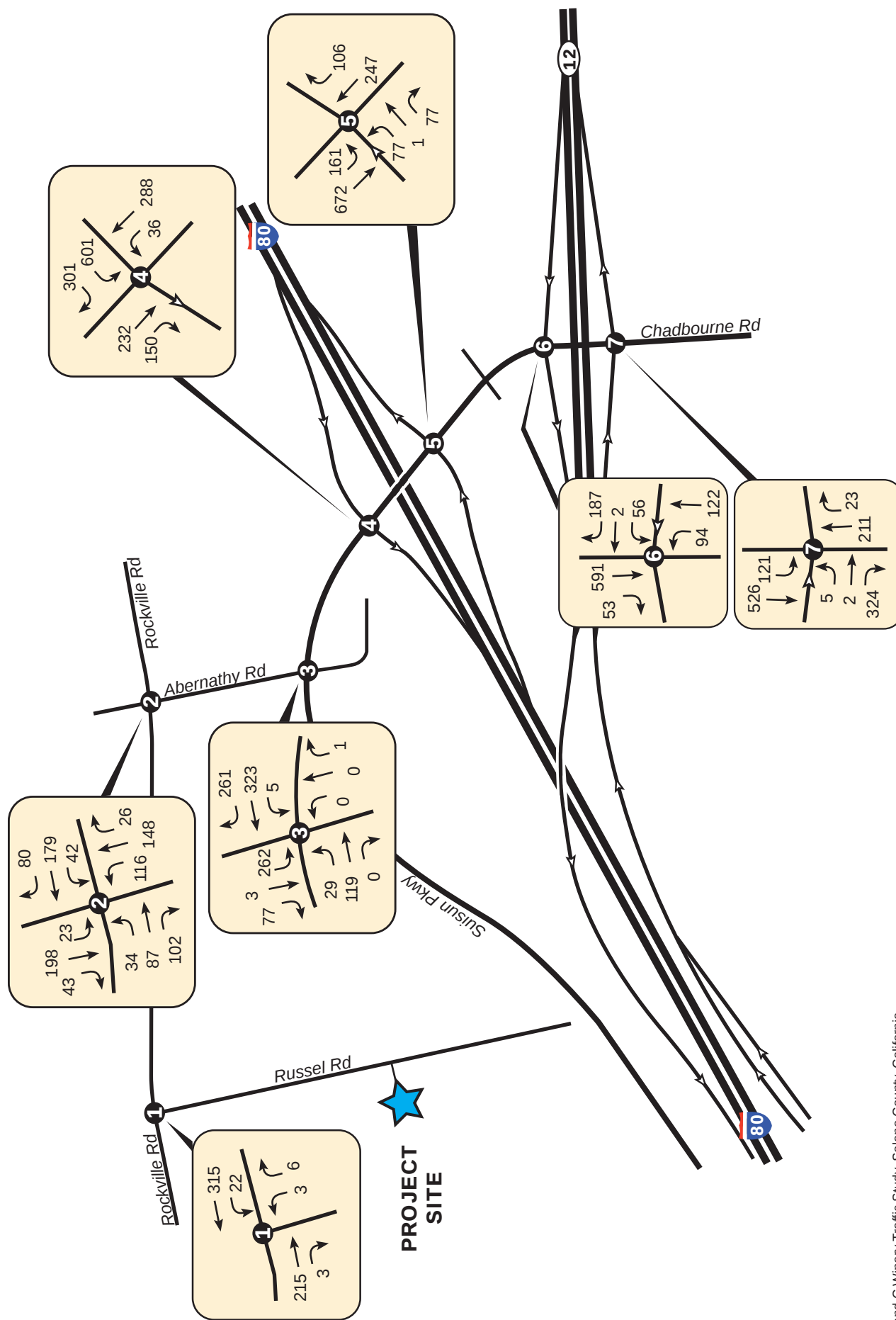
Note - 5 employees depart during the PM Peak Hour
3 visitors enter and 13 visitors exit during the PM Peak Hour



Note - No employee trips during the Saturday Peak Hour
 21 visitors enter and 21 visitors exit during the PM Peak Hour
 No grape trucks during the Saturday Peak Hour

E and C Winery Traffic Study, Solano County, California

Figure 12
Saturday PM Peak Hour
Phase 1 Project Increment (2:15-3:15 PM)



E and C Winery Traffic Study, Solano County, California

Figure 13
Existing 2019 with Project Phase 1
Weekday AM Peak Hour Volumes (7:30-8:30 AM)

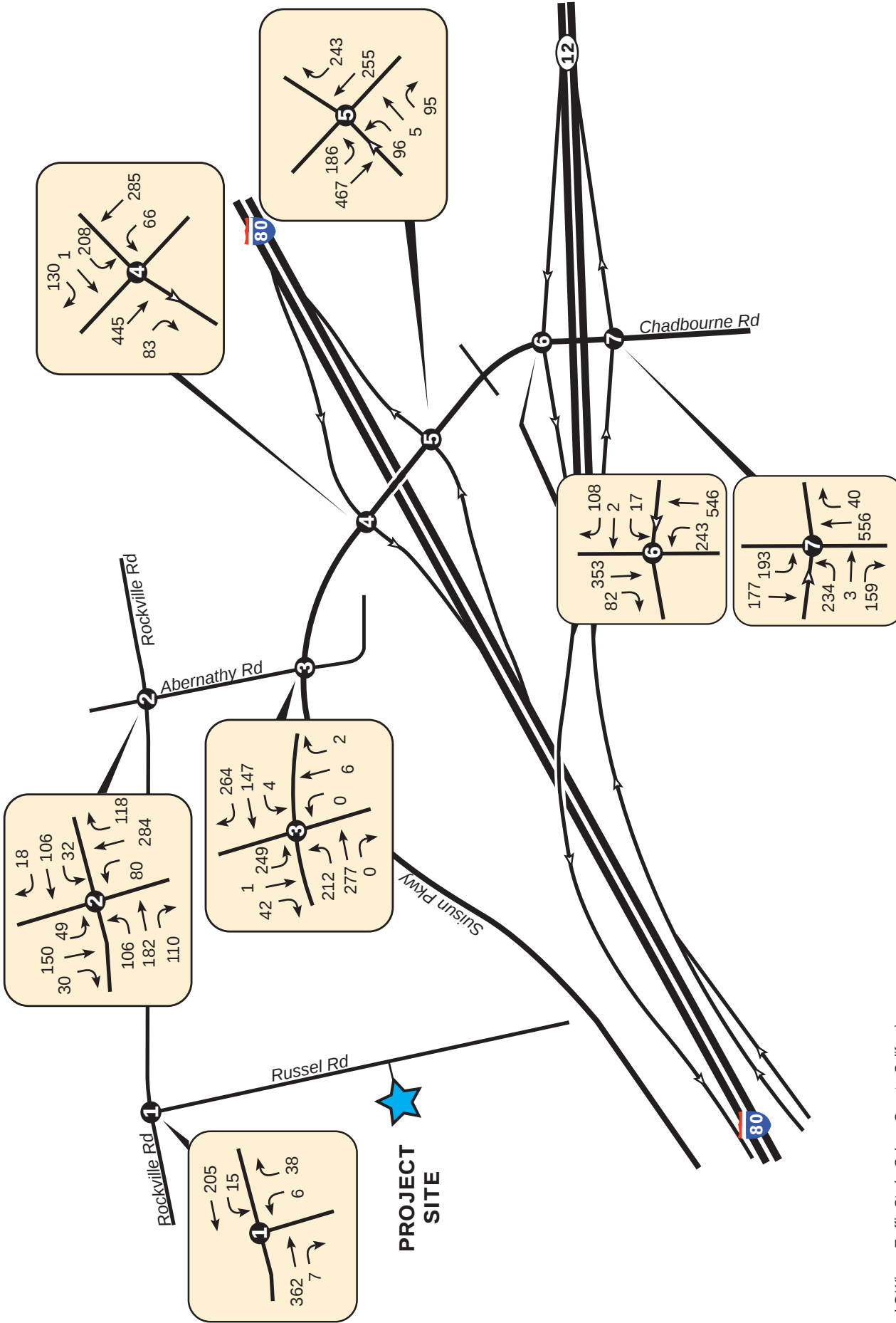


Figure 14

Existing 2019 with Project Phase 1
Weekday PM Peak Hour Volumes (4:15-5:15 PM)

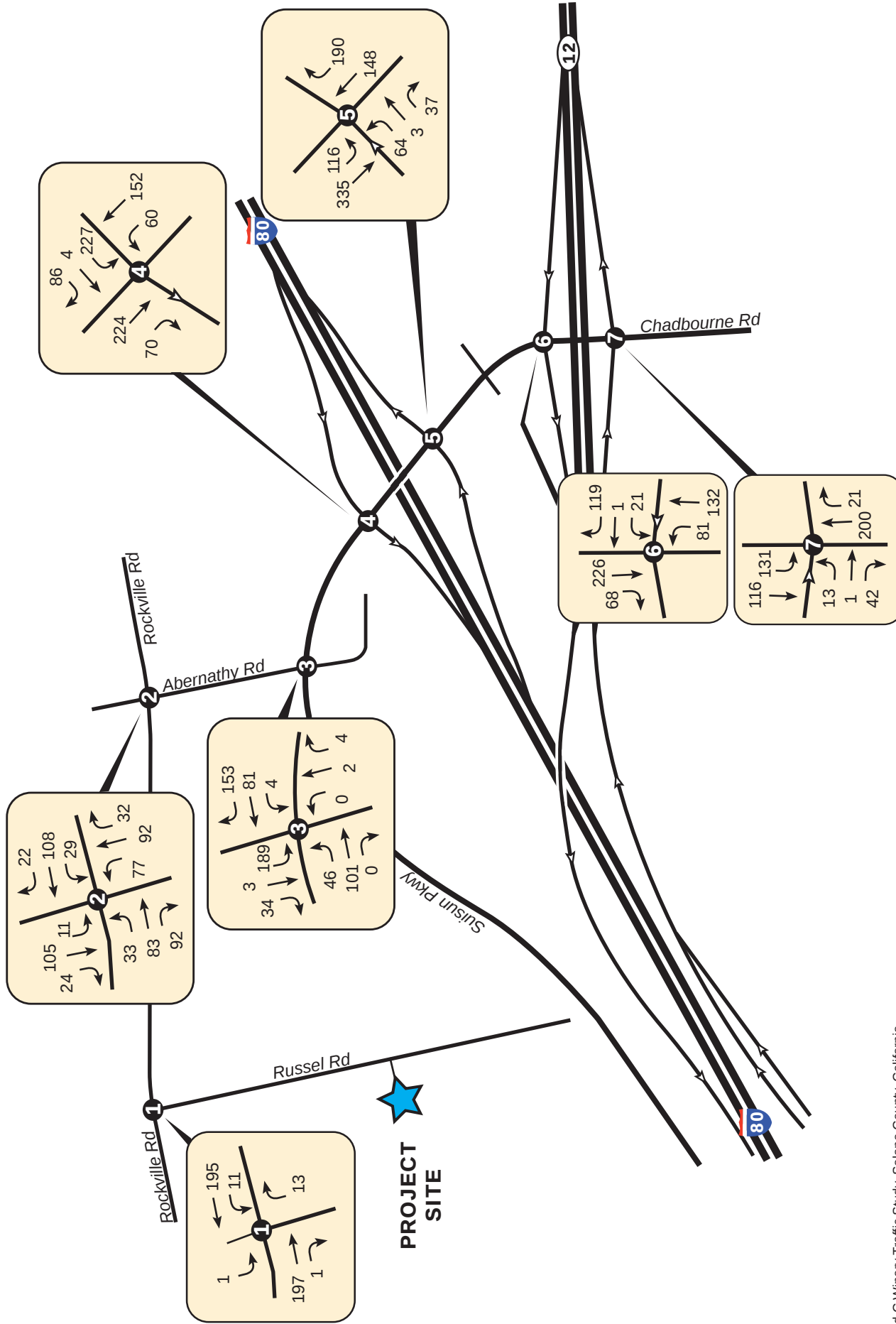
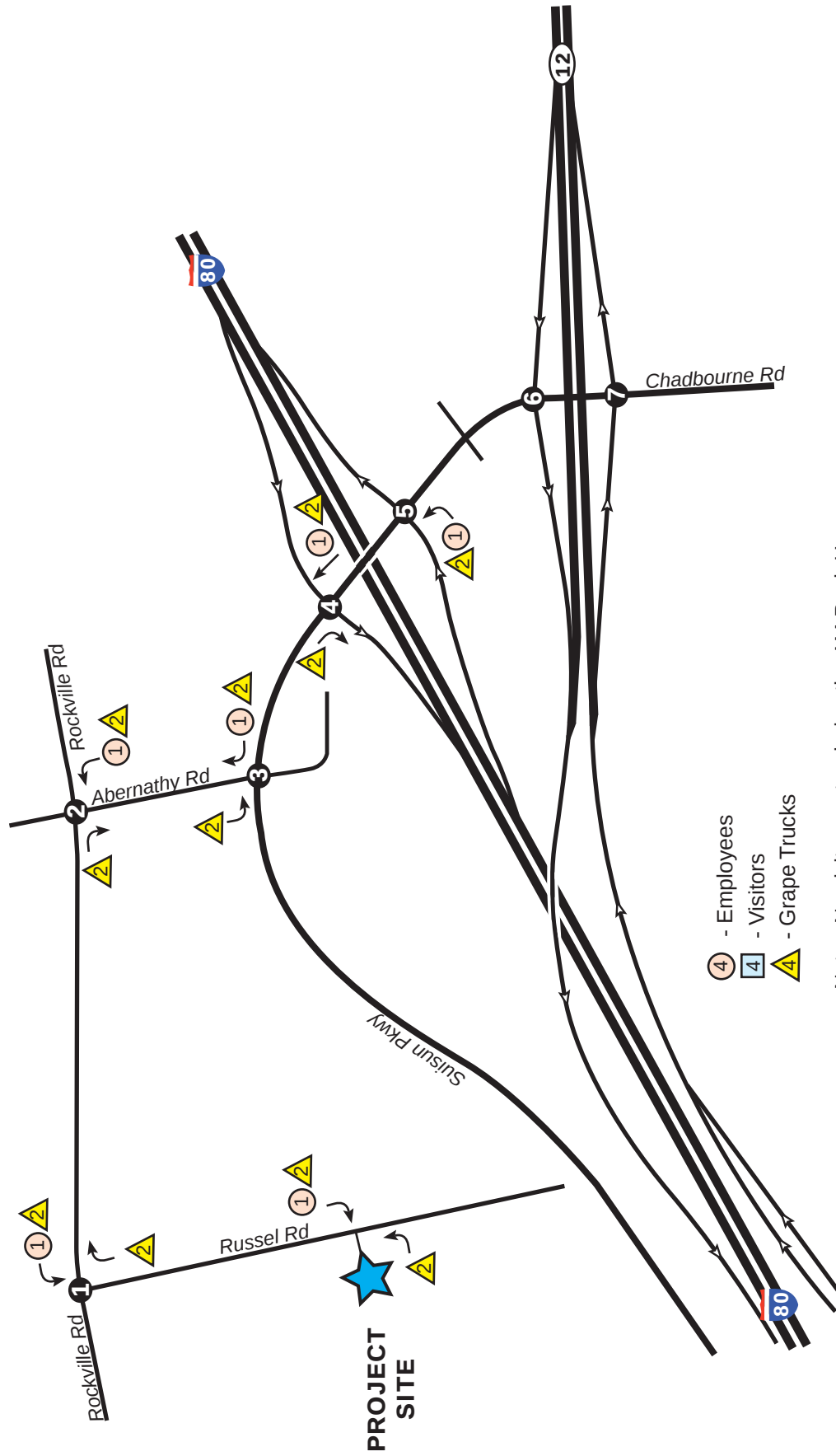
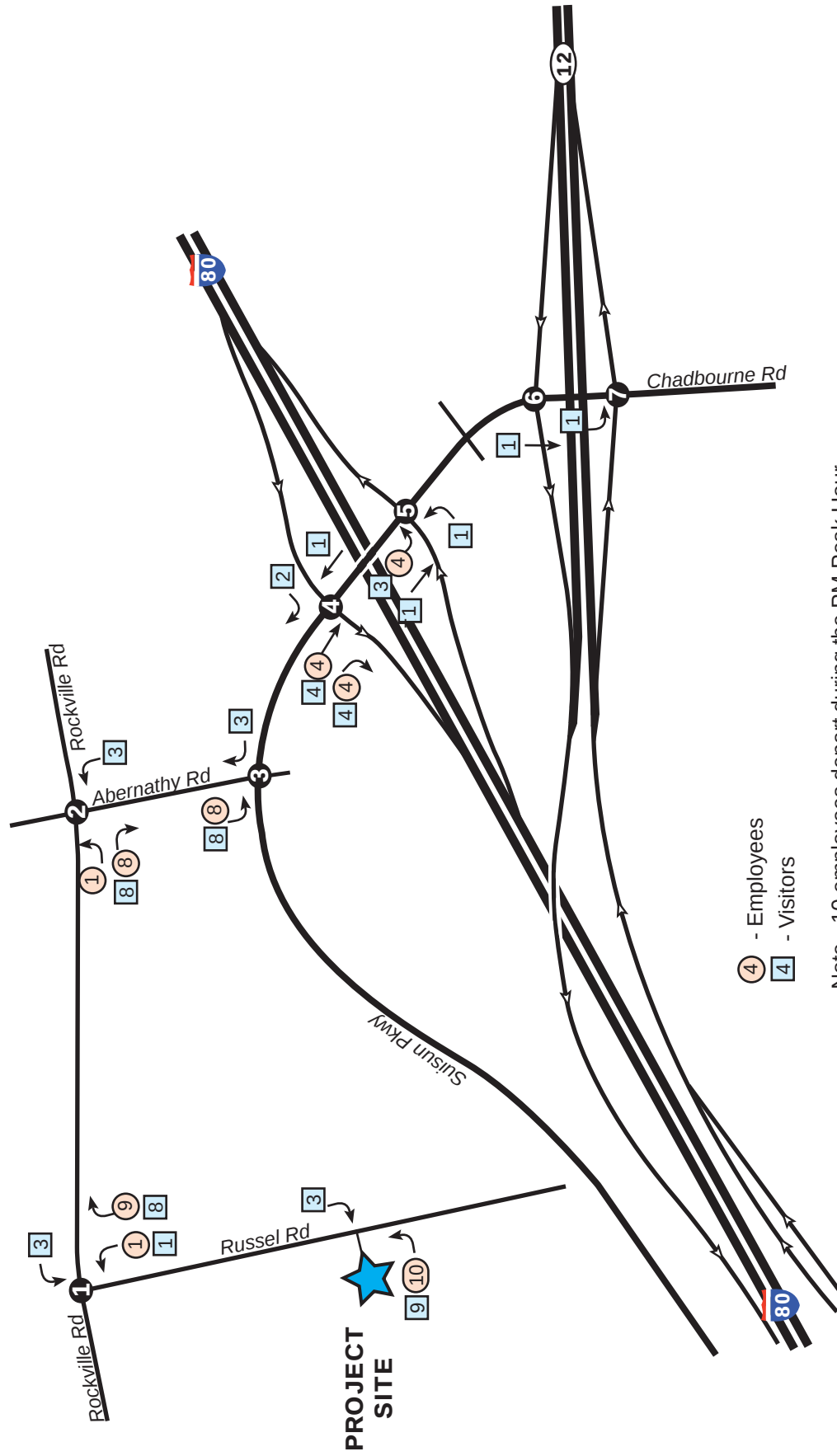


Figure 15
Existing 2019 with Project Phase 1
Saturday PM Peak Hour Volumes (2:15-3:15 PM)



E and C Winery Traffic Study, Solano County, California

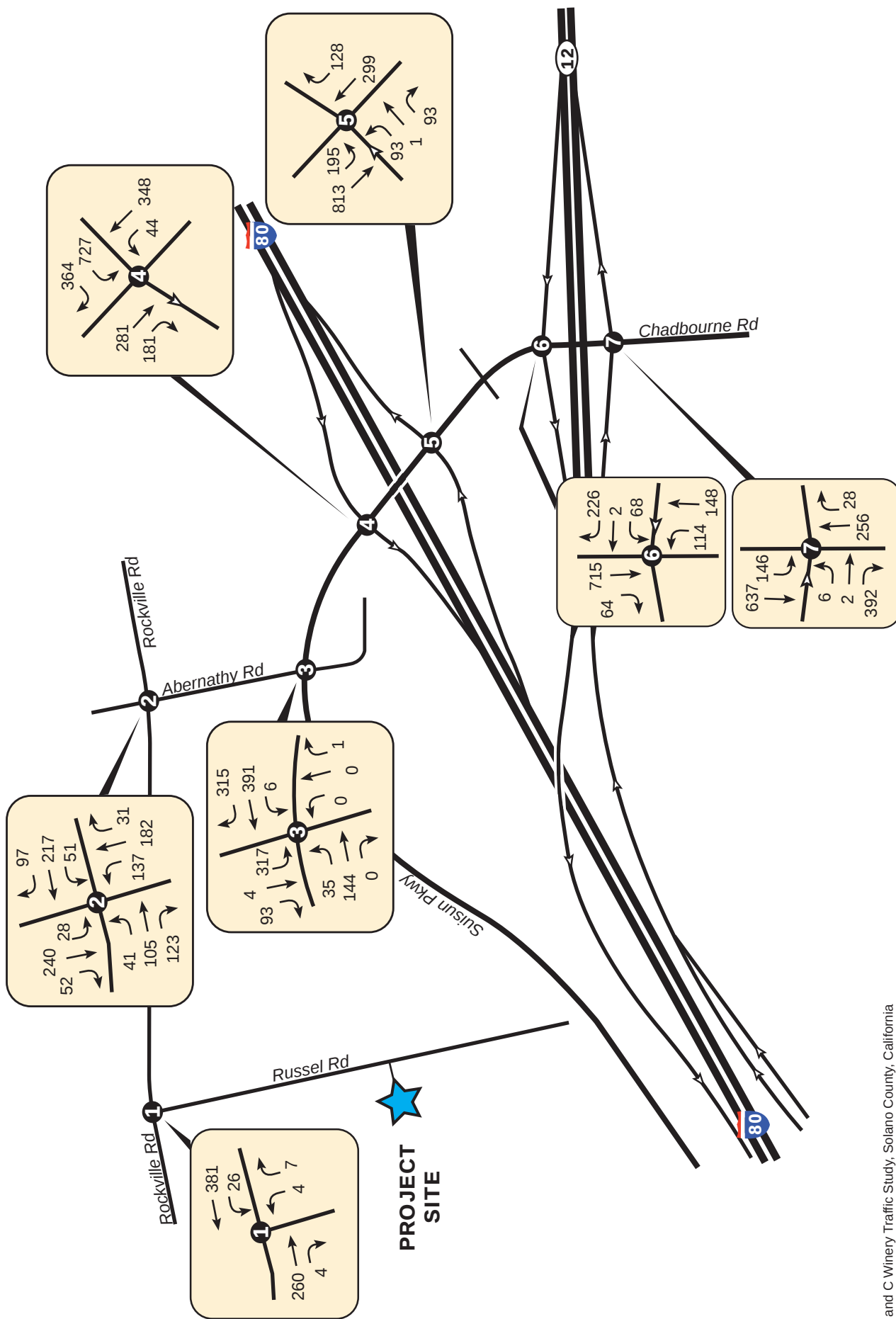
Figure 16
Weekday AM Peak Hour
Phase 2 Project Increment (7:30-8:30 AM)



E and C Winery Traffic Study, Solano County, California

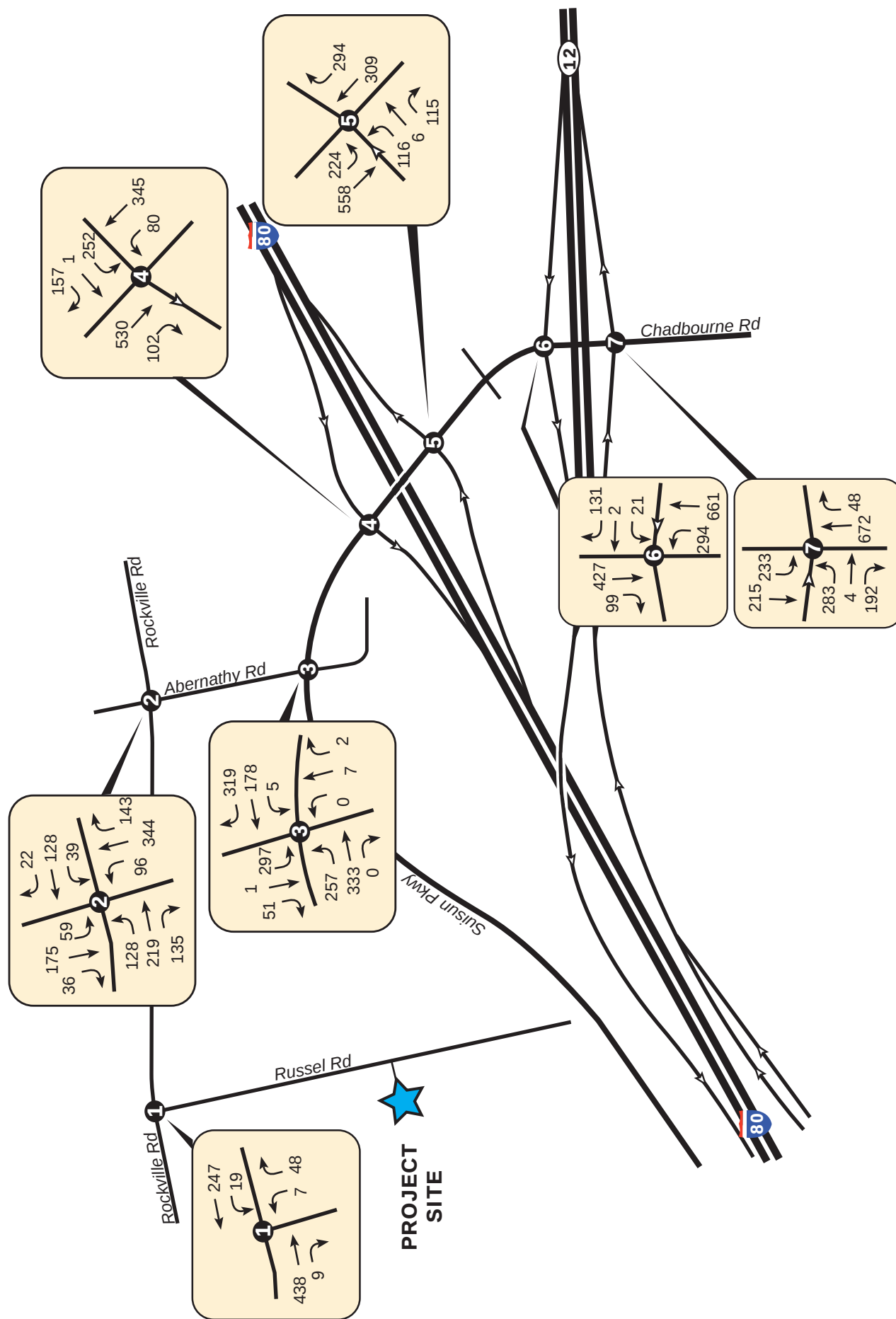
Figure 17
Weekday PM Peak Hour
Phase 2 Project Increment (4:15-5:15 PM)





E and C Winery Traffic Study, Solano County, California

Figure 19
Year 2040 with Project Phase 2
Weekday AM Peak Hour Volumes (7:30-8:30 AM)



E and C Winery Traffic Study, Solano County, California

Figure 20
Year 2040 with Project Phase 2
Weekday PM Peak Hour Volumes (4:15-5:15 PM)

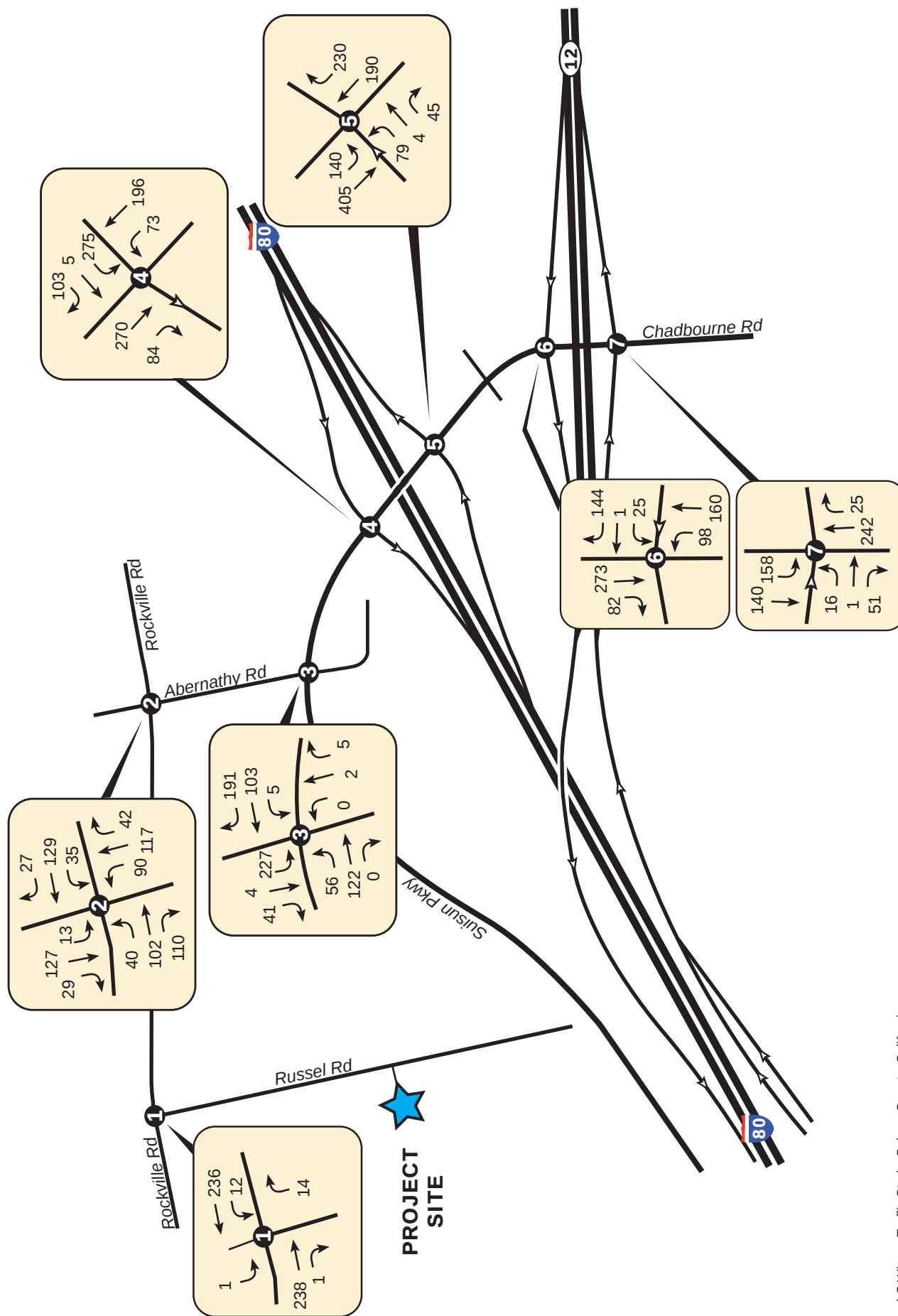


Figure 21
Year 2040 with Project Phase 2
Saturday PM Peak Hour Volumes (2:15-3:15 PM)

APPENDICES

A, B

- A. Intersection LOS Worksheets
- B. Phase 2 Employee, Visitation & Event Details

APPENDIX A

Intersection LOS Worksheets

HCM 6th Signalized Intersection Summary7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

07-24-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	119	0	5	323	258	0	0	1	260	3	77
Future Volume (veh/h)	29	119	0	5	323	258	0	0	1	260	3	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	145	0	6	394	132	0	0	1	317	4	94
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	690	0	11	604	254	0	0	362	385	34	809
Arrive On Green	0.03	0.19	0.00	0.01	0.17	0.17	0.00	0.00	0.23	0.22	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1498	0	0	1556	1781	64	1508
Grp Volume(v), veh/h	35	145	0	6	394	132	0	0	1	317	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1498	0	0	1557	1781	0	1572
Q Serve(g_s), s	1.0	1.8	0.0	0.2	5.3	4.1	0.0	0.0	0.0	8.7	0.0	1.6
Cycle Q Clear(g_c), s	1.0	1.8	0.0	0.2	5.3	4.1	0.0	0.0	0.0	8.7	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	55	690	0	11	604	254	0	0	362	385	0	843
V/C Ratio(X)	0.64	0.21	0.00	0.53	0.65	0.52	0.00	0.00	0.00	0.82	0.00	0.12
Avail Cap(c_a), veh/h	191	935	0	191	935	394	0	0	362	608	0	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	17.4	0.0	25.4	19.9	19.4	0.0	0.0	15.1	19.2	0.0	5.9
Incr Delay (d2), s/veh	11.9	0.1	0.0	33.0	1.2	1.6	0.0	0.0	0.0	5.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.0	0.2	2.1	1.4	0.0	0.0	0.0	3.7	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	17.5	0.0	58.4	21.1	21.0	0.0	0.0	15.1	24.3	0.0	6.2
LnGrp LOS	D	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	180			532			1			415		
Approach Delay, s/veh	21.2			21.5			15.1			20.0		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	15.6	16.4	4.8	14.5		32.0	6.1	13.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.5	5.5	5.5	13.5		27.5	5.5	13.5				
Max Q Clear Time (g_c+I1), s	10.7	2.0	2.2	3.8		3.6	3.0	7.3				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.3		0.3	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	20.9											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

07-24-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	601	0	301	36	285	0	0	232	148
Future Volume (veh/h)	0	0	0	601	0	301	36	285	0	0	232	148
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				532	282	330	44	348	0	0	252	143
Peak Hour Factor				0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.92	0.82
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				735	324	379	62	1554	0	0	726	398
Arrive On Green				0.41	0.41	0.41	0.07	0.87	0.00	0.00	0.33	0.33
Sat Flow, veh/h				1781	786	919	1781	3647	0	0	2307	1215
Grp Volume(v), veh/h				532	0	612	44	348	0	0	201	194
Grp Sat Flow(s),veh/h/ln				1781	0	1705	1781	1777	0	0	1777	1652
Q Serve(g_s), s				15.0	0.0	19.7	1.5	0.9	0.0	0.0	5.1	5.4
Cycle Q Clear(g_c), s				15.0	0.0	19.7	1.5	0.9	0.0	0.0	5.1	5.4
Prop In Lane				1.00		0.54	1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h				735	0	703	62	1554	0	0	582	541
V/C Ratio(X)				0.72	0.00	0.87	0.71	0.22	0.00	0.00	0.34	0.36
Avail Cap(c_a), veh/h				905	0	867	134	1554	0	0	582	541
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.78	0.78
Uniform Delay (d), s/veh				14.8	0.0	16.1	27.6	2.2	0.0	0.0	15.3	15.4
Incr Delay (d2), s/veh				2.2	0.0	8.1	14.0	0.3	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.7	0.0	8.1	0.8	0.3	0.0	0.0	2.1	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.0	0.0	24.3	41.6	2.5	0.0	0.0	16.5	16.8
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h					1144			392			395	
Approach Delay, s/veh					20.9			6.9			16.7	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			6.6	24.2		29.3				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		20.5			4.5	11.5		30.5				
Max Q Clear Time (g_c+l1), s		2.9			3.5	7.4		21.7				
Green Ext Time (p_c), s		1.2			0.0	0.6		3.0				
Intersection Summary												
HCM 6th Ctrl Delay				17.2								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

07-24-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1	77	0	0	0	0	247	106	161	672	0
Future Volume (veh/h)	74	1	77	0	0	0	0	247	106	161	672	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	88	1	62				0	294	126	192	800	0
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	141	2	127				0	2172	969	290	1440	0
Arrive On Green	0.08	0.08	0.08				0.00	0.61	0.61	0.17	1.00	0.00
Sat Flow, veh/h	1762	20	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	89	0	62				0	294	126	192	800	0
Grp Sat Flow(s),veh/h/ln	1782	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	2.9	0.0	2.2				0.0	2.1	2.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	2.2				0.0	2.1	2.0	3.1	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	142	0	127				0	2172	969	290	1440	0
V/C Ratio(X)	0.62	0.00	0.49				0.00	0.14	0.13	0.66	0.56	0.00
Avail Cap(c_a), veh/h	520	0	462				0	2172	969	432	1440	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	26.7	0.0	26.4				0.0	4.9	4.9	24.2	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	2.9				0.0	0.1	0.3	2.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.9				0.0	0.6	0.6	1.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	29.3				0.0	5.1	5.2	26.3	1.3	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	151						420			992		
Approach Delay, s/veh	30.4						5.1			6.1		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.5	41.2		9.3		50.7						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	21.5		17.5		33.5						
Max Q Clear Time (g_c+I1), s	5.1	4.1		4.9		2.0						
Green Ext Time (p_c), s	0.1	1.4		0.3		3.6						
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									
Notes												

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

07-24-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	56	2	187	94	122	0	0	591	53
Future Volume (veh/h)	0	0	0	56	2	187	94	122	0	0	591	53
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				64	2	212	107	139	0	0	672	60
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				295	9	270	138	2415	0	0	1873	834
Arrive On Green				0.17	0.17	0.17	0.08	0.68	0.00	0.00	0.53	0.53
Sat Flow, veh/h				1730	54	1582	1781	3647	0	0	3647	1584
Grp Volume(v), veh/h				66	0	212	107	139	0	0	672	60
Grp Sat Flow(s),veh/h/ln				1784	0	1582	1781	1777	0	0	1777	1584
Q Serve(g_s), s				1.9	0.0	7.7	3.5	0.8	0.0	0.0	6.6	1.1
Cycle Q Clear(g_c), s				1.9	0.0	7.7	3.5	0.8	0.0	0.0	6.6	1.1
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				304	0	270	138	2415	0	0	1873	834
V/C Ratio(X)				0.22	0.00	0.79	0.77	0.06	0.00	0.00	0.36	0.07
Avail Cap(c_a), veh/h				550	0	488	282	2415	0	0	1873	834
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.4	0.0	23.8	27.1	3.2	0.0	0.0	8.3	7.0
Incr Delay (d2), s/veh				0.4	0.0	5.1	8.8	0.0	0.0	0.0	0.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	3.0	1.8	0.2	0.0	0.0	2.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.8	0.0	28.9	36.0	3.2	0.0	0.0	8.8	7.1
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					278			246			732	
Approach Delay, s/veh					27.2			17.5			8.7	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		45.3			9.2	36.1		14.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5			9.5	18.5		18.5				
Max Q Clear Time (g_c+I1), s		2.8			5.5	8.6		9.7				
Green Ext Time (p_c), s		0.5			0.1	2.2		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				14.5								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

19: Chadbourne Rd & SR12 EB Offramp

07-24-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 					 			 	
Traffic Volume (veh/h)	5	2	324	0	0	0	0	211	23	121	526	0
Future Volume (veh/h)	5	2	324	0	0	0	0	211	23	121	526	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	6	2	316				0	248	27	142	619	0
Peak Hour Factor	0.85	0.85	0.85				0.85	0.85	0.85	0.85	0.85	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	207	69	426				0	1849	825	181	2476	0
Arrive On Green	0.15	0.15	0.15				0.00	0.52	0.52	0.20	1.00	0.00
Sat Flow, veh/h	1352	451	2781				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	8	0	316				0	248	27	142	619	0
Grp Sat Flow(s),veh/h/ln	1803	0	1390				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.2	0.0	6.5				0.0	2.2	0.5	4.5	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	6.5				0.0	2.2	0.5	4.5	0.0	0.0
Prop In Lane	0.75		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	276	0	426				0	1849	825	181	2476	0
V/C Ratio(X)	0.03	0.00	0.74				0.00	0.13	0.03	0.78	0.25	0.00
Avail Cap(c_a), veh/h	466	0	718				0	1849	825	460	2476	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	21.6	0.0	24.3				0.0	7.4	7.0	23.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.6				0.0	0.2	0.1	6.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.1				0.0	0.7	0.2	2.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	26.8				0.0	7.6	7.1	30.2	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	324						275			761		
Approach Delay, s/veh	26.7						7.5			5.8		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	10.6	35.7		13.7			46.3					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	15.5	15.5		15.5			35.5					
Max Q Clear Time (g_c+l1), s	6.5	4.2		8.5			2.0					
Green Ext Time (p_c), s	0.2	0.7		0.7			2.6					
Intersection Summary												
HCM 6th Ctrl Delay	11.1											
HCM 6th LOS	B											
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	215	3	19	315	0	3	0	4	0	0	0
Future Vol, veh/h	0	215	3	19	315	0	3	0	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	269	4	24	394	0	4	0	5	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	273	0	0	713	713	271	716	715	394
Stage 1	-	-	-	-	-	-	271	271	-	442	442	-
Stage 2	-	-	-	-	-	-	442	442	-	274	273	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1290	-	0	347	357	768	345	356	655
Stage 1	0	-	-	-	-	0	735	685	-	594	576	-
Stage 2	0	-	-	-	-	0	594	576	-	732	684	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1290	-	-	341	348	768	336	347	655
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	348	-	336	347	-
Stage 1	-	-	-	-	-	-	735	685	-	594	562	-
Stage 2	-	-	-	-	-	-	580	562	-	727	684	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.4			12.3			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	500	-	-	1290	-	-						
HCM Lane V/C Ratio	0.018	-	-	0.018	-	-						
HCM Control Delay (s)	12.3	-	-	7.8	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

07-24-2019

Intersection				
Intersection Delay, s/veh	7.0			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	257	350	333	307
Demand Flow Rate, veh/h	262	357	340	314
Vehicles Circulating, veh/h	313	350	172	396
Vehicles Exiting, veh/h	397	162	403	311
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.3	7.9	6.0	7.7
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	262	357	340	314
Cap Entry Lane, veh/h	1003	966	1158	921
Entry HV Adj Factor	0.981	0.980	0.978	0.979
Flow Entry, veh/h	257	350	333	307
Cap Entry, veh/h	984	946	1133	902
V/C Ratio	0.261	0.370	0.294	0.341
Control Delay, s/veh	6.3	7.9	6.0	7.7
LOS	A	A	A	A
95th %tile Queue, veh	1	2	1	2

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	208	1	128	66	284	0	0	440	78
Future Volume (veh/h)	0	0	0	208	1	128	66	284	0	0	440	78
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				168	70	117	69	296	0	0	458	65
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				273	95	159	87	2477	0	0	1786	252
Arrive On Green				0.15	0.15	0.15	0.10	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				1781	622	1040	1781	3647	0	0	3210	440
Grp Volume(v), veh/h				168	0	187	69	296	0	0	260	263
Grp Sat Flow(s),veh/h/ln				1781	0	1662	1781	1777	0	0	1777	1779
Q Serve(g_s), s				5.3	0.0	6.4	2.3	0.0	0.0	0.0	4.4	4.4
Cycle Q Clear(g_c), s				5.3	0.0	6.4	2.3	0.0	0.0	0.0	4.4	4.4
Prop In Lane				1.00		0.63	1.00		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				273	0	254	87	2477	0	0	1018	1020
V/C Ratio(X)				0.62	0.00	0.74	0.79	0.12	0.00	0.00	0.26	0.26
Avail Cap(c_a), veh/h				520	0	485	223	2477	0	0	1018	1020
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.86	0.86
Uniform Delay (d), s/veh				23.8	0.0	24.2	26.8	0.0	0.0	0.0	6.4	6.4
Incr Delay (d2), s/veh				2.3	0.0	4.1	14.5	0.1	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	2.6	1.2	0.0	0.0	0.0	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.0	0.0	28.3	41.2	0.1	0.0	0.0	6.9	6.9
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					355			365			523	
Approach Delay, s/veh					27.2			7.9			6.9	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.3			7.4	38.9		13.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			7.5	21.5		17.5				
Max Q Clear Time (g_c+I1), s		2.0			4.3	6.4		8.4				
Green Ext Time (p_c), s		1.1			0.0	1.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				13.0								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	5	95	0	0	0	0	255	243	182	466	0
Future Volume (veh/h)	95	5	95	0	0	0	0	255	243	182	466	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	104	5	77				0	280	267	200	512	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	8	154				0	2093	920	298	1403	0
Arrive On Green	0.10	0.10	0.10				0.00	1.00	1.00	0.17	1.00	0.00
Sat Flow, veh/h	1703	82	1545				0	3647	1562	3456	1870	0
Grp Volume(v), veh/h	109	0	77				0	280	267	200	512	0
Grp Sat Flow(s),veh/h/ln	1785	0	1545				0	1777	1562	1728	1870	0
Q Serve(g_s), s	3.5	0.0	2.8				0.0	0.0	0.0	3.2	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	2.8				0.0	0.0	0.0	3.2	0.0	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	178	0	154				0	2093	920	298	1403	0
V/C Ratio(X)	0.61	0.00	0.50				0.00	0.13	0.29	0.67	0.36	0.00
Avail Cap(c_a), veh/h	550	0	476				0	2093	920	432	1403	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	25.9	0.0	25.6				0.0	0.0	0.0	24.0	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	2.5				0.0	0.1	0.8	2.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.1				0.0	0.0	0.2	1.3	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	28.1				0.0	0.1	0.8	26.5	0.7	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		186						547			712	
Approach Delay, s/veh		28.8						0.5			7.9	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.7	39.8		10.5		49.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	20.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	5.2	2.0		5.5		2.0						
Green Ext Time (p_c), s	0.1	1.8		0.4		1.9						
Intersection Summary												
HCM 6th Ctrl Delay			7.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	2	108	243	546	0	0	352	82
Future Volume (veh/h)	0	0	0	17	2	108	243	546	0	0	352	82
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				20	2	52	289	650	0	0	419	98
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				77	8	74	338	2852	0	0	1911	835
Arrive On Green				0.05	0.05	0.05	0.38	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1626	163	1561	1781	3647	0	0	3647	1552
Grp Volume(v), veh/h				22	0	52	289	650	0	0	419	98
Grp Sat Flow(s),veh/h/ln				1789	0	1561	1781	1777	0	0	1777	1552
Q Serve(g_s), s				0.7	0.0	2.0	8.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				0.7	0.0	2.0	8.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.91		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				85	0	74	338	2852	0	0	1911	835
V/C Ratio(X)				0.26	0.00	0.70	0.86	0.23	0.00	0.00	0.22	0.12
Avail Cap(c_a), veh/h				253	0	221	609	2852	0	0	1911	835
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.6	0.0	28.2	17.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.6	0.0	11.4	5.2	0.2	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	0.9	3.2	0.1	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.1	0.0	39.5	23.1	0.2	0.0	0.0	0.3	0.3
LnGrp LOS				C	A	D	C	A	A	A	A	A
Approach Vol, veh/h					74			939			517	
Approach Delay, s/veh					36.4			7.2			0.3	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.7			15.9	36.8		7.3				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5			20.5	17.5		8.5				
Max Q Clear Time (g_c+I1), s		2.0			10.9	2.0		4.0				
Green Ext Time (p_c), s		2.8			0.5	1.7		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.3								
HCM 6th LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	3	159	0	0	0	0	555	40	192	177	0
Future Volume (veh/h)	234	3	159	0	0	0	0	555	40	192	177	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	282	4	126				0	669	48	231	213	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	346	5	538				0	1490	651	283	2321	0
Arrive On Green	0.20	0.20	0.20				0.00	0.42	0.42	0.16	0.65	0.00
Sat Flow, veh/h	1758	25	2729				0	3647	1552	1781	3647	0
Grp Volume(v), veh/h	286	0	126				0	669	48	231	213	0
Grp Sat Flow(s),veh/h/ln	1782	0	1364				0	1777	1552	1781	1777	0
Q Serve(g_s), s	9.2	0.0	2.3				0.0	8.1	1.1	7.5	1.3	0.0
Cycle Q Clear(g_c), s	9.2	0.0	2.3				0.0	8.1	1.1	7.5	1.3	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	351	0	538				0	1490	651	283	2321	0
V/C Ratio(X)	0.81	0.00	0.23				0.00	0.45	0.07	0.82	0.09	0.00
Avail Cap(c_a), veh/h	460	0	705				0	1490	651	401	2321	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	23.0	0.0	20.3				0.0	12.5	10.4	24.4	3.8	0.0
Incr Delay (d2), s/veh	8.3	0.0	0.2				0.0	1.0	0.2	8.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.7				0.0	3.0	0.4	3.6	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	20.5				0.0	13.4	10.7	32.8	3.9	0.0
LnGrp LOS	C	A	C				A	B	B	C	A	A
Approach Vol, veh/h		412						717			444	
Approach Delay, s/veh		28.0						13.3			18.9	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.0	29.7		16.3		43.7						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	13.5	17.5		15.5		35.5						
Max Q Clear Time (g_c+I1), s	9.5	10.1		11.2		3.3						
Green Ext Time (p_c), s	0.2	1.9		0.6		0.8						
Intersection Summary												
HCM 6th Ctrl Delay			18.7									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary

60: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	277	0	4	147	261	0	6	2	239	1	42
Future Volume (veh/h)	212	277	0	4	147	261	0	6	2	239	1	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	301	0	4	160	121	0	7	2	260	1	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	995	0	8	440	184	0	273	78	321	15	708
Arrive On Green	0.16	0.28	0.00	0.00	0.12	0.12	0.00	0.20	0.20	0.18	0.46	0.46
Sat Flow, veh/h	1781	3647	0	1781	3554	1483	0	1392	398	1781	33	1534
Grp Volume(v), veh/h	230	301	0	4	160	121	0	0	9	260	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1483	0	0	1790	1781	0	1568
Q Serve(g_s), s	6.6	3.5	0.0	0.1	2.2	4.1	0.0	0.0	0.2	7.4	0.0	0.9
Cycle Q Clear(g_c), s	6.6	3.5	0.0	0.1	2.2	4.1	0.0	0.0	0.2	7.4	0.0	0.9
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.22	1.00		0.98
Lane Grp Cap(c), veh/h	286	995	0	8	440	184	0	0	351	321	0	723
V/C Ratio(X)	0.80	0.30	0.00	0.52	0.36	0.66	0.00	0.00	0.03	0.81	0.00	0.06
Avail Cap(c_a), veh/h	419	1171	0	151	636	265	0	0	351	520	0	723
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	15.0	0.0	26.4	21.3	22.2	0.0	0.0	17.2	20.9	0.0	7.9
Incr Delay (d2), s/veh	7.0	0.2	0.0	45.3	0.5	4.0	0.0	0.0	0.1	4.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.3	0.0	0.1	0.9	1.5	0.0	0.0	0.1	3.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.5	15.2	0.0	71.7	21.8	26.2	0.0	0.0	17.4	25.8	0.0	8.1
LnGrp LOS	C	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	531			285			9			307		
Approach Delay, s/veh	21.0			24.4			17.4			23.1		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	14.1	14.9	4.7	19.4		29.0	13.0	11.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	4.5	4.5	17.5		24.5	12.5	9.5				
Max Q Clear Time (g_c+I1), s	9.4	2.2	2.1	5.5		2.9	8.6	6.1				
Green Ext Time (p_c), s	0.3	0.0	0.0	0.9		0.1	0.2	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			22.4									
HCM 6th LOS			C									
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	362	7	12	205	0	4	0	26	0	0	0
Future Vol, veh/h	0	362	7	12	205	0	4	0	26	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	407	8	13	230	0	4	0	29	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	415	0	0	667	667	411	682	671	230
Stage 1	-	-	-	-	-	-	411	411	-	256	256	-
Stage 2	-	-	-	-	-	-	256	256	-	426	415	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1144	-	0	372	380	641	364	378	809
Stage 1	0	-	-	-	-	0	618	595	-	749	696	-
Stage 2	0	-	-	-	-	0	749	696	-	606	592	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1144	-	-	368	375	641	344	373	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	375	-	344	373	-
Stage 1	-	-	-	-	-	-	618	595	-	749	687	-
Stage 2	-	-	-	-	-	-	739	687	-	578	592	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			11.6			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	583	-	-	1144	-	-						
HCM Lane V/C Ratio	0.058	-	-	0.012	-	-						
HCM Control Delay (s)	11.6	-	-	8.2	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.2	-	-	0	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

07-24-2019

Intersection				
Intersection Delay, s/veh	8.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	416	167	515	246
Demand Flow Rate, veh/h	424	170	526	251
Vehicles Circulating, veh/h	253	511	368	236
Vehicles Exiting, veh/h	234	383	309	445
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.7	6.7	11.4	5.6
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	424	170	526	251
Cap Entry Lane, veh/h	1066	819	948	1085
Entry HV Adj Factor	0.981	0.981	0.979	0.979
Flow Entry, veh/h	416	167	515	246
Cap Entry, veh/h	1046	804	928	1062
V/C Ratio	0.398	0.207	0.555	0.231
Control Delay, s/veh	7.7	6.7	11.4	5.6
LOS	A	A	B	A
95th %tile Queue, veh	2	1	4	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	101	0	4	81	146	0	2	4	182	3	34
Future Volume (veh/h)	46	101	0	4	81	146	0	2	4	182	3	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	106	0	4	85	59	0	2	4	192	3	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	423	0	4	317	137	0	157	314	252	66	789
Arrive On Green	0.03	0.12	0.00	0.00	0.09	0.09	0.00	0.29	0.29	0.14	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1534	0	551	1102	1781	122	1462
Grp Volume(v), veh/h	48	106	0	4	85	59	0	0	6	192	0	39
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1534	0	0	1653	1781	0	1584
Q Serve(g_s), s	1.1	1.1	0.0	0.1	0.9	1.5	0.0	0.0	0.1	4.1	0.0	0.5
Cycle Q Clear(g_c), s	1.1	1.1	0.0	0.1	0.9	1.5	0.0	0.0	0.1	4.1	0.0	0.5
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.67	1.00		0.92
Lane Grp Cap(c), veh/h	57	423	0	4	317	137	0	0	471	252	0	855
V/C Ratio(X)	0.84	0.25	0.00	0.89	0.27	0.43	0.00	0.00	0.01	0.76	0.00	0.05
Avail Cap(c_a), veh/h	380	1651	0	291	1472	635	0	0	471	649	0	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	15.9	0.0	19.9	16.9	17.2	0.0	0.0	10.2	16.4	0.0	4.3
Incr Delay (d2), s/veh	26.5	0.3	0.0	164.8	0.4	2.1	0.0	0.0	0.0	4.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	0.0	0.2	0.3	0.5	0.0	0.0	0.0	1.7	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	16.2	0.0	184.7	17.4	19.3	0.0	0.0	10.3	21.1	0.0	4.4
LnGrp LOS	D	B	A	F	B	B	A	A	B	C	A	A
Approach Vol, veh/h	154			148			6			231		
Approach Delay, s/veh	25.4			22.7			10.3			18.3		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	10.1	15.9	4.6	9.2		26.0	5.8	8.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	2.5	6.5	18.5		21.5	8.5	16.5				
Max Q Clear Time (g_c+I1), s	6.1	2.1	2.1	3.1		2.5	3.1	3.5				
Green Ext Time (p_c), s	0.3	0.0	0.0	0.3		0.1	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	21.4											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	227	4	83	60	148	0	0	220	67
Future Volume (veh/h)	0	0	0	227	4	83	60	148	0	0	220	67
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				162	123	74	65	161	0	0	239	40
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				274	168	101	98	2475	0	0	1729	285
Arrive On Green				0.15	0.15	0.15	0.06	0.70	0.00	0.00	0.57	0.57
Sat Flow, veh/h				1781	1094	658	1781	3647	0	0	3146	504
Grp Volume(v), veh/h				162	0	197	65	161	0	0	138	141
Grp Sat Flow(s),veh/h/ln				1781	0	1752	1781	1777	0	0	1777	1780
Q Serve(g_s), s				5.1	0.0	6.4	2.1	0.9	0.0	0.0	2.2	2.2
Cycle Q Clear(g_c), s				5.1	0.0	6.4	2.1	0.9	0.0	0.0	2.2	2.2
Prop In Lane				1.00		0.38	1.00		0.00	0.00		0.28
Lane Grp Cap(c), veh/h				274	0	269	98	2475	0	0	1006	1008
V/C Ratio(X)				0.59	0.00	0.73	0.66	0.07	0.00	0.00	0.14	0.14
Avail Cap(c_a), veh/h				549	0	540	223	2475	0	0	1006	1008
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.91	0.91
Uniform Delay (d), s/veh				23.6	0.0	24.2	27.8	2.9	0.0	0.0	6.1	6.1
Incr Delay (d2), s/veh				2.0	0.0	3.8	7.4	0.1	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	2.8	1.1	0.2	0.0	0.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.7	0.0	28.1	35.2	2.9	0.0	0.0	6.4	6.4
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					359			226			279	
Approach Delay, s/veh					27.0			12.2			6.4	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.3			7.8	38.5		13.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5			7.5	20.5		18.5				
Max Q Clear Time (g_c+I1), s		2.9			4.1	4.2		8.4				
Green Ext Time (p_c), s		0.6			0.0	0.8		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				16.5								
HCM 6th LOS				B								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	3	37	0	0	0	0	147	190	113	334	0
Future Volume (veh/h)	61	3	37	0	0	0	0	147	190	113	334	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	65	3	28				0	156	202	120	355	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	113	5	105				0	2262	1009	249	1465	0
Arrive On Green	0.07	0.07	0.07				0.00	0.64	0.64	0.14	1.00	0.00
Sat Flow, veh/h	1706	79	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	68	0	28				0	156	202	120	355	0
Grp Sat Flow(s),veh/h/ln	1785	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	2.2	0.0	1.0				0.0	1.0	3.2	1.9	0.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	1.0				0.0	1.0	3.2	1.9	0.0	0.0
Prop In Lane	0.96		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	119	0	105				0	2262	1009	249	1465	0
V/C Ratio(X)	0.57	0.00	0.27				0.00	0.07	0.20	0.48	0.24	0.00
Avail Cap(c_a), veh/h	550	0	489				0	2262	1009	374	1465	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	27.2	0.0	26.6				0.0	4.1	4.5	24.6	0.0	0.0
Incr Delay (d2), s/veh	4.3	0.0	1.3				0.0	0.1	0.4	1.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.4				0.0	0.3	0.8	0.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	27.9				0.0	4.2	5.0	26.1	0.4	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		96						358			475	
Approach Delay, s/veh		30.4						4.6			6.9	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	8.8	42.7		8.5			51.5					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	6.5	21.5		18.5			32.5					
Max Q Clear Time (g_c+I1), s	3.9	5.2		4.2			2.0					
Green Ext Time (p_c), s	0.1	1.1		0.2			1.2					
Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	1	118	81	132	0	0	225	68
Future Volume (veh/h)	0	0	0	21	1	118	81	132	0	0	225	68
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				24	1	105	91	148	0	0	253	76
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				154	6	143	117	2700	0	0	2200	981
Arrive On Green				0.09	0.09	0.09	0.07	0.76	0.00	0.00	0.62	0.62
Sat Flow, veh/h				1713	71	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				25	0	105	91	148	0	0	253	76
Grp Sat Flow(s),veh/h/ln				1785	0	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				0.8	0.0	3.9	3.0	0.6	0.0	0.0	1.8	1.2
Cycle Q Clear(g_c), s				0.8	0.0	3.9	3.0	0.6	0.0	0.0	1.8	1.2
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				161	0	143	117	2700	0	0	2200	981
V/C Ratio(X)				0.16	0.00	0.73	0.78	0.05	0.00	0.00	0.12	0.08
Avail Cap(c_a), veh/h				521	0	462	252	2700	0	0	2200	981
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.2	0.0	26.6	27.6	1.8	0.0	0.0	4.7	4.6
Incr Delay (d2), s/veh				0.4	0.0	7.1	10.4	0.0	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	1.7	1.5	0.1	0.0	0.0	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.6	0.0	33.7	38.0	1.8	0.0	0.0	4.8	4.7
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					130			239			329	
Approach Delay, s/veh					32.2			15.6			4.8	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.1			8.5	41.6		9.9				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			8.5	20.5		17.5				
Max Q Clear Time (g_c+I1), s		2.6			5.0	3.8		5.9				
Green Ext Time (p_c), s		0.5			0.0	1.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				13.6								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1	42	0	0	0	0	200	21	130	116	0
Future Volume (veh/h)	13	1	42	0	0	0	0	200	21	130	116	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	14	1	0				0	222	23	144	129	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	31	2	51				0	2321	1035	184	2955	0
Arrive On Green	0.02	0.02	0.00				0.00	0.65	0.65	0.10	0.83	0.00
Sat Flow, veh/h	1668	119	2790				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	15	0	0				0	222	23	144	129	0
Grp Sat Flow(s),veh/h/ln	1787	0	1395				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.5	0.0	0.0				0.0	1.4	0.3	4.7	0.4	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0				0.0	1.4	0.3	4.7	0.4	0.0
Prop In Lane	0.93		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	33	0	51				0	2321	1035	184	2955	0
V/C Ratio(X)	0.46	0.00	0.00				0.00	0.10	0.02	0.78	0.04	0.00
Avail Cap(c_a), veh/h	551	0	860				0	2321	1035	312	2955	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.1	0.0	0.0				0.0	3.9	3.7	26.2	0.9	0.0
Incr Delay (d2), s/veh	9.5	0.0	0.0				0.0	0.1	0.0	7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0				0.0	0.4	0.1	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	0.0				0.0	3.9	3.7	33.2	0.9	0.0
LnGrp LOS	D	A	A				A	A	A	C	A	A
Approach Vol, veh/h		15						245			273	
Approach Delay, s/veh		38.7						3.9			18.0	
Approach LOS		D						A			B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.7	43.7		5.6		54.4						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	10.5	17.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	6.7	3.4		2.5		2.4						
Green Ext Time (p_c), s	0.1	0.7		0.0		0.4						
Intersection Summary												
HCM 6th Ctrl Delay	12.1											
HCM 6th LOS	B											
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

05-17-2019

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	197	1	3	195	0	0	0	5	1	0	0
Future Vol, veh/h	0	197	1	3	195	0	0	0	5	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	221	1	3	219	0	0	0	6	1	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	222	0	0	447	447	222	450	447	219
Stage 1	-	-	-	-	-	-	222	222	-	225	225	-
Stage 2	-	-	-	-	-	-	225	225	-	225	222	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1347	-	0	522	506	818	519	506	821
Stage 1	0	-	-	-	-	0	780	720	-	778	718	-
Stage 2	0	-	-	-	-	0	778	718	-	778	720	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1347	-	-	521	504	818	514	504	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	504	-	514	504	-
Stage 1	-	-	-	-	-	-	780	720	-	778	716	-
Stage 2	-	-	-	-	-	-	776	716	-	773	720	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			9.4			12		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	818	-	-	1347	-	514						
HCM Lane V/C Ratio	0.007	-	-	0.003	-	0.002						
HCM Control Delay (s)	9.4	-	-	7.7	0	12						
HCM Lane LOS	A	-	-	A	A	B						
HCM 95th %tile Q(veh)	0	-	-	0	-	0						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

05-17-2019

Intersection				
Intersection Delay, s/veh	4.7			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	217	172	211	152
Demand Flow Rate, veh/h	222	175	216	155
Vehicles Circulating, veh/h	161	217	140	229
Vehicles Exiting, veh/h	223	139	243	163
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	4.7	4.7	4.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	222	175	216	155
Cap Entry Lane, veh/h	1171	1106	1196	1092
Entry HV Adj Factor	0.978	0.981	0.977	0.979
Flow Entry, veh/h	217	172	211	152
Cap Entry, veh/h	1146	1085	1169	1069
V/C Ratio	0.190	0.158	0.181	0.142
Control Delay, s/veh	4.8	4.7	4.7	4.6
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	0

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	144	0	6	391	312	0	0	1	315	4	93
Future Volume (veh/h)	35	144	0	6	391	312	0	0	1	315	4	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	171	0	7	465	192	0	0	1	375	5	111
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	766	0	13	668	283	0	0	294	440	35	785
Arrive On Green	0.03	0.22	0.00	0.01	0.19	0.19	0.00	0.00	0.19	0.25	0.52	0.52
Sat Flow, veh/h	1781	3647	0	1781	3554	1503	0	0	1554	1781	68	1505
Grp Volume(v), veh/h	42	171	0	7	465	192	0	0	1	375	0	116
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1503	0	0	1554	1781	0	1573
Q Serve(g_s), s	1.2	2.1	0.0	0.2	6.4	6.3	0.0	0.0	0.0	10.6	0.0	2.0
Cycle Q Clear(g_c), s	1.2	2.1	0.0	0.2	6.4	6.3	0.0	0.0	0.0	10.6	0.0	2.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	62	766	0	13	668	283	0	0	294	440	0	820
V/C Ratio(X)	0.68	0.22	0.00	0.53	0.70	0.68	0.00	0.00	0.00	0.85	0.00	0.14
Avail Cap(c_a), veh/h	186	909	0	186	909	385	0	0	294	591	0	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	17.1	0.0	26.1	20.0	19.9	0.0	0.0	17.4	18.9	0.0	6.5
Incr Delay (d2), s/veh	12.1	0.1	0.0	29.4	1.4	2.9	0.0	0.0	0.0	8.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	0.0	0.2	2.5	2.2	0.0	0.0	0.0	4.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	17.2	0.0	55.5	21.4	22.8	0.0	0.0	17.4	27.8	0.0	6.9
LnGrp LOS	D	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	213		664				1		491			
Approach Delay, s/veh	21.2		22.2				17.4		22.9			
Approach LOS	C		C				B		C			
Timer - Assigned Phs	1	2	3	4	6		7	8				
Phs Duration (G+Y+Rc), s	17.5	14.5	4.9	15.9	32.0		6.3	14.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5		4.5	4.5				
Max Green Setting (Gmax), s	17.5	5.5	5.5	13.5	27.5		5.5	13.5				
Max Q Clear Time (g_c+l1), s	12.6	2.0	2.2	4.1	4.0		3.2	8.4				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.4	0.4		0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	727	0	364	44	345	0	0	281	179
Future Volume (veh/h)	0	0	0	727	0	364	44	345	0	0	281	179
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				631	327	397	52	411	0	0	335	177
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				834	360	437	69	1357	0	0	607	315
Arrive On Green				0.47	0.47	0.47	0.08	0.76	0.00	0.00	0.27	0.27
Sat Flow, veh/h				1781	769	933	1781	3647	0	0	2357	1172
Grp Volume(v), veh/h				631	0	724	52	411	0	0	261	251
Grp Sat Flow(s),veh/h/ln				1781	0	1702	1781	1777	0	0	1777	1659
Q Serve(g_s), s				17.5	0.0	23.6	1.7	2.1	0.0	0.0	7.6	7.8
Cycle Q Clear(g_c), s				17.5	0.0	23.6	1.7	2.1	0.0	0.0	7.6	7.8
Prop In Lane				1.00		0.55	1.00		0.00	0.00		0.71
Lane Grp Cap(c), veh/h				834	0	797	69	1357	0	0	477	445
V/C Ratio(X)				0.76	0.00	0.91	0.76	0.30	0.00	0.00	0.55	0.56
Avail Cap(c_a), veh/h				905	0	865	134	1357	0	0	477	445
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.70	0.70
Uniform Delay (d), s/veh				13.1	0.0	14.8	27.4	4.6	0.0	0.0	18.8	18.9
Incr Delay (d2), s/veh				3.4	0.0	12.7	15.2	0.6	0.0	0.0	3.2	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.6	0.0	10.3	1.0	0.7	0.0	0.0	3.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.6	0.0	27.5	42.6	5.2	0.0	0.0	22.0	22.5
LnGrp LOS				B	A	C	D	A	A	A	C	C
Approach Vol, veh/h					1355			463			512	
Approach Delay, s/veh					22.4			9.4			22.2	
Approach LOS					C			A			C	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	27.4			6.8			20.6			32.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	20.5			4.5			11.5			30.5		
Max Q Clear Time (g_c+I1), s	4.1			3.7			9.8			25.6		
Green Ext Time (p_c), s	1.4			0.0			0.4			2.5		
Intersection Summary												
HCM 6th Ctrl Delay	19.8											
HCM 6th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1	93	0	0	0	0	299	128	195	813	0
Future Volume (veh/h)	90	1	93	0	0	0	0	299	128	195	813	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	107	1	81				0	356	152	232	968	0
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	167	2	150				0	2077	926	332	1413	0
Arrive On Green	0.09	0.09	0.09				0.00	0.58	0.58	0.19	1.00	0.00
Sat Flow, veh/h	1766	17	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	108	0	81				0	356	152	232	968	0
Grp Sat Flow(s),veh/h/ln	1782	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	3.5	0.0	2.9				0.0	2.8	2.6	3.8	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	2.9				0.0	2.8	2.6	3.8	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	169	0	150				0	2077	926	332	1413	0
V/C Ratio(X)	0.64	0.00	0.54				0.00	0.17	0.16	0.70	0.69	0.00
Avail Cap(c_a), veh/h	549	0	489				0	2077	926	432	1413	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.67	0.67	0.00
Uniform Delay (d), s/veh	26.2	0.0	25.9				0.0	5.8	5.7	23.4	0.0	0.0
Incr Delay (d2), s/veh	4.0	0.0	3.0				0.0	0.2	0.4	2.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.2				0.0	0.8	0.8	1.4	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	28.9				0.0	5.9	6.1	25.7	1.8	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	189						508			1200		
Approach Delay, s/veh	29.6						6.0			6.5		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	10.3	39.6		10.2			49.8					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	7.5	20.5		18.5			32.5					
Max Q Clear Time (g_c+l1), s	5.8	4.8		5.5			2.0					
Green Ext Time (p_c), s	0.1	1.7		0.4			4.9					
Intersection Summary												
HCM 6th Ctrl Delay	8.6											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	68	2	226	114	148	0	0	715	64
Future Volume (veh/h)	0	0	0	68	2	226	114	148	0	0	715	64
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				76	2	254	128	166	0	0	803	72
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				343	9	312	165	2320	0	0	1725	768
Arrive On Green				0.20	0.20	0.20	0.09	0.65	0.00	0.00	0.49	0.49
Sat Flow, veh/h				1738	46	1583	1781	3647	0	0	3647	1583
Grp Volume(v), veh/h				78	0	254	128	166	0	0	803	72
Grp Sat Flow(s),veh/h/ln				1783	0	1583	1781	1777	0	0	1777	1583
Q Serve(g_s), s				2.2	0.0	9.2	4.2	1.0	0.0	0.0	9.0	1.5
Cycle Q Clear(g_c), s				2.2	0.0	9.2	4.2	1.0	0.0	0.0	9.0	1.5
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				352	0	312	165	2320	0	0	1725	768
V/C Ratio(X)				0.22	0.00	0.81	0.78	0.07	0.00	0.00	0.47	0.09
Avail Cap(c_a), veh/h				550	0	488	282	2320	0	0	1725	768
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.2	0.0	23.0	26.6	3.8	0.0	0.0	10.3	8.3
Incr Delay (d2), s/veh				0.3	0.0	5.8	7.6	0.1	0.0	0.0	0.9	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.9	0.0	3.7	2.0	0.3	0.0	0.0	3.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.5	0.0	28.9	34.2	3.9	0.0	0.0	11.2	8.6
LnGrp LOS				C	A	C	C	A	A	A	B	A
Approach Vol, veh/h					332			294			875	
Approach Delay, s/veh					26.9			17.1			11.0	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		43.7			10.0	33.6		16.3				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5			9.5	18.5		18.5				
Max Q Clear Time (g_c+I1), s		3.0			6.2	11.0		11.2				
Green Ext Time (p_c), s		0.6			0.1	2.3		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				15.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	2	392	0	0	0	0	256	28	146	637	0
Future Volume (veh/h)	6	2	392	0	0	0	0	256	28	146	637	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	7	2	388				0	294	32	168	732	0
Peak Hour Factor	0.87	0.87	0.87				0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	251	72	498				0	1698	757	211	2384	0
Arrive On Green	0.18	0.18	0.18				0.00	0.48	0.48	0.24	1.00	0.00
Sat Flow, veh/h	1400	400	2782				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	9	0	388				0	294	32	168	732	0
Grp Sat Flow(s),veh/h/ln	1800	0	1391				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.2	0.0	8.0				0.0	2.8	0.6	5.3	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	8.0				0.0	2.8	0.6	5.3	0.0	0.0
Prop In Lane	0.78		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	322	0	498				0	1698	757	211	2384	0
V/C Ratio(X)	0.03	0.00	0.78				0.00	0.17	0.04	0.80	0.31	0.00
Avail Cap(c_a), veh/h	465	0	719				0	1698	757	460	2384	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	20.3	0.0	23.5				0.0	8.9	8.4	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	3.4				0.0	0.2	0.1	6.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.7				0.0	1.0	0.2	2.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	0.0	26.9				0.0	9.1	8.5	28.4	0.3	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	397						326			900		
Approach Delay, s/veh	26.8						9.1			5.5		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	11.6	33.2	15.2		44.8							
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5							
Max Green Setting (Gmax), s	15.5	15.5	15.5		35.5							
Max Q Clear Time (g_c+l1), s	7.3	4.8	10.0		2.0							
Green Ext Time (p_c), s	0.2	0.9	0.7		3.2							
Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↰↱			↰↱	
Traffic Vol, veh/h	0	260	4	23	381	0	4	0	5	0	0	0
Future Vol, veh/h	0	260	4	23	381	0	4	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	317	5	28	465	0	5	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	322	0	0	841	841	320	844	843	465
Stage 1	-	-	-	-	-	-	320	320	-	521	521	-
Stage 2	-	-	-	-	-	-	521	521	-	323	322	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1238	-	0	284	301	721	283	300	597
Stage 1	0	-	-	-	-	0	692	652	-	539	532	-
Stage 2	0	-	-	-	-	0	539	532	-	689	651	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1238	-	-	277	292	721	274	291	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	292	-	274	291	-
Stage 1	-	-	-	-	-	-	692	652	-	539	516	-
Stage 2	-	-	-	-	-	-	523	516	-	683	651	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			13.8			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	421	-	-	1238	-	-						
HCM Lane V/C Ratio	0.026	-	-	0.023	-	-						
HCM Control Delay (s)	13.8	-	-	8	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

07-25-2019

Intersection				
Intersection Delay, s/veh	8.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	304	415	394	364
Demand Flow Rate, veh/h	310	423	402	371
Vehicles Circulating, veh/h	370	414	202	466
Vehicles Exiting, veh/h	467	190	478	371
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.4	9.9	6.9	9.7
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	310	423	402	371
Cap Entry Lane, veh/h	946	905	1123	858
Entry HV Adj Factor	0.979	0.981	0.980	0.980
Flow Entry, veh/h	304	415	394	364
Cap Entry, veh/h	927	888	1100	841
V/C Ratio	0.328	0.468	0.358	0.432
Control Delay, s/veh	7.4	9.9	6.9	9.7
LOS	A	A	A	A
95th %tile Queue, veh	1	3	2	2

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	252	1	155	80	344	0	0	522	94
Future Volume (veh/h)	0	0	0	252	1	155	80	344	0	0	522	94
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				202	86	140	83	358	0	0	544	77
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				316	112	183	106	2391	0	0	1678	237
Arrive On Green				0.18	0.18	0.18	0.12	1.00	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1781	633	1031	1781	3647	0	0	3210	440
Grp Volume(v), veh/h				202	0	226	83	358	0	0	309	312
Grp Sat Flow(s),veh/h/ln				1781	0	1665	1781	1777	0	0	1777	1779
Q Serve(g_s), s				6.3	0.0	7.8	2.7	0.0	0.0	0.0	5.8	5.9
Cycle Q Clear(g_c), s				6.3	0.0	7.8	2.7	0.0	0.0	0.0	5.8	5.9
Prop In Lane				1.00		0.62	1.00		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				316	0	295	106	2391	0	0	957	958
V/C Ratio(X)				0.64	0.00	0.77	0.79	0.15	0.00	0.00	0.32	0.33
Avail Cap(c_a), veh/h				520	0	486	223	2391	0	0	957	958
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.81	0.81
Uniform Delay (d), s/veh				22.9	0.0	23.5	26.1	0.0	0.0	0.0	7.7	7.7
Incr Delay (d2), s/veh				2.2	0.0	4.2	11.9	0.1	0.0	0.0	0.7	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	3.2	1.4	0.0	0.0	0.0	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.1	0.0	27.7	38.0	0.1	0.0	0.0	8.5	8.5
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					428			441			621	
Approach Delay, s/veh					26.4			7.2			8.5	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.9			8.1	36.8		15.1				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			7.5	21.5		17.5				
Max Q Clear Time (g_c+I1), s		2.0			4.7	7.9		9.8				
Green Ext Time (p_c), s		1.4			0.0	1.9		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				13.3								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	6	115	0	0	0	0	309	294	217	557	0
Future Volume (veh/h)	115	6	115	0	0	0	0	309	294	217	557	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	125	7	98				0	336	130	236	605	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	195	11	178				0	1999	879	336	1374	0
Arrive On Green	0.12	0.12	0.12				0.00	1.00	1.00	0.19	1.00	0.00
Sat Flow, veh/h	1691	95	1548				0	3647	1562	3456	1870	0
Grp Volume(v), veh/h	132	0	98				0	336	130	236	605	0
Grp Sat Flow(s),veh/h/ln	1786	0	1548				0	1777	1562	1728	1870	0
Q Serve(g_s), s	4.2	0.0	3.6				0.0	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	3.6				0.0	0.0	0.0	3.8	0.0	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	206	0	178				0	1999	879	336	1374	0
V/C Ratio(X)	0.64	0.00	0.55				0.00	0.17	0.15	0.70	0.44	0.00
Avail Cap(c_a), veh/h	551	0	477				0	1999	879	432	1374	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.91	0.91	0.00
Uniform Delay (d), s/veh	25.4	0.0	25.1				0.0	0.0	0.0	23.4	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	2.6				0.0	0.2	0.4	3.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.4				0.0	0.1	0.1	1.5	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	27.7				0.0	0.2	0.4	26.6	0.9	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		230						466			841	
Approach Delay, s/veh		28.2						0.2			8.1	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.3	38.3		11.4		48.6						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	20.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	5.8	2.0		6.2		2.0						
Green Ext Time (p_c), s	0.1	1.6		0.5		2.4						
Intersection Summary												
HCM 6th Ctrl Delay			8.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	2	131	294	661	0	0	426	99
Future Volume (veh/h)	0	0	0	21	2	131	294	661	0	0	426	99
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				24	2	65	342	769	0	0	495	115
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				97	8	92	389	2812	0	0	1770	773
Arrive On Green				0.06	0.06	0.06	0.44	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1650	138	1561	1781	3647	0	0	3647	1552
Grp Volume(v), veh/h				26	0	65	342	769	0	0	495	115
Grp Sat Flow(s),veh/h/ln				1788	0	1561	1781	1777	0	0	1777	1552
Q Serve(g_s), s				0.8	0.0	2.5	10.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				0.8	0.0	2.5	10.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.92		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				105	0	92	389	2812	0	0	1770	773
V/C Ratio(X)				0.25	0.00	0.71	0.88	0.27	0.00	0.00	0.28	0.15
Avail Cap(c_a), veh/h				253	0	221	609	2812	0	0	1770	773
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.67	0.67	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.0	0.0	27.7	16.2	0.0	0.0	0.0	0.1	0.1
Incr Delay (d2), s/veh				1.2	0.0	9.6	6.4	0.2	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	1.1	3.6	0.1	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.2	0.0	37.3	22.6	0.2	0.0	0.0	0.5	0.5
LnGrp LOS				C	A	D	C	A	A	A	A	A
Approach Vol, veh/h					91			1111			610	
Approach Delay, s/veh					34.7			7.1			0.5	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.0			17.6	34.4		8.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5			20.5	17.5		8.5				
Max Q Clear Time (g_c+I1), s		2.0			12.5	2.0		4.5				
Green Ext Time (p_c), s		3.5			0.6	2.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.2								
HCM 6th LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	4	192	0	0	0	0	672	48	232	215	0
Future Volume (veh/h)	283	4	192	0	0	0	0	672	48	232	215	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	333	5	161				0	791	56	273	253	0
Peak Hour Factor	0.85	0.85	0.85				0.83	0.85	0.85	0.85	0.85	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	6	611				0	1322	577	319	2225	0
Arrive On Green	0.22	0.22	0.22				0.00	0.37	0.37	0.30	1.00	0.00
Sat Flow, veh/h	1756	26	2729				0	3647	1552	1781	3647	0
Grp Volume(v), veh/h	338	0	161				0	791	56	273	253	0
Grp Sat Flow(s),veh/h/ln	1783	0	1365				0	1777	1552	1781	1777	0
Q Serve(g_s), s	10.9	0.0	2.9				0.0	10.8	1.4	8.7	0.0	0.0
Cycle Q Clear(g_c), s	10.9	0.0	2.9				0.0	10.8	1.4	8.7	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	399	0	611				0	1322	577	319	2225	0
V/C Ratio(X)	0.85	0.00	0.26				0.00	0.60	0.10	0.86	0.11	0.00
Avail Cap(c_a), veh/h	460	0	705				0	1322	577	401	2225	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.67	1.67	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	22.3	0.0	19.2				0.0	15.2	12.3	20.3	0.0	0.0
Incr Delay (d2), s/veh	12.4	0.0	0.2				0.0	2.0	0.3	13.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.9				0.0	4.2	0.5	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	19.4				0.0	17.2	12.6	33.5	0.1	0.0
LnGrp LOS	C	A	B				A	B	B	C	A	A
Approach Vol, veh/h		499						847			526	
Approach Delay, s/veh		29.8						16.9			17.4	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.3	26.8		17.9		42.1						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	13.5	17.5		15.5		35.5						
Max Q Clear Time (g_c+l1), s	10.7	12.8		12.9		2.0						
Green Ext Time (p_c), s	0.2	1.6		0.5		1.0						
Intersection Summary												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

60: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	333	0	5	178	316	0	7	2	281	1	51
Future Volume (veh/h)	257	333	0	5	178	316	0	7	2	281	1	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	276	358	0	5	191	179	0	8	2	302	1	55
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	329	1181	0	10	544	229	0	211	53	359	12	657
Arrive On Green	0.18	0.33	0.00	0.01	0.15	0.15	0.00	0.15	0.15	0.20	0.43	0.43
Sat Flow, veh/h	1781	3647	0	1781	3554	1496	0	1438	359	1781	28	1539
Grp Volume(v), veh/h	276	358	0	5	191	179	0	0	10	302	0	56
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1496	0	0	1797	1781	0	1567
Q Serve(g_s), s	8.6	4.3	0.0	0.2	2.8	6.6	0.0	0.0	0.3	9.3	0.0	1.2
Cycle Q Clear(g_c), s	8.6	4.3	0.0	0.2	2.8	6.6	0.0	0.0	0.3	9.3	0.0	1.2
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.20	1.00		0.98
Lane Grp Cap(c), veh/h	329	1181	0	10	544	229	0	0	264	359	0	669
V/C Ratio(X)	0.84	0.30	0.00	0.53	0.35	0.78	0.00	0.00	0.04	0.84	0.00	0.08
Avail Cap(c_a), veh/h	388	1181	0	140	588	248	0	0	264	481	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	14.2	0.0	28.5	21.7	23.4	0.0	0.0	21.0	22.0	0.0	9.8
Incr Delay (d2), s/veh	13.2	0.1	0.0	38.4	0.4	13.9	0.0	0.0	0.3	9.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.6	0.0	0.2	1.1	3.0	0.0	0.0	0.1	4.5	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	14.4	0.0	66.9	22.1	37.3	0.0	0.0	21.3	31.7	0.0	10.0
LnGrp LOS	D	B	A	E	C	D	A	A	C	C	A	B
Approach Vol, veh/h	634			375			10			358		
Approach Delay, s/veh	23.7			30.0			21.3			28.3		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	16.1	12.9	4.8	23.6		29.0	15.1	13.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	4.5	4.5	17.5		24.5	12.5	9.5				
Max Q Clear Time (g_c+I1), s	11.3	2.3	2.2	6.3		3.2	10.6	8.6				
Green Ext Time (p_c), s	0.3	0.0	0.0	1.1		0.1	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	26.6											
HCM 6th LOS	C											
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	438	8	15	248	0	5	0	31	0	0	0
Future Vol, veh/h	0	438	8	15	248	0	5	0	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	487	9	17	276	0	6	0	34	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	496	0	0	802	802	492	819	806	276
Stage 1	-	-	-	-	-	-	492	492	-	310	310	-
Stage 2	-	-	-	-	-	-	310	310	-	509	496	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1068	-	0	302	317	577	294	316	763
Stage 1	0	-	-	-	-	0	558	548	-	700	659	-
Stage 2	0	-	-	-	-	0	700	659	-	547	545	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1068	-	-	298	311	577	273	310	763
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	311	-	273	310	-
Stage 1	-	-	-	-	-	-	558	548	-	700	646	-
Stage 2	-	-	-	-	-	-	687	646	-	514	545	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			12.6			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	511	-	-	1068	-	-						
HCM Lane V/C Ratio	0.078	-	-	0.016	-	-						
HCM Control Delay (s)	12.6	-	-	8.4	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.3	-	-	0	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

07-24-2019

Intersection				
Intersection Delay, s/veh	12.1			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	500	204	624	290
Demand Flow Rate, veh/h	511	208	636	296
Vehicles Circulating, veh/h	299	619	444	286
Vehicles Exiting, veh/h	283	461	366	541
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.7	8.4	18.0	6.4
Approach LOS	A	A	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	511	208	636	296
Cap Entry Lane, veh/h	1017	734	877	1031
Entry HV Adj Factor	0.979	0.982	0.981	0.981
Flow Entry, veh/h	500	204	624	290
Cap Entry, veh/h	996	721	860	1011
V/C Ratio	0.502	0.283	0.725	0.287
Control Delay, s/veh	9.7	8.4	18.0	6.4
LOS	A	A	C	A
95th %tile Queue, veh	3	1	6	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	122	0	6	102	184	0	2	5	220	4	41
Future Volume (veh/h)	56	122	0	6	102	184	0	2	5	220	4	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	128	0	6	107	78	0	2	5	232	4	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	495	0	6	364	157	0	127	319	299	73	790
Arrive On Green	0.04	0.14	0.00	0.00	0.10	0.10	0.00	0.27	0.27	0.17	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1536	0	468	1171	1781	135	1451
Grp Volume(v), veh/h	59	128	0	6	107	78	0	0	7	232	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1536	0	0	1639	1781	0	1586
Q Serve(g_s), s	1.4	1.4	0.0	0.1	1.2	2.1	0.0	0.0	0.1	5.4	0.0	0.6
Cycle Q Clear(g_c), s	1.4	1.4	0.0	0.1	1.2	2.1	0.0	0.0	0.1	5.4	0.0	0.6
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.71	1.00		0.91
Lane Grp Cap(c), veh/h	72	495	0	6	364	157	0	0	446	299	0	864
V/C Ratio(X)	0.82	0.26	0.00	0.98	0.29	0.50	0.00	0.00	0.02	0.77	0.00	0.05
Avail Cap(c_a), veh/h	268	1441	0	227	1359	587	0	0	446	640	0	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	16.6	0.0	21.5	17.9	18.3	0.0	0.0	11.5	17.2	0.0	4.6
Incr Delay (d2), s/veh	19.8	0.3	0.0	161.4	0.4	2.4	0.0	0.0	0.1	4.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.5	0.0	0.3	0.5	0.7	0.0	0.0	0.0	2.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	16.9	0.0	182.9	18.4	20.7	0.0	0.0	11.5	21.5	0.0	4.7
LnGrp LOS	D	B	A	F	B	C	A	A	B	C	A	A
Approach Vol, veh/h	187				191				7			
Approach Delay, s/veh	24.3				24.5				11.5			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2	3	4	6			7	8			
Phs Duration (G+Y+Rc), s	11.8	16.2	4.6	10.5	28.0			6.2	8.9			
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5			4.5	4.5			
Max Green Setting (Gmax), s	15.5	3.5	5.5	17.5	23.5			6.5	16.5			
Max Q Clear Time (g_c+I1), s	7.4	2.1	2.1	3.4	2.6			3.4	4.1			
Green Ext Time (p_c), s	0.4	0.0	0.0	0.3	0.1			0.0	0.4			
Intersection Summary												
HCM 6th Ctrl Delay	21.8											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved changes to right turn type.												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	275	5	100	73	192	0	0	266	81
Future Volume (veh/h)	0	0	0	275	5	100	73	192	0	0	266	81
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				196	144	92	78	206	0	0	286	55
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				316	189	121	108	2391	0	0	1601	304
Arrive On Green				0.18	0.18	0.18	0.12	1.00	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1781	1066	681	1781	3647	0	0	3074	565
Grp Volume(v), veh/h				196	0	236	78	206	0	0	169	172
Grp Sat Flow(s),veh/h/ln				1781	0	1748	1781	1777	0	0	1777	1769
Q Serve(g_s), s				6.1	0.0	7.7	2.5	0.0	0.0	0.0	2.9	3.0
Cycle Q Clear(g_c), s				6.1	0.0	7.7	2.5	0.0	0.0	0.0	2.9	3.0
Prop In Lane				1.00		0.39	1.00		0.00	0.00		0.32
Lane Grp Cap(c), veh/h				316	0	310	108	2391	0	0	954	950
V/C Ratio(X)				0.62	0.00	0.76	0.72	0.09	0.00	0.00	0.18	0.18
Avail Cap(c_a), veh/h				549	0	539	223	2391	0	0	954	950
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.89	0.89
Uniform Delay (d), s/veh				22.8	0.0	23.5	25.9	0.0	0.0	0.0	7.1	7.1
Incr Delay (d2), s/veh				2.0	0.0	3.9	8.8	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	3.3	1.2	0.0	0.0	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.8	0.0	27.3	34.6	0.1	0.0	0.0	7.5	7.5
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					432			284			341	
Approach Delay, s/veh					26.2			9.6			7.5	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.9			8.1	36.7		15.1				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5			7.5	20.5		18.5				
Max Q Clear Time (g_c+I1), s		2.0			4.5	5.0		9.7				
Green Ext Time (p_c), s		0.8			0.0	1.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				15.7								
HCM 6th LOS				B								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	4	45	0	0	0	0	189	230	137	404	0
Future Volume (veh/h)	76	4	45	0	0	0	0	189	230	137	404	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	80	4	36				0	199	242	144	425	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	123	6	114				0	2229	994	262	1455	0
Arrive On Green	0.07	0.07	0.07				0.00	0.63	0.63	0.15	1.00	0.00
Sat Flow, veh/h	1700	85	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	84	0	36				0	199	242	144	425	0
Grp Sat Flow(s),veh/h/ln	1785	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	2.7	0.0	1.3				0.0	1.3	4.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	1.3				0.0	1.3	4.0	2.3	0.0	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	129	0	114				0	2229	994	262	1455	0
V/C Ratio(X)	0.65	0.00	0.32				0.00	0.09	0.24	0.55	0.29	0.00
Avail Cap(c_a), veh/h	550	0	489				0	2229	994	374	1455	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	27.1	0.0	26.4				0.0	4.4	4.9	24.5	0.0	0.0
Incr Delay (d2), s/veh	5.5	0.0	1.6				0.0	0.1	0.6	1.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.5				0.0	0.4	1.1	0.9	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	28.0				0.0	4.5	5.5	26.2	0.5	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		120						441			569	
Approach Delay, s/veh		31.2						5.0			7.0	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.0	42.1		8.8		51.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	6.5	21.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	4.3	6.0		4.7		2.0						
Green Ext Time (p_c), s	0.1	1.3		0.2		1.5						
Intersection Summary												
HCM 6th Ctrl Delay			8.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	25	1	143	98	160	0	0	272	82
Future Volume (veh/h)	0	0	0	25	1	143	98	160	0	0	272	82
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				28	1	131	109	178	0	0	302	91
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				190	7	175	141	2629	0	0	2082	929
Arrive On Green				0.11	0.11	0.11	0.08	0.74	0.00	0.00	0.59	0.59
Sat Flow, veh/h				1723	62	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				29	0	131	109	178	0	0	302	91
Grp Sat Flow(s),veh/h/ln				1784	0	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				0.9	0.0	4.8	3.6	0.8	0.0	0.0	2.3	1.5
Cycle Q Clear(g_c), s				0.9	0.0	4.8	3.6	0.8	0.0	0.0	2.3	1.5
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				197	0	175	141	2629	0	0	2082	929
V/C Ratio(X)				0.15	0.00	0.75	0.78	0.07	0.00	0.00	0.15	0.10
Avail Cap(c_a), veh/h				520	0	462	252	2629	0	0	2082	929
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.1	0.0	25.9	27.1	2.1	0.0	0.0	5.6	5.5
Incr Delay (d2), s/veh				0.3	0.0	6.3	8.8	0.0	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	2.0	1.8	0.1	0.0	0.0	0.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.5	0.0	32.2	35.9	2.2	0.0	0.0	5.8	5.7
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					160			287			393	
Approach Delay, s/veh					30.8			15.0			5.7	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		48.9			9.2	39.7		11.1				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			8.5	20.5		17.5				
Max Q Clear Time (g_c+I1), s		2.8			5.6	4.3		6.8				
Green Ext Time (p_c), s		0.7			0.1	1.3		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.7								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

07-25-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	51	0	0	0	0	242	25	157	140	0
Future Volume (veh/h)	16	1	51	0	0	0	0	242	25	157	140	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	18	1	10				0	266	27	173	154	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	54	3	89				0	2206	984	218	2907	0
Arrive On Green	0.03	0.03	0.03				0.00	0.62	0.62	0.12	0.82	0.00
Sat Flow, veh/h	1692	94	2790				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	19	0	10				0	266	27	173	154	0
Grp Sat Flow(s),veh/h/ln	1786	0	1395				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.6	0.0	0.2				0.0	1.8	0.4	5.7	0.5	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.2				0.0	1.8	0.4	5.7	0.5	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	57	0	89				0	2206	984	218	2907	0
V/C Ratio(X)	0.33	0.00	0.11				0.00	0.12	0.03	0.79	0.05	0.00
Avail Cap(c_a), veh/h	551	0	860				0	2206	984	312	2907	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	28.4	0.0	28.2				0.0	4.7	4.4	25.6	1.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.6				0.0	0.1	0.1	8.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1				0.0	0.5	0.1	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	28.8				0.0	4.8	4.4	34.3	1.1	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	29						293			327		
Approach Delay, s/veh	30.7						4.7			18.7		
Approach LOS	C						A			B		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.8	41.7		6.4		53.6						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	10.5	17.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	7.7	3.8		2.6		2.5						
Green Ext Time (p_c), s	0.1	0.9		0.0		0.5						
Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↱			↱			↱	
Traffic Vol, veh/h	0	238	1	4	236	0	0	0	6	1	0	0
Future Vol, veh/h	0	238	1	4	236	0	0	0	6	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	264	1	4	262	0	0	0	7	1	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	265	0	0	535	535	265	538	535	262
Stage 1	-	-	-	-	-	-	265	265	-	270	270	-
Stage 2	-	-	-	-	-	-	270	270	-	268	265	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1299	-	0	456	452	774	454	452	777
Stage 1	0	-	-	-	-	0	740	689	-	736	686	-
Stage 2	0	-	-	-	-	0	736	686	-	738	689	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1299	-	-	455	450	774	449	450	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	455	450	-	449	450	-
Stage 1	-	-	-	-	-	-	740	689	-	736	683	-
Stage 2	-	-	-	-	-	-	733	683	-	732	689	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			9.7			13		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	774	-	-	1299	-	449						
HCM Lane V/C Ratio	0.009	-	-	0.003	-	0.002						
HCM Control Delay (s)	9.7	-	-	7.8	0	13						
HCM Lane LOS	A	-	-	A	A	B						
HCM 95th %tile Q(veh)	0	-	-	0	-	0						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

07-25-2019

Intersection				
Intersection Delay, s/veh	5.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	260	206	260	182
Demand Flow Rate, veh/h	265	211	266	186
Vehicles Circulating, veh/h	193	264	166	272
Vehicles Exiting, veh/h	265	168	292	203
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	5.4	5.2	5.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	265	211	266	186
Cap Entry Lane, veh/h	1133	1054	1165	1046
Entry HV Adj Factor	0.981	0.977	0.979	0.980
Flow Entry, veh/h	260	206	260	182
Cap Entry, veh/h	1111	1030	1141	1025
V/C Ratio	0.234	0.200	0.228	0.178
Control Delay, s/veh	5.4	5.4	5.2	5.2
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	119	0	5	323	261	0	0	1	262	3	77
Future Volume (veh/h)	29	119	0	5	323	261	0	0	1	262	3	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	145	0	6	394	135	0	0	1	320	4	94
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	690	0	11	604	255	0	0	359	388	34	809
Arrive On Green	0.03	0.19	0.00	0.01	0.17	0.17	0.00	0.00	0.23	0.22	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1498	0	0	1556	1781	64	1508
Grp Volume(v), veh/h	35	145	0	6	394	135	0	0	1	320	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1498	0	0	1556	1781	0	1572
Q Serve(g_s), s	1.0	1.8	0.0	0.2	5.3	4.2	0.0	0.0	0.0	8.8	0.0	1.6
Cycle Q Clear(g_c), s	1.0	1.8	0.0	0.2	5.3	4.2	0.0	0.0	0.0	8.8	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	55	690	0	11	604	255	0	0	359	388	0	843
V/C Ratio(X)	0.64	0.21	0.00	0.53	0.65	0.53	0.00	0.00	0.00	0.83	0.00	0.12
Avail Cap(c_a), veh/h	191	935	0	191	935	394	0	0	359	608	0	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	17.4	0.0	25.4	19.9	19.4	0.0	0.0	15.2	19.1	0.0	5.9
Incr Delay (d2), s/veh	11.9	0.1	0.0	33.0	1.2	1.7	0.0	0.0	0.0	5.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.0	0.2	2.1	1.4	0.0	0.0	0.0	3.8	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	17.5	0.0	58.4	21.1	21.1	0.0	0.0	15.2	24.4	0.0	6.2
LnGrp LOS	D	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	180			535			1			418		
Approach Delay, s/veh	21.2			21.5			15.2			20.2		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4	6		7	8				
Phs Duration (G+Y+Rc), s	15.7	16.3	4.8	14.5	32.0		6.1	13.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5		4.5	4.5				
Max Green Setting (Gmax), s	17.5	5.5	5.5	13.5	27.5		5.5	13.5				
Max Q Clear Time (g_c+I1), s	10.8	2.0	2.2	3.8	3.6		3.0	7.3				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.3	0.3		0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	21.0											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

8: Chadbourne Rd & WB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	601	0	301	36	288	0	0	232	150
Future Volume (veh/h)	0	0	0	601	0	301	36	288	0	0	232	150
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				532	282	330	44	351	0	0	252	146
Peak Hour Factor				0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.92	0.82
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				735	324	379	62	1554	0	0	720	403
Arrive On Green				0.41	0.41	0.41	0.07	0.87	0.00	0.00	0.33	0.33
Sat Flow, veh/h				1781	786	919	1781	3647	0	0	2290	1230
Grp Volume(v), veh/h				532	0	612	44	351	0	0	202	196
Grp Sat Flow(s),veh/h/ln				1781	0	1705	1781	1777	0	0	1777	1649
Q Serve(g_s), s				15.0	0.0	19.7	1.5	0.9	0.0	0.0	5.2	5.4
Cycle Q Clear(g_c), s				15.0	0.0	19.7	1.5	0.9	0.0	0.0	5.2	5.4
Prop In Lane				1.00		0.54	1.00		0.00	0.00		0.75
Lane Grp Cap(c), veh/h				735	0	703	62	1554	0	0	582	540
V/C Ratio(X)				0.72	0.00	0.87	0.71	0.23	0.00	0.00	0.35	0.36
Avail Cap(c_a), veh/h				905	0	867	134	1554	0	0	582	540
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.77	0.77
Uniform Delay (d), s/veh				14.8	0.0	16.1	27.6	2.2	0.0	0.0	15.3	15.4
Incr Delay (d2), s/veh				2.2	0.0	8.1	14.0	0.3	0.0	0.0	1.3	1.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.7	0.0	8.1	0.8	0.3	0.0	0.0	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.0	0.0	24.3	41.6	2.5	0.0	0.0	16.6	16.8
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h					1144			395			398	
Approach Delay, s/veh					20.9			6.9			16.7	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			6.6	24.2		29.3				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		20.5			4.5	11.5		30.5				
Max Q Clear Time (g_c+I1), s		2.9			3.5	7.4		21.7				
Green Ext Time (p_c), s		1.2			0.0	0.6		3.0				
Intersection Summary												
HCM 6th Ctrl Delay				17.2								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	1	77	0	0	0	0	247	106	161	672	0
Future Volume (veh/h)	77	1	77	0	0	0	0	247	106	161	672	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	92	1	62				0	294	126	192	800	0
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	146	2	131				0	2163	965	290	1435	0
Arrive On Green	0.08	0.08	0.08				0.00	0.61	0.61	0.17	1.00	0.00
Sat Flow, veh/h	1763	19	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	93	0	62				0	294	126	192	800	0
Grp Sat Flow(s),veh/h/ln	1782	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	3.0	0.0	2.2				0.0	2.1	2.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	2.2				0.0	2.1	2.0	3.1	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	147	0	131				0	2163	965	290	1435	0
V/C Ratio(X)	0.63	0.00	0.47				0.00	0.14	0.13	0.66	0.56	0.00
Avail Cap(c_a), veh/h	520	0	462				0	2163	965	432	1435	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	26.6	0.0	26.3				0.0	5.0	5.0	24.2	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	2.6				0.0	0.1	0.3	2.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9				0.0	0.6	0.6	1.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	28.9				0.0	5.1	5.3	26.3	1.3	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	155						420			992		
Approach Delay, s/veh	30.2						5.2			6.1		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	9.5	41.0		9.5			50.5					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	7.5	21.5		17.5			33.5					
Max Q Clear Time (g_c+l1), s	5.1	4.1		5.0			2.0					
Green Ext Time (p_c), s	0.1	1.4		0.3			3.6					
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									
Notes												

HCM 6th Signalized Intersection Summary 16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	56	2	187	94	122	0	0	591	53
Future Volume (veh/h)	0	0	0	56	2	187	94	122	0	0	591	53
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				64	2	212	107	139	0	0	672	60
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				295	9	270	138	2415	0	0	1873	834
Arrive On Green				0.17	0.17	0.17	0.08	0.68	0.00	0.00	0.53	0.53
Sat Flow, veh/h				1730	54	1582	1781	3647	0	0	3647	1584
Grp Volume(v), veh/h				66	0	212	107	139	0	0	672	60
Grp Sat Flow(s),veh/h/ln				1784	0	1582	1781	1777	0	0	1777	1584
Q Serve(g_s), s				1.9	0.0	7.7	3.5	0.8	0.0	0.0	6.6	1.1
Cycle Q Clear(g_c), s				1.9	0.0	7.7	3.5	0.8	0.0	0.0	6.6	1.1
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				304	0	270	138	2415	0	0	1873	834
V/C Ratio(X)				0.22	0.00	0.79	0.77	0.06	0.00	0.00	0.36	0.07
Avail Cap(c_a), veh/h				550	0	488	282	2415	0	0	1873	834
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.4	0.0	23.8	27.1	3.2	0.0	0.0	8.3	7.0
Incr Delay (d2), s/veh				0.4	0.0	5.1	8.8	0.0	0.0	0.0	0.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	3.0	1.8	0.2	0.0	0.0	2.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.8	0.0	28.9	36.0	3.2	0.0	0.0	8.8	7.1
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					278			246			732	
Approach Delay, s/veh					27.2			17.5			8.7	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		45.3			9.2	36.1		14.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5			9.5	18.5		18.5				
Max Q Clear Time (g_c+I1), s		2.8			5.5	8.6		9.7				
Green Ext Time (p_c), s		0.5			0.1	2.2		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				14.5								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2	324	0	0	0	0	211	23	121	526	0
Future Volume (veh/h)	5	2	324	0	0	0	0	211	23	121	526	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	6	2	316				0	248	27	142	619	0
Peak Hour Factor	0.85	0.85	0.85				0.85	0.85	0.85	0.85	0.85	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	207	69	426				0	1849	825	181	2476	0
Arrive On Green	0.15	0.15	0.15				0.00	0.52	0.52	0.20	1.00	0.00
Sat Flow, veh/h	1352	451	2781				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	8	0	316				0	248	27	142	619	0
Grp Sat Flow(s),veh/h/ln	1803	0	1390				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.2	0.0	6.5				0.0	2.2	0.5	4.5	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	6.5				0.0	2.2	0.5	4.5	0.0	0.0
Prop In Lane	0.75		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	276	0	426				0	1849	825	181	2476	0
V/C Ratio(X)	0.03	0.00	0.74				0.00	0.13	0.03	0.78	0.25	0.00
Avail Cap(c_a), veh/h	466	0	718				0	1849	825	460	2476	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	21.6	0.0	24.3				0.0	7.4	7.0	23.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.6				0.0	0.2	0.1	6.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.1				0.0	0.7	0.2	2.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	26.8				0.0	7.6	7.1	30.2	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	324						275			761		
Approach Delay, s/veh	26.7						7.5			5.8		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	10.6	35.7		13.7			46.3					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	15.5	15.5		15.5			35.5					
Max Q Clear Time (g_c+I1), s	6.5	4.2		8.5			2.0					
Green Ext Time (p_c), s	0.2	0.7		0.7			2.6					
Intersection Summary												
HCM 6th Ctrl Delay	11.1											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary24: Chadbourne/Chadbourne Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Initial Q (Qb), veh							0	0	0	0	0	0
Ped-Bike Adj(A_pbT)							1.00		1.00	1.00		1.00
Parking Bus, Adj							1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach							No			No		
Adj Sat Flow, veh/h/ln							1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h							0	0	0	0	0	0
Peak Hour Factor							0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %							2	2	2	2	2	2
Cap, veh/h							320	2843	1268	320	2843	0
Arrive On Green							0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h							1781	3554	1585	1781	3647	0
Grp Volume(v), veh/h							0	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln							1781	1777	1585	1781	1777	0
Q Serve(g_s), s							0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s							0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane							1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h							320	2843	1268	320	2843	0
V/C Ratio(X)							0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h							320	2843	1268	320	2843	0
HCM Platoon Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)							0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh							0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh							0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS							A	A	A	A	A	A
Approach Vol, veh/h								0			0	
Approach Delay, s/veh								0.0			0.0	
Approach LOS												
Timer - Assigned Phs	2					6						
Phs Duration (G+Y+Rc), s	22.5					22.5						
Change Period (Y+Rc), s	4.5					4.5						
Max Green Setting (Gmax), s	18.0					18.0						
Max Q Clear Time (g_c+I1), s	0.0					0.0						
Green Ext Time (p_c), s	0.0					0.0						
Intersection Summary												
HCM 6th Ctrl Delay	0.0											
HCM 6th LOS	A											

HCM 6th TWSC

2: Russell Rd & Rockville Rd

11-12-2021

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	215	3	22	315	0	3	0	6	0	0	0
Future Vol, veh/h	0	215	3	22	315	0	3	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	269	4	28	394	0	4	0	8	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	273	0	0	721	721	271	725	723	394
Stage 1	-	-	-	-	-	-	271	271	-	450	450	-
Stage 2	-	-	-	-	-	-	450	450	-	275	273	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1290	-	0	343	353	768	340	352	655
Stage 1	0	-	-	-	-	0	735	685	-	589	572	-
Stage 2	0	-	-	-	-	0	589	572	-	731	684	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1290	-	-	336	343	768	329	342	655
Mov Cap-2 Maneuver	-	-	-	-	-	-	336	343	-	329	342	-
Stage 1	-	-	-	-	-	-	735	685	-	589	556	-
Stage 2	-	-	-	-	-	-	573	556	-	724	684	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			11.8			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	538	-	-	1290	-	-						
HCM Lane V/C Ratio	0.021	-	-	0.021	-	-						
HCM Control Delay (s)	11.8	-	-	7.9	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

11-12-2021

Intersection				
Intersection Delay, s/veh	7.0			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	260	350	337	307
Demand Flow Rate, veh/h	265	357	344	314
Vehicles Circulating, veh/h	313	354	172	400
Vehicles Exiting, veh/h	401	162	406	311
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.3	7.9	6.0	7.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	265	357	344	314
Cap Entry Lane, veh/h	1003	962	1158	918
Entry HV Adj Factor	0.981	0.980	0.978	0.979
Flow Entry, veh/h	260	350	337	307
Cap Entry, veh/h	984	942	1133	898
V/C Ratio	0.264	0.371	0.297	0.342
Control Delay, s/veh	6.3	7.9	6.0	7.8
LOS	A	A	A	A
95th %tile Queue, veh	1	2	1	2

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	208	1	130	66	285	0	0	447	85
Future Volume (veh/h)	0	0	0	208	1	130	66	285	0	0	447	85
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				169	69	119	69	297	0	0	466	73
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				274	94	162	87	2474	0	0	1757	274
Arrive On Green				0.15	0.15	0.15	0.10	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				1781	609	1051	1781	3647	0	0	3164	478
Grp Volume(v), veh/h				169	0	188	69	297	0	0	268	271
Grp Sat Flow(s),veh/h/ln				1781	0	1660	1781	1777	0	0	1777	1772
Q Serve(g_s), s				5.3	0.0	6.5	2.3	0.0	0.0	0.0	4.6	4.6
Cycle Q Clear(g_c), s				5.3	0.0	6.5	2.3	0.0	0.0	0.0	4.6	4.6
Prop In Lane				1.00		0.63	1.00		0.00	0.00		0.27
Lane Grp Cap(c), veh/h				274	0	255	87	2474	0	0	1017	1014
V/C Ratio(X)				0.62	0.00	0.74	0.79	0.12	0.00	0.00	0.26	0.27
Avail Cap(c_a), veh/h				520	0	484	223	2474	0	0	1017	1014
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh				23.7	0.0	24.2	26.8	0.0	0.0	0.0	6.5	6.5
Incr Delay (d2), s/veh				2.3	0.0	4.1	14.5	0.1	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	2.7	1.2	0.0	0.0	0.0	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.0	0.0	28.3	41.2	0.1	0.0	0.0	7.0	7.0
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					357			366			539	
Approach Delay, s/veh					27.2			7.9			7.0	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.3			7.4	38.8		13.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			7.5	21.5		17.5				
Max Q Clear Time (g_c+I1), s		2.0			4.3	6.6		8.5				
Green Ext Time (p_c), s		1.2			0.0	1.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				13.0								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	5	96	0	0	0	0	255	243	188	467	0
Future Volume (veh/h)	102	5	96	0	0	0	0	255	243	188	467	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	112	5	78				0	280	267	207	513	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	179	8	162				0	2068	909	306	1394	0
Arrive On Green	0.10	0.10	0.10				0.00	1.00	1.00	0.18	1.00	0.00
Sat Flow, veh/h	1709	76	1546				0	3647	1562	3456	1870	0
Grp Volume(v), veh/h	117	0	78				0	280	267	207	513	0
Grp Sat Flow(s),veh/h/ln	1785	0	1546				0	1777	1562	1728	1870	0
Q Serve(g_s), s	3.8	0.0	2.9				0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	2.9				0.0	0.0	0.0	3.4	0.0	0.0
Prop In Lane	0.96		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	187	0	162				0	2068	909	306	1394	0
V/C Ratio(X)	0.63	0.00	0.48				0.00	0.14	0.29	0.68	0.37	0.00
Avail Cap(c_a), veh/h	550	0	477				0	2068	909	432	1394	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	25.7	0.0	25.3				0.0	0.0	0.0	23.9	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	2.2				0.0	0.1	0.8	2.5	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.1				0.0	0.0	0.2	1.3	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	27.5				0.0	0.1	0.8	26.3	0.7	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		195						547			720	
Approach Delay, s/veh		28.5						0.5			8.1	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.8	39.4		10.8		49.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	20.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	5.4	2.0		5.8		2.0						
Green Ext Time (p_c), s	0.1	1.8		0.4		1.9						
Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	2	108	243	546	0	0	353	82
Future Volume (veh/h)	0	0	0	17	2	108	243	546	0	0	353	82
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				20	2	52	289	650	0	0	420	98
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				77	8	74	338	2852	0	0	1911	835
Arrive On Green				0.05	0.05	0.05	0.38	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1626	163	1561	1781	3647	0	0	3647	1552
Grp Volume(v), veh/h				22	0	52	289	650	0	0	420	98
Grp Sat Flow(s),veh/h/ln				1789	0	1561	1781	1777	0	0	1777	1552
Q Serve(g_s), s				0.7	0.0	2.0	8.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				0.7	0.0	2.0	8.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.91		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				85	0	74	338	2852	0	0	1911	835
V/C Ratio(X)				0.26	0.00	0.70	0.86	0.23	0.00	0.00	0.22	0.12
Avail Cap(c_a), veh/h				253	0	221	609	2852	0	0	1911	835
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.6	0.0	28.2	17.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.6	0.0	11.4	5.2	0.2	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	0.9	3.2	0.1	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.1	0.0	39.5	23.1	0.2	0.0	0.0	0.3	0.3
LnGrp LOS				C	A	D	C	A	A	A	A	A
Approach Vol, veh/h					74			939			518	
Approach Delay, s/veh					36.4			7.2			0.3	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.7			15.9	36.8		7.3				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5			20.5	17.5		8.5				
Max Q Clear Time (g_c+I1), s		2.0			10.9	2.0		4.0				
Green Ext Time (p_c), s		2.8			0.5	1.8		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.3								
HCM 6th LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 					 			 	
Traffic Volume (veh/h)	234	3	159	0	0	0	0	555	40	193	177	0
Future Volume (veh/h)	234	3	159	0	0	0	0	555	40	193	177	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	282	4	126				0	669	48	233	213	0
Peak Hour Factor	0.83	0.83	0.83				0.83	0.83	0.83	0.83	0.83	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	346	5	538				0	1486	649	285	2321	0
Arrive On Green	0.20	0.20	0.20				0.00	0.42	0.42	0.16	0.65	0.00
Sat Flow, veh/h	1758	25	2729				0	3647	1552	1781	3647	0
Grp Volume(v), veh/h	286	0	126				0	669	48	233	213	0
Grp Sat Flow(s),veh/h/ln	1782	0	1364				0	1777	1552	1781	1777	0
Q Serve(g_s), s	9.2	0.0	2.3				0.0	8.1	1.1	7.6	1.3	0.0
Cycle Q Clear(g_c), s	9.2	0.0	2.3				0.0	8.1	1.1	7.6	1.3	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	351	0	538				0	1486	649	285	2321	0
V/C Ratio(X)	0.81	0.00	0.23				0.00	0.45	0.07	0.82	0.09	0.00
Avail Cap(c_a), veh/h	460	0	705				0	1486	649	401	2321	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	23.0	0.0	20.3				0.0	12.5	10.5	24.4	3.8	0.0
Incr Delay (d2), s/veh	8.3	0.0	0.2				0.0	1.0	0.2	8.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.7				0.0	3.0	0.4	3.6	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	20.5				0.0	13.5	10.7	32.9	3.9	0.0
LnGrp LOS	C	A	C				A	B	B	C	A	A
Approach Vol, veh/h		412						717			446	
Approach Delay, s/veh		28.0						13.3			19.1	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	14.1	29.6		16.3			43.7					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	13.5	17.5		15.5			35.5					
Max Q Clear Time (g_c+I1), s	9.6	10.1		11.2			3.3					
Green Ext Time (p_c), s	0.2	1.9		0.6			0.8					
Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary

60: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	277	0	4	147	264	0	6	2	253	1	42
Future Volume (veh/h)	212	277	0	4	147	264	0	6	2	253	1	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	301	0	4	160	124	0	7	2	275	1	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	1001	0	8	446	186	0	260	74	337	15	706
Arrive On Green	0.16	0.28	0.00	0.00	0.13	0.13	0.00	0.19	0.19	0.19	0.46	0.46
Sat Flow, veh/h	1781	3647	0	1781	3554	1484	0	1392	398	1781	33	1534
Grp Volume(v), veh/h	230	301	0	4	160	124	0	0	9	275	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1484	0	0	1790	1781	0	1568
Q Serve(g_s), s	6.6	3.5	0.0	0.1	2.2	4.2	0.0	0.0	0.2	7.9	0.0	0.9
Cycle Q Clear(g_c), s	6.6	3.5	0.0	0.1	2.2	4.2	0.0	0.0	0.2	7.9	0.0	0.9
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.22	1.00		0.98
Lane Grp Cap(c), veh/h	286	1001	0	8	446	186	0	0	334	337	0	722
V/C Ratio(X)	0.80	0.30	0.00	0.52	0.36	0.67	0.00	0.00	0.03	0.82	0.00	0.07
Avail Cap(c_a), veh/h	418	1168	0	151	634	265	0	0	334	519	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	15.0	0.0	26.4	21.3	22.2	0.0	0.0	17.7	20.7	0.0	8.0
Incr Delay (d2), s/veh	7.1	0.2	0.0	45.4	0.5	4.0	0.0	0.0	0.1	5.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.3	0.0	0.1	0.9	1.6	0.0	0.0	0.1	3.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	15.2	0.0	71.8	21.8	26.2	0.0	0.0	17.8	26.6	0.0	8.2
LnGrp LOS	C	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	531			288			9			322		
Approach Delay, s/veh	21.0			24.4			17.8			23.9		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	14.6	14.4	4.7	19.5		29.0	13.0	11.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	4.5	4.5	17.5		24.5	12.5	9.5				
Max Q Clear Time (g_c+I1), s	9.9	2.2	2.1	5.5		2.9	8.6	6.2				
Green Ext Time (p_c), s	0.4	0.0	0.0	0.9		0.1	0.2	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	22.6											
HCM 6th LOS	C											

HCM 6th TWSC

2: Russell Rd & Rockville Rd

11-12-2021

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↰↱			↰↱	
Traffic Vol, veh/h	0	362	7	16	205	0	6	0	42	0	0	0
Future Vol, veh/h	0	362	7	16	205	0	6	0	42	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	407	8	18	230	0	7	0	47	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	415	0	0	677	677	411	701	681	230
Stage 1	-	-	-	-	-	-	411	411	-	266	266	-
Stage 2	-	-	-	-	-	-	266	266	-	435	415	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1144	-	0	367	375	641	353	373	809
Stage 1	0	-	-	-	-	0	618	595	-	739	689	-
Stage 2	0	-	-	-	-	0	739	689	-	600	592	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1144	-	-	362	368	641	323	366	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	368	-	323	366	-
Stage 1	-	-	-	-	-	-	618	595	-	739	677	-
Stage 2	-	-	-	-	-	-	726	677	-	556	592	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			11.8			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	585	-	-	1144	-	-						
HCM Lane V/C Ratio	0.092	-	-	0.016	-	-						
HCM Control Delay (s)	11.8	-	-	8.2	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.3	-	-	0	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

11-12-2021

Intersection				
Intersection Delay, s/veh	8.7			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	433	167	518	246
Demand Flow Rate, veh/h	441	170	529	251
Vehicles Circulating, veh/h	253	515	370	239
Vehicles Exiting, veh/h	237	384	324	446
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.9	6.7	11.5	5.6
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	441	170	529	251
Cap Entry Lane, veh/h	1066	816	946	1081
Entry HV Adj Factor	0.982	0.981	0.979	0.979
Flow Entry, veh/h	433	167	518	246
Cap Entry, veh/h	1047	800	926	1059
V/C Ratio	0.414	0.208	0.559	0.232
Control Delay, s/veh	7.9	6.7	11.5	5.6
LOS	A	A	B	A
95th %tile Queue, veh	2	1	4	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	101	0	4	81	164	0	2	4	200	3	34
Future Volume (veh/h)	46	101	0	4	81	164	0	2	4	200	3	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	106	0	4	85	78	0	2	4	211	3	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	464	0	4	358	155	0	154	308	275	66	792
Arrive On Green	0.03	0.13	0.00	0.00	0.10	0.10	0.00	0.28	0.28	0.15	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1536	0	551	1102	1781	122	1462
Grp Volume(v), veh/h	48	106	0	4	85	78	0	0	6	211	0	39
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1536	0	0	1653	1781	0	1584
Q Serve(g_s), s	1.1	1.1	0.0	0.1	0.9	2.0	0.0	0.0	0.1	4.7	0.0	0.5
Cycle Q Clear(g_c), s	1.1	1.1	0.0	0.1	0.9	2.0	0.0	0.0	0.1	4.7	0.0	0.5
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.67	1.00		0.92
Lane Grp Cap(c), veh/h	57	464	0	4	358	155	0	0	462	275	0	858
V/C Ratio(X)	0.84	0.23	0.00	0.93	0.24	0.50	0.00	0.00	0.01	0.77	0.00	0.05
Avail Cap(c_a), veh/h	322	1584	0	236	1412	610	0	0	462	622	0	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	16.2	0.0	20.7	17.2	17.7	0.0	0.0	10.8	16.8	0.0	4.5
Incr Delay (d2), s/veh	26.2	0.2	0.0	180.3	0.3	2.5	0.0	0.0	0.1	4.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	0.0	0.2	0.3	0.7	0.0	0.0	0.0	2.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	16.4	0.0	201.1	17.5	20.2	0.0	0.0	10.9	21.3	0.0	4.6
LnGrp LOS	D	B	A	F	B	C	A	A	B	C	A	A
Approach Vol, veh/h	154			167			6			250		
Approach Delay, s/veh	25.7			23.2			10.9			18.7		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	10.9	16.1	4.6	9.9		27.0	5.8	8.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	3.5	5.5	18.5		22.5	7.5	16.5				
Max Q Clear Time (g_c+I1), s	6.7	2.1	2.1	3.1		2.5	3.1	4.0				
Green Ext Time (p_c), s	0.3	0.0	0.0	0.3		0.1	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	21.8											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	227	4	91	60	158	0	0	230	75
Future Volume (veh/h)	0	0	0	227	4	91	60	158	0	0	230	75
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				167	116	83	65	172	0	0	250	49
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				270	154	110	98	2482	0	0	1689	326
Arrive On Green				0.15	0.15	0.15	0.06	0.70	0.00	0.00	0.57	0.57
Sat Flow, veh/h				1781	1014	726	1781	3647	0	0	3064	573
Grp Volume(v), veh/h				167	0	199	65	172	0	0	148	151
Grp Sat Flow(s),veh/h/ln				1781	0	1740	1781	1777	0	0	1777	1767
Q Serve(g_s), s				5.3	0.0	6.6	2.1	0.9	0.0	0.0	2.4	2.4
Cycle Q Clear(g_c), s				5.3	0.0	6.6	2.1	0.9	0.0	0.0	2.4	2.4
Prop In Lane				1.00		0.42	1.00		0.00	0.00		0.32
Lane Grp Cap(c), veh/h				270	0	263	98	2482	0	0	1010	1005
V/C Ratio(X)				0.62	0.00	0.76	0.66	0.07	0.00	0.00	0.15	0.15
Avail Cap(c_a), veh/h				401	0	391	252	2482	0	0	1010	1005
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.89	0.89
Uniform Delay (d), s/veh				23.8	0.0	24.4	27.8	2.9	0.0	0.0	6.1	6.1
Incr Delay (d2), s/veh				2.3	0.0	4.6	7.4	0.1	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	2.9	1.1	0.2	0.0	0.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.1	0.0	29.0	35.2	2.9	0.0	0.0	6.4	6.4
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					366			237			299	
Approach Delay, s/veh					27.7			11.8			6.4	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.4			7.8	38.6		13.6				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		37.5			8.5	24.5		13.5				
Max Q Clear Time (g_c+I1), s		2.9			4.1	4.4		8.6				
Green Ext Time (p_c), s		0.6			0.0	0.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay				16.5								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	3	37	0	0	0	0	149	190	121	336	0
Future Volume (veh/h)	69	3	37	0	0	0	0	149	190	121	336	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	73	3	28				0	159	202	129	357	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	118	5	109				0	2249	1003	254	1461	0
Arrive On Green	0.07	0.07	0.07				0.00	0.63	0.63	0.15	1.00	0.00
Sat Flow, veh/h	1714	70	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	76	0	28				0	159	202	129	357	0
Grp Sat Flow(s),veh/h/ln	1785	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	2.5	0.0	1.0				0.0	1.0	3.2	2.1	0.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	1.0				0.0	1.0	3.2	2.1	0.0	0.0
Prop In Lane	0.96		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	122	0	109				0	2249	1003	254	1461	0
V/C Ratio(X)	0.62	0.00	0.26				0.00	0.07	0.20	0.51	0.24	0.00
Avail Cap(c_a), veh/h	550	0	489				0	2249	1003	374	1461	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	27.2	0.0	26.5				0.0	4.2	4.6	24.6	0.0	0.0
Incr Delay (d2), s/veh	5.0	0.0	1.2				0.0	0.1	0.5	1.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.4				0.0	0.3	0.9	0.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	27.7				0.0	4.3	5.1	26.1	0.4	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	104						361			486		
Approach Delay, s/veh	31.0						4.7			7.2		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	8.9	42.5		8.6			51.4					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	6.5	21.5		18.5			32.5					
Max Q Clear Time (g_c+l1), s	4.1	5.2		4.5			2.0					
Green Ext Time (p_c), s	0.1	1.1		0.2			1.2					
Intersection Summary												
HCM 6th Ctrl Delay	8.9											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	1	120	81	132	0	0	227	68
Future Volume (veh/h)	0	0	0	21	1	120	81	132	0	0	227	68
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				24	1	107	91	148	0	0	255	76
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				157	7	145	117	2695	0	0	2194	979
Arrive On Green				0.09	0.09	0.09	0.07	0.76	0.00	0.00	0.62	0.62
Sat Flow, veh/h				1713	71	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				25	0	107	91	148	0	0	255	76
Grp Sat Flow(s),veh/h/ln				1785	0	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				0.8	0.0	3.9	3.0	0.6	0.0	0.0	1.8	1.2
Cycle Q Clear(g_c), s				0.8	0.0	3.9	3.0	0.6	0.0	0.0	1.8	1.2
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				164	0	145	117	2695	0	0	2194	979
V/C Ratio(X)				0.15	0.00	0.74	0.78	0.05	0.00	0.00	0.12	0.08
Avail Cap(c_a), veh/h				521	0	462	252	2695	0	0	2194	979
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.1	0.0	26.5	27.6	1.8	0.0	0.0	4.7	4.6
Incr Delay (d2), s/veh				0.4	0.0	7.1	10.4	0.0	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	1.7	1.5	0.1	0.0	0.0	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.5	0.0	33.6	38.0	1.9	0.0	0.0	4.8	4.8
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					132			239			331	
Approach Delay, s/veh					32.1			15.6			4.8	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.0			8.5	41.5		10.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			8.5	20.5		17.5				
Max Q Clear Time (g_c+I1), s		2.6			5.0	3.8		5.9				
Green Ext Time (p_c), s		0.5			0.0	1.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				13.6								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

08-26-2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1	42	0	0	0	0	200	21	132	116	0
Future Volume (veh/h)	13	1	42	0	0	0	0	200	21	132	116	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	14	1	0				0	222	23	147	129	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	31	2	51				0	2314	1032	188	2955	0
Arrive On Green	0.02	0.02	0.00				0.00	0.65	0.65	0.11	0.83	0.00
Sat Flow, veh/h	1668	119	2790				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	15	0	0				0	222	23	147	129	0
Grp Sat Flow(s),veh/h/ln	1787	0	1395				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.5	0.0	0.0				0.0	1.4	0.3	4.8	0.4	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0				0.0	1.4	0.3	4.8	0.4	0.0
Prop In Lane	0.93		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	33	0	51				0	2314	1032	188	2955	0
V/C Ratio(X)	0.46	0.00	0.00				0.00	0.10	0.02	0.78	0.04	0.00
Avail Cap(c_a), veh/h	551	0	860				0	2314	1032	312	2955	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.1	0.0	0.0				0.0	3.9	3.7	26.2	0.9	0.0
Incr Delay (d2), s/veh	9.5	0.0	0.0				0.0	0.1	0.0	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0				0.0	0.4	0.1	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	0.0				0.0	4.0	3.7	33.1	0.9	0.0
LnGrp LOS	D	A	A				A	A	A	C	A	A
Approach Vol, veh/h	15						245			276		
Approach Delay, s/veh	38.7						4.0			18.1		
Approach LOS	D						A			B		
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.8	43.6		5.6		54.4						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	10.5	17.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	6.8	3.4		2.5		2.4						
Green Ext Time (p_c), s	0.1	0.7		0.0		0.4						
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

07-24-2019

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↰↱			↰↱	
Traffic Vol, veh/h	0	197	2	23	195	0	1	0	25	1	0	0
Future Vol, veh/h	0	197	2	23	195	0	1	0	25	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	221	2	26	219	0	1	0	28	1	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	223	0	0	493	493	222	507	494	219
Stage 1	-	-	-	-	-	-	222	222	-	271	271	-
Stage 2	-	-	-	-	-	-	271	271	-	236	223	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1346	-	0	486	477	818	476	476	821
Stage 1	0	-	-	-	-	0	780	720	-	735	685	-
Stage 2	0	-	-	-	-	0	735	685	-	767	719	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1346	-	-	478	467	818	452	466	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	478	467	-	452	466	-
Stage 1	-	-	-	-	-	-	780	720	-	735	670	-
Stage 2	-	-	-	-	-	-	719	670	-	741	719	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.8			9.7			13		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	796	-	-	1346	-	452						
HCM Lane V/C Ratio	0.037	-	-	0.019	-	0.002						
HCM Control Delay (s)	9.7	-	-	7.7	0	13						
HCM Lane LOS	A	-	-	A	A	B						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0						

HCM 6th Roundabout 4: Abernathy Rd & Rockville Rd

08-26-2019

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	239	174	231	152
Demand Flow Rate, veh/h	244	177	236	155
Vehicles Circulating, veh/h	161	237	142	251
Vehicles Exiting, veh/h	245	141	263	163
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.0	4.9	4.8	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	244	177	236	155
Cap Entry Lane, veh/h	1171	1084	1194	1068
Entry HV Adj Factor	0.980	0.981	0.979	0.979
Flow Entry, veh/h	239	174	231	152
Cap Entry, veh/h	1148	1063	1169	1046
V/C Ratio	0.208	0.163	0.198	0.145
Control Delay, s/veh	5.0	4.9	4.8	4.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	144	0	6	391	315	0	0	1	317	4	93
Future Volume (veh/h)	35	144	0	6	391	315	0	0	1	317	4	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	171	0	7	465	196	0	0	1	377	5	111
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	766	0	13	669	283	0	0	292	442	35	784
Arrive On Green	0.03	0.22	0.00	0.01	0.19	0.19	0.00	0.00	0.19	0.25	0.52	0.52
Sat Flow, veh/h	1781	3647	0	1781	3554	1503	0	0	1554	1781	68	1505
Grp Volume(v), veh/h	42	171	0	7	465	196	0	0	1	377	0	116
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1503	0	0	1554	1781	0	1573
Q Serve(g_s), s	1.2	2.1	0.0	0.2	6.4	6.4	0.0	0.0	0.0	10.7	0.0	2.0
Cycle Q Clear(g_c), s	1.2	2.1	0.0	0.2	6.4	6.4	0.0	0.0	0.0	10.7	0.0	2.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	62	766	0	13	669	283	0	0	292	442	0	820
V/C Ratio(X)	0.68	0.22	0.00	0.53	0.70	0.69	0.00	0.00	0.00	0.85	0.00	0.14
Avail Cap(c_a), veh/h	186	909	0	186	909	384	0	0	292	591	0	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	17.1	0.0	26.1	20.0	20.0	0.0	0.0	17.4	18.9	0.0	6.5
Incr Delay (d2), s/veh	12.1	0.1	0.0	29.4	1.4	3.2	0.0	0.0	0.0	9.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	0.0	0.2	2.5	2.3	0.0	0.0	0.0	5.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	17.2	0.0	55.5	21.4	23.2	0.0	0.0	17.4	27.9	0.0	6.9
LnGrp LOS	D	B	A	E	C	C	A	A	B	C	A	A
Approach Vol, veh/h	213			668			1			493		
Approach Delay, s/veh	21.2			22.3			17.4			23.0		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	17.6	14.4	4.9	15.9		32.0	6.3	14.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.5	5.5	5.5	13.5		27.5	5.5	13.5				
Max Q Clear Time (g_c+I1), s	12.7	2.0	2.2	4.1		4.0	3.2	8.4				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.4		0.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	22.4											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	727	0	364	44	348	0	0	281	181
Future Volume (veh/h)	0	0	0	727	0	364	44	348	0	0	281	181
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				631	327	397	52	414	0	0	335	179
Peak Hour Factor				0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				834	360	437	69	1357	0	0	605	317
Arrive On Green				0.47	0.47	0.47	0.08	0.76	0.00	0.00	0.27	0.27
Sat Flow, veh/h				1781	769	933	1781	3647	0	0	2348	1180
Grp Volume(v), veh/h				631	0	724	52	414	0	0	263	251
Grp Sat Flow(s),veh/h/ln				1781	0	1702	1781	1777	0	0	1777	1658
Q Serve(g_s), s				17.5	0.0	23.6	1.7	2.2	0.0	0.0	7.6	7.8
Cycle Q Clear(g_c), s				17.5	0.0	23.6	1.7	2.2	0.0	0.0	7.6	7.8
Prop In Lane				1.00		0.55	1.00		0.00	0.00		0.71
Lane Grp Cap(c), veh/h				834	0	797	69	1357	0	0	477	445
V/C Ratio(X)				0.76	0.00	0.91	0.76	0.31	0.00	0.00	0.55	0.57
Avail Cap(c_a), veh/h				905	0	865	134	1357	0	0	477	445
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.70	0.70
Uniform Delay (d), s/veh				13.1	0.0	14.8	27.4	4.6	0.0	0.0	18.8	18.9
Incr Delay (d2), s/veh				3.4	0.0	12.7	15.2	0.6	0.0	0.0	3.2	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.6	0.0	10.3	1.0	0.7	0.0	0.0	3.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.6	0.0	27.5	42.6	5.2	0.0	0.0	22.0	22.6
LnGrp LOS				B	A	C	D	A	A	A	C	C
Approach Vol, veh/h					1355			466			514	
Approach Delay, s/veh					22.4			9.4			22.3	
Approach LOS					C			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		27.4			6.8	20.6		32.6				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		20.5			4.5	11.5		30.5				
Max Q Clear Time (g_c+I1), s		4.2			3.7	9.8		25.6				
Green Ext Time (p_c), s		1.5			0.0	0.4		2.5				
Intersection Summary												
HCM 6th Ctrl Delay				19.8								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1	93	0	0	0	0	299	128	195	813	0
Future Volume (veh/h)	93	1	93	0	0	0	0	299	128	195	813	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	111	1	81				0	356	152	232	968	0
Peak Hour Factor	0.84	0.84	0.84				0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	172	2	154				0	2068	922	332	1408	0
Arrive On Green	0.10	0.10	0.10				0.00	0.58	0.58	0.19	1.00	0.00
Sat Flow, veh/h	1766	16	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	112	0	81				0	356	152	232	968	0
Grp Sat Flow(s),veh/h/ln	1782	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	3.6	0.0	2.9				0.0	2.8	2.7	3.8	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	2.9				0.0	2.8	2.7	3.8	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	154				0	2068	922	332	1408	0
V/C Ratio(X)	0.65	0.00	0.53				0.00	0.17	0.16	0.70	0.69	0.00
Avail Cap(c_a), veh/h	549	0	489				0	2068	922	432	1408	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.67	0.67	0.00
Uniform Delay (d), s/veh	26.1	0.0	25.8				0.0	5.8	5.8	23.4	0.0	0.0
Incr Delay (d2), s/veh	4.0	0.0	2.8				0.0	0.2	0.4	2.3	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.2				0.0	0.8	0.8	1.4	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	0.0	28.5				0.0	6.0	6.2	25.7	1.9	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	193						508			1200		
Approach Delay, s/veh	29.5						6.1			6.5		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	10.3	39.4		10.3			49.7					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	7.5	20.5		18.5			32.5					
Max Q Clear Time (g_c+l1), s	5.8	4.8		5.6			2.0					
Green Ext Time (p_c), s	0.1	1.7		0.4			4.9					
Intersection Summary												
HCM 6th Ctrl Delay	8.7											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	68	2	226	114	148	0	0	715	64
Future Volume (veh/h)	0	0	0	68	2	226	114	148	0	0	715	64
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				76	2	254	128	166	0	0	803	72
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				343	9	312	165	2320	0	0	1725	768
Arrive On Green				0.20	0.20	0.20	0.09	0.65	0.00	0.00	0.49	0.49
Sat Flow, veh/h				1738	46	1583	1781	3647	0	0	3647	1583
Grp Volume(v), veh/h				78	0	254	128	166	0	0	803	72
Grp Sat Flow(s),veh/h/ln				1783	0	1583	1781	1777	0	0	1777	1583
Q Serve(g_s), s				2.2	0.0	9.2	4.2	1.0	0.0	0.0	9.0	1.5
Cycle Q Clear(g_c), s				2.2	0.0	9.2	4.2	1.0	0.0	0.0	9.0	1.5
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				352	0	312	165	2320	0	0	1725	768
V/C Ratio(X)				0.22	0.00	0.81	0.78	0.07	0.00	0.00	0.47	0.09
Avail Cap(c_a), veh/h				550	0	488	282	2320	0	0	1725	768
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.2	0.0	23.0	26.6	3.8	0.0	0.0	10.3	8.3
Incr Delay (d2), s/veh				0.3	0.0	5.8	7.6	0.1	0.0	0.0	0.9	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.9	0.0	3.7	2.0	0.3	0.0	0.0	3.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.5	0.0	28.9	34.2	3.9	0.0	0.0	11.2	8.6
LnGrp LOS				C	A	C	C	A	A	A	B	A
Approach Vol, veh/h					332			294			875	
Approach Delay, s/veh					26.9			17.1			11.0	
Approach LOS					C			B			B	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	43.7			10.0			33.6			16.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	32.5			9.5			18.5			18.5		
Max Q Clear Time (g_c+l1), s	3.0			6.2			11.0			11.2		
Green Ext Time (p_c), s	0.6			0.1			2.3			0.6		
Intersection Summary												
HCM 6th Ctrl Delay	15.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	2	392	0	0	0	0	256	28	146	637	0
Future Volume (veh/h)	6	2	392	0	0	0	0	256	28	146	637	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	7	2	388				0	294	32	168	732	0
Peak Hour Factor	0.87	0.87	0.87				0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	251	72	498				0	1698	757	211	2384	0
Arrive On Green	0.18	0.18	0.18				0.00	0.48	0.48	0.24	1.00	0.00
Sat Flow, veh/h	1400	400	2782				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	9	0	388				0	294	32	168	732	0
Grp Sat Flow(s),veh/h/ln	1800	0	1391				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.2	0.0	8.0				0.0	2.8	0.6	5.3	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	8.0				0.0	2.8	0.6	5.3	0.0	0.0
Prop In Lane	0.78		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	322	0	498				0	1698	757	211	2384	0
V/C Ratio(X)	0.03	0.00	0.78				0.00	0.17	0.04	0.80	0.31	0.00
Avail Cap(c_a), veh/h	465	0	719				0	1698	757	460	2384	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	20.3	0.0	23.5				0.0	8.9	8.4	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	3.4				0.0	0.2	0.1	6.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.7				0.0	1.0	0.2	2.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	0.0	26.9				0.0	9.1	8.5	28.4	0.3	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	397						326			900		
Approach Delay, s/veh	26.8						9.1			5.5		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	11.6	33.2	15.2		44.8							
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5							
Max Green Setting (Gmax), s	15.5	15.5	15.5		35.5							
Max Q Clear Time (g_c+l1), s	7.3	4.8	10.0		2.0							
Green Ext Time (p_c), s	0.2	0.9	0.7		3.2							
Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

11-12-2021

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	260	4	26	381	0	4	0	7	0	0	0
Future Vol, veh/h	0	260	4	26	381	0	4	0	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	317	5	32	465	0	5	0	9	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	322	0	0	849	849	320	853	851	465
Stage 1	-	-	-	-	-	-	320	320	-	529	529	-
Stage 2	-	-	-	-	-	-	529	529	-	324	322	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1238	-	0	281	298	721	279	297	597
Stage 1	0	-	-	-	-	0	692	652	-	533	527	-
Stage 2	0	-	-	-	-	0	533	527	-	688	651	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1238	-	-	273	288	721	268	287	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	273	288	-	268	287	-
Stage 1	-	-	-	-	-	-	692	652	-	533	509	-
Stage 2	-	-	-	-	-	-	514	509	-	680	651	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			13.2			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	452	-	-	1238	-	-						
HCM Lane V/C Ratio	0.03	-	-	0.026	-	-						
HCM Control Delay (s)	13.2	-	-	8	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

11-12-2021

Intersection				
Intersection Delay, s/veh	8.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	306	415	398	364
Demand Flow Rate, veh/h	312	423	406	371
Vehicles Circulating, veh/h	370	418	202	470
Vehicles Exiting, veh/h	471	190	480	371
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.4	10.0	6.9	9.7
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	312	423	406	371
Cap Entry Lane, veh/h	946	901	1123	854
Entry HV Adj Factor	0.980	0.981	0.980	0.980
Flow Entry, veh/h	306	415	398	364
Cap Entry, veh/h	927	884	1100	837
V/C Ratio	0.330	0.470	0.362	0.434
Control Delay, s/veh	7.4	10.0	6.9	9.7
LOS	A	A	A	A
95th %tile Queue, veh	1	3	2	2

HCM 6th Signalized Intersection Summary

8: Chadbourne Rd & WB US80 Offrmap

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	252	1	157	80	345	0	0	532	104
Future Volume (veh/h)	0	0	0	252	1	157	80	345	0	0	532	104
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				203	83	143	83	359	0	0	554	87
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				316	108	187	106	2390	0	0	1651	258
Arrive On Green				0.18	0.18	0.18	0.12	1.00	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1781	610	1051	1781	3647	0	0	3161	480
Grp Volume(v), veh/h				203	0	226	83	359	0	0	320	321
Grp Sat Flow(s),veh/h/ln				1781	0	1661	1781	1777	0	0	1777	1771
Q Serve(g_s), s				6.3	0.0	7.8	2.7	0.0	0.0	0.0	6.1	6.1
Cycle Q Clear(g_c), s				6.3	0.0	7.8	2.7	0.0	0.0	0.0	6.1	6.1
Prop In Lane				1.00		0.63	1.00		0.00	0.00		0.27
Lane Grp Cap(c), veh/h				316	0	295	106	2390	0	0	956	953
V/C Ratio(X)				0.64	0.00	0.77	0.78	0.15	0.00	0.00	0.33	0.34
Avail Cap(c_a), veh/h				520	0	484	252	2390	0	0	956	953
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.78	0.78
Uniform Delay (d), s/veh				22.9	0.0	23.5	26.1	0.0	0.0	0.0	7.8	7.8
Incr Delay (d2), s/veh				2.2	0.0	4.2	11.8	0.1	0.0	0.0	0.7	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	0.0	3.2	1.4	0.0	0.0	0.0	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.1	0.0	27.7	37.8	0.1	0.0	0.0	8.5	8.6
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					429			442			641	
Approach Delay, s/veh					26.4			7.2			8.6	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.8			8.1	36.8		15.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			8.5	20.5		17.5				
Max Q Clear Time (g_c+l1), s		2.0			4.7	8.1		9.8				
Green Ext Time (p_c), s		1.4			0.0	1.9		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				13.2								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	6	115	0	0	0	0	309	294	226	558	0
Future Volume (veh/h)	116	6	115	0	0	0	0	309	294	226	558	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	126	7	98				0	336	130	246	607	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	196	11	179				0	1987	873	346	1373	0
Arrive On Green	0.12	0.12	0.12				0.00	1.00	1.00	0.20	1.00	0.00
Sat Flow, veh/h	1692	94	1548				0	3647	1562	3456	1870	0
Grp Volume(v), veh/h	133	0	98				0	336	130	246	607	0
Grp Sat Flow(s),veh/h/ln	1786	0	1548				0	1777	1562	1728	1870	0
Q Serve(g_s), s	4.3	0.0	3.6				0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.0	3.6				0.0	0.0	0.0	4.0	0.0	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	207	0	179				0	1987	873	346	1373	0
V/C Ratio(X)	0.64	0.00	0.55				0.00	0.17	0.15	0.71	0.44	0.00
Avail Cap(c_a), veh/h	551	0	477				0	1987	873	432	1373	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	25.3	0.0	25.0				0.0	0.0	0.0	23.2	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	2.6				0.0	0.2	0.4	3.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.4				0.0	0.1	0.1	1.6	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	27.6				0.0	0.2	0.4	26.9	0.9	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h		231						466			853	
Approach Delay, s/veh		28.2						0.2			8.4	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.5	38.0		11.5		48.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	20.5		18.5		32.5						
Max Q Clear Time (g_c+I1), s	6.0	2.0		6.3		2.0						
Green Ext Time (p_c), s	0.1	1.6		0.5		2.4						
Intersection Summary												
HCM 6th Ctrl Delay			8.9									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	2	131	294	661	0	0	427	99
Future Volume (veh/h)	0	0	0	21	2	131	294	661	0	0	427	99
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				24	2	65	342	769	0	0	497	115
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				97	8	92	389	2812	0	0	1770	773
Arrive On Green				0.06	0.06	0.06	0.44	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				1650	138	1561	1781	3647	0	0	3647	1552
Grp Volume(v), veh/h				26	0	65	342	769	0	0	497	115
Grp Sat Flow(s),veh/h/ln				1788	0	1561	1781	1777	0	0	1777	1552
Q Serve(g_s), s				0.8	0.0	2.5	10.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				0.8	0.0	2.5	10.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.92		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				105	0	92	389	2812	0	0	1770	773
V/C Ratio(X)				0.25	0.00	0.71	0.88	0.27	0.00	0.00	0.28	0.15
Avail Cap(c_a), veh/h				253	0	221	609	2812	0	0	1770	773
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(l)				1.00	0.00	1.00	0.67	0.67	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.0	0.0	27.7	16.2	0.0	0.0	0.0	0.1	0.1
Incr Delay (d2), s/veh				1.2	0.0	9.6	6.4	0.2	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	1.1	3.6	0.1	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.2	0.0	37.3	22.6	0.2	0.0	0.0	0.5	0.5
LnGrp LOS				C	A	D	C	A	A	A	A	A
Approach Vol, veh/h					91			1111			612	
Approach Delay, s/veh					34.7			7.1			0.5	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.0			17.6	34.4		8.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5			20.5	17.5		8.5				
Max Q Clear Time (g_c+l1), s		2.0			12.5	2.0		4.5				
Green Ext Time (p_c), s		3.5			0.6	2.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.2								
HCM 6th LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary

19: Chadbourne Rd & SR12 EB Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 					 			 	
Traffic Volume (veh/h)	283	4	192	0	0	0	0	672	48	233	215	0
Future Volume (veh/h)	283	4	192	0	0	0	0	672	48	233	215	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	333	5	161				0	791	56	274	253	0
Peak Hour Factor	0.85	0.85	0.85				0.83	0.85	0.85	0.85	0.85	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	6	611				0	1320	576	320	2225	0
Arrive On Green	0.22	0.22	0.22				0.00	0.37	0.37	0.30	1.00	0.00
Sat Flow, veh/h	1756	26	2729				0	3647	1552	1781	3647	0
Grp Volume(v), veh/h	338	0	161				0	791	56	274	253	0
Grp Sat Flow(s),veh/h/ln	1783	0	1365				0	1777	1552	1781	1777	0
Q Serve(g_s), s	10.9	0.0	2.9				0.0	10.8	1.4	8.7	0.0	0.0
Cycle Q Clear(g_c), s	10.9	0.0	2.9				0.0	10.8	1.4	8.7	0.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	399	0	611				0	1320	576	320	2225	0
V/C Ratio(X)	0.85	0.00	0.26				0.00	0.60	0.10	0.86	0.11	0.00
Avail Cap(c_a), veh/h	460	0	705				0	1320	576	401	2225	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.67	1.67	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	22.3	0.0	19.2				0.0	15.2	12.3	20.3	0.0	0.0
Incr Delay (d2), s/veh	12.4	0.0	0.2				0.0	2.0	0.3	13.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.9				0.0	4.2	0.5	4.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	19.4				0.0	17.3	12.6	33.5	0.1	0.0
LnGrp LOS	C	A	B				A	B	B	C	A	A
Approach Vol, veh/h	499						847			527		
Approach Delay, s/veh	29.8						17.0			17.5		
Approach LOS	C						B			B		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	15.3	26.8	17.9		42.1							
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5							
Max Green Setting (Gmax), s	13.5	17.5	15.5		35.5							
Max Q Clear Time (g_c+l1), s	10.7	12.8	12.9		2.0							
Green Ext Time (p_c), s	0.2	1.6	0.5		1.0							
Intersection Summary												
HCM 6th Ctrl Delay	20.5											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

60: Suisun Pkwy/Chadbourn Rd & Abernathy Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	333	0	5	178	319	0	7	2	301	1	51
Future Volume (veh/h)	257	333	0	5	178	319	0	7	2	301	1	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	276	358	0	5	191	182	0	8	2	324	1	55
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	329	1186	0	10	549	231	0	193	48	381	12	656
Arrive On Green	0.18	0.33	0.00	0.01	0.15	0.15	0.00	0.13	0.13	0.21	0.43	0.43
Sat Flow, veh/h	1781	3647	0	1781	3554	1497	0	1438	359	1781	28	1539
Grp Volume(v), veh/h	276	358	0	5	191	182	0	0	10	324	0	56
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1497	0	0	1797	1781	0	1567
Q Serve(g_s), s	8.6	4.3	0.0	0.2	2.8	6.7	0.0	0.0	0.3	10.1	0.0	1.2
Cycle Q Clear(g_c), s	8.6	4.3	0.0	0.2	2.8	6.7	0.0	0.0	0.3	10.1	0.0	1.2
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.20	1.00		0.98
Lane Grp Cap(c), veh/h	329	1186	0	10	549	231	0	0	241	381	0	668
V/C Ratio(X)	0.84	0.30	0.00	0.53	0.35	0.79	0.00	0.00	0.04	0.85	0.00	0.08
Avail Cap(c_a), veh/h	387	1186	0	139	587	247	0	0	241	480	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	14.2	0.0	28.5	21.7	23.4	0.0	0.0	21.7	21.7	0.0	9.8
Incr Delay (d2), s/veh	13.3	0.1	0.0	38.4	0.4	14.6	0.0	0.0	0.3	11.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.6	0.0	0.2	1.1	3.1	0.0	0.0	0.1	5.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	14.3	0.0	66.9	22.1	38.0	0.0	0.0	22.0	33.0	0.0	10.1
LnGrp LOS	D	B	A	E	C	D	A	A	C	C	A	B
Approach Vol, veh/h	634			378			10			380		
Approach Delay, s/veh	23.7			30.4			22.0			29.7		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	16.8	12.2	4.8	23.7		29.0	15.1	13.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	4.5	4.5	17.5		24.5	12.5	9.5				
Max Q Clear Time (g_c+I1), s	12.1	2.3	2.2	6.3		3.2	10.6	8.7				
Green Ext Time (p_c), s	0.3	0.0	0.0	1.1		0.1	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	27.1											
HCM 6th LOS	C											
Notes												

HCM 6th TWSC

2: Russell Rd & Rockville Rd

11-12-2021

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	438	9	19	247	0	7	0	52	0	0	0
Future Vol, veh/h	0	438	9	19	247	0	7	0	52	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	487	10	21	274	0	8	0	58	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	497	0	0	808	808	492	837	813	274
Stage 1	-	-	-	-	-	-	492	492	-	316	316	-
Stage 2	-	-	-	-	-	-	316	316	-	521	497	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1067	-	0	299	315	577	286	313	765
Stage 1	0	-	-	-	-	0	558	548	-	695	655	-
Stage 2	0	-	-	-	-	0	695	655	-	539	545	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1067	-	-	294	308	577	253	306	765
Mov Cap-2 Maneuver	-	-	-	-	-	-	294	308	-	253	306	-
Stage 1	-	-	-	-	-	-	558	548	-	695	640	-
Stage 2	-	-	-	-	-	-	679	640	-	485	545	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			13			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	518	-	-	1067	-	-						
HCM Lane V/C Ratio	0.127	-	-	0.02	-	-						
HCM Control Delay (s)	13	-	-	8.4	0	0						
HCM Lane LOS	B	-	-	A	A	A						
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	-						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

11-12-2021

Intersection				
Intersection Delay, s/veh	12.4			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	522	204	627	290
Demand Flow Rate, veh/h	533	208	639	296
Vehicles Circulating, veh/h	299	623	445	289
Vehicles Exiting, veh/h	286	461	387	542
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	8.4	18.2	6.5
Approach LOS	B	A	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	533	208	639	296
Cap Entry Lane, veh/h	1017	731	876	1028
Entry HV Adj Factor	0.980	0.982	0.981	0.981
Flow Entry, veh/h	522	204	627	290
Cap Entry, veh/h	997	718	859	1008
V/C Ratio	0.524	0.285	0.729	0.288
Control Delay, s/veh	10.1	8.4	18.2	6.5
LOS	B	A	C	A
95th %tile Queue, veh	3	1	7	1

HCM 6th Signalized Intersection Summary

7: Suisun Pkwy/Chadbourne Rd & Abernathy Rd

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	122	0	6	102	202	0	2	5	238	4	41
Future Volume (veh/h)	56	122	0	6	102	202	0	2	5	238	4	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	128	0	6	107	97	0	2	5	251	4	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	538	0	6	407	176	0	119	297	321	72	779
Arrive On Green	0.04	0.15	0.00	0.00	0.11	0.11	0.00	0.25	0.25	0.18	0.54	0.54
Sat Flow, veh/h	1781	3647	0	1781	3554	1538	0	468	1171	1781	135	1451
Grp Volume(v), veh/h	59	128	0	6	107	97	0	0	7	251	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1538	0	0	1639	1781	0	1586
Q Serve(g_s), s	1.4	1.4	0.0	0.1	1.2	2.6	0.0	0.0	0.1	5.9	0.0	0.6
Cycle Q Clear(g_c), s	1.4	1.4	0.0	0.1	1.2	2.6	0.0	0.0	0.1	5.9	0.0	0.6
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.71	1.00		0.91
Lane Grp Cap(c), veh/h	72	538	0	6	407	176	0	0	416	321	0	851
V/C Ratio(X)	0.82	0.24	0.00	0.98	0.26	0.55	0.00	0.00	0.02	0.78	0.00	0.06
Avail Cap(c_a), veh/h	264	1420	0	224	1339	580	0	0	416	631	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	16.4	0.0	21.8	17.7	18.3	0.0	0.0	12.2	17.1	0.0	4.8
Incr Delay (d2), s/veh	19.6	0.2	0.0	161.2	0.3	2.7	0.0	0.0	0.1	4.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.5	0.0	0.3	0.5	0.9	0.0	0.0	0.1	2.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	16.6	0.0	183.1	18.0	21.0	0.0	0.0	12.3	21.3	0.0	5.0
LnGrp LOS	D	B	A	F	B	C	A	A	B	C	A	A
Approach Vol, veh/h	187				210				7			
Approach Delay, s/veh	24.1				24.1				12.3			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	12.4	15.6	4.7	11.1		28.0	6.3	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	3.5	5.5	17.5		23.5	6.5	16.5				
Max Q Clear Time (g_c+I1), s	7.9	2.1	2.1	3.4		2.6	3.4	4.6				
Green Ext Time (p_c), s	0.4	0.0	0.0	0.3		0.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	21.7											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved changes to right turn type.												

HCM 6th Signalized Intersection Summary8: Chadbourne Rd & WB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	275	5	108	73	202	0	0	276	89
Future Volume (veh/h)	0	0	0	275	5	108	73	202	0	0	276	89
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				200	139	100	78	217	0	0	297	64
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				320	182	131	108	2382	0	0	1559	331
Arrive On Green				0.18	0.18	0.18	0.12	1.00	0.00	0.00	0.53	0.53
Sat Flow, veh/h				1781	1012	728	1781	3647	0	0	3010	619
Grp Volume(v), veh/h				200	0	239	78	217	0	0	179	182
Grp Sat Flow(s),veh/h/ln				1781	0	1739	1781	1777	0	0	1777	1759
Q Serve(g_s), s				6.2	0.0	7.8	2.5	0.0	0.0	0.0	3.1	3.2
Cycle Q Clear(g_c), s				6.2	0.0	7.8	2.5	0.0	0.0	0.0	3.1	3.2
Prop In Lane				1.00		0.42	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				320	0	313	108	2382	0	0	950	940
V/C Ratio(X)				0.62	0.00	0.76	0.72	0.09	0.00	0.00	0.19	0.19
Avail Cap(c_a), veh/h				549	0	536	223	2382	0	0	950	940
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.85	0.85
Uniform Delay (d), s/veh				22.7	0.0	23.4	25.9	0.0	0.0	0.0	7.2	7.2
Incr Delay (d2), s/veh				2.0	0.0	3.9	8.8	0.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	3.3	1.2	0.0	0.0	0.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.7	0.0	27.3	34.6	0.1	0.0	0.0	7.6	7.6
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					439			295			361	
Approach Delay, s/veh					26.1			9.2			7.6	
Approach LOS					C			A			A	
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	44.7			8.1			36.6			15.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	32.5			7.5			20.5			18.5		
Max Q Clear Time (g_c+l1), s	2.0			4.5			5.2			9.8		
Green Ext Time (p_c), s	0.8			0.0			1.1			1.0		
Intersection Summary												
HCM 6th Ctrl Delay	15.5											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary13: Chadbourne Rd & EB US80 Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	4	45	0	0	0	0	191	230	145	406	0
Future Volume (veh/h)	84	4	45	0	0	0	0	191	230	145	406	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	88	4	36				0	201	242	153	427	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	132	6	123				0	2206	984	265	1445	0
Arrive On Green	0.08	0.08	0.08				0.00	0.62	0.62	0.15	1.00	0.00
Sat Flow, veh/h	1707	78	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	92	0	36				0	201	242	153	427	0
Grp Sat Flow(s),veh/h/ln	1785	0	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	3.0	0.0	1.3				0.0	1.4	4.1	2.5	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	1.3				0.0	1.4	4.1	2.5	0.0	0.0
Prop In Lane	0.96		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	138	0	123				0	2206	984	265	1445	0
V/C Ratio(X)	0.66	0.00	0.29				0.00	0.09	0.25	0.58	0.30	0.00
Avail Cap(c_a), veh/h	550	0	489				0	2206	984	374	1445	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	26.9	0.0	26.1				0.0	4.6	5.1	24.5	0.0	0.0
Incr Delay (d2), s/veh	5.4	0.0	1.3				0.0	0.1	0.6	1.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.5				0.0	0.4	1.1	1.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	27.4				0.0	4.7	5.7	26.4	0.5	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	128						443			580		
Approach Delay, s/veh	30.9						5.2			7.3		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	9.1	41.7		9.2			50.8					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	6.5	21.5		18.5			32.5					
Max Q Clear Time (g_c+l1), s	4.5	6.1		5.0			2.0					
Green Ext Time (p_c), s	0.1	1.3		0.3			1.5					
Intersection Summary												
HCM 6th Ctrl Delay	9.1											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary16: Chadbourne Rd/Chadbourne & WB SR 12 offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	25	1	145	98	160	0	0	274	82
Future Volume (veh/h)	0	0	0	25	1	145	98	160	0	0	274	82
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				28	1	133	109	178	0	0	304	91
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				192	7	177	141	2624	0	0	2077	926
Arrive On Green				0.11	0.11	0.11	0.08	0.74	0.00	0.00	0.58	0.58
Sat Flow, veh/h				1723	62	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				29	0	133	109	178	0	0	304	91
Grp Sat Flow(s),veh/h/ln				1784	0	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				0.9	0.0	4.9	3.6	0.8	0.0	0.0	2.3	1.5
Cycle Q Clear(g_c), s				0.9	0.0	4.9	3.6	0.8	0.0	0.0	2.3	1.5
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				199	0	177	141	2624	0	0	2077	926
V/C Ratio(X)				0.15	0.00	0.75	0.78	0.07	0.00	0.00	0.15	0.10
Avail Cap(c_a), veh/h				520	0	462	252	2624	0	0	2077	926
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.1	0.0	25.8	27.1	2.2	0.0	0.0	5.7	5.5
Incr Delay (d2), s/veh				0.3	0.0	6.3	8.8	0.0	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	2.0	1.8	0.1	0.0	0.0	0.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.4	0.0	32.1	35.9	2.2	0.0	0.0	5.8	5.7
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					162			287			395	
Approach Delay, s/veh					30.7			15.0			5.8	
Approach LOS					C			B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		48.8			9.2	39.6		11.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		33.5			8.5	20.5		17.5				
Max Q Clear Time (g_c+l1), s		2.8			5.6	4.3		6.9				
Green Ext Time (p_c), s		0.7			0.1	1.3		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.7								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary19: Chadbourne Rd & SR12 EB Offramp

11-12-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 					 			 	
Traffic Volume (veh/h)	16	1	51	0	0	0	0	242	25	159	140	0
Future Volume (veh/h)	16	1	51	0	0	0	0	242	25	159	140	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	18	1	10				0	266	27	175	154	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	54	3	89				0	2202	982	220	2907	0
Arrive On Green	0.03	0.03	0.03				0.00	0.62	0.62	0.12	0.82	0.00
Sat Flow, veh/h	1692	94	2790				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	19	0	10				0	266	27	175	154	0
Grp Sat Flow(s),veh/h/ln	1786	0	1395				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.6	0.0	0.2				0.0	1.8	0.4	5.7	0.5	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.2				0.0	1.8	0.4	5.7	0.5	0.0
Prop In Lane	0.95		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	57	0	89				0	2202	982	220	2907	0
V/C Ratio(X)	0.33	0.00	0.11				0.00	0.12	0.03	0.80	0.05	0.00
Avail Cap(c_a), veh/h	551	0	860				0	2202	982	312	2907	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	28.4	0.0	28.2				0.0	4.7	4.4	25.6	1.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.6				0.0	0.1	0.1	9.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1				0.0	0.5	0.1	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	28.8				0.0	4.8	4.5	34.5	1.1	0.0
LnGrp LOS	C	A	C				A	A	A	C	A	A
Approach Vol, veh/h	29						293			329		
Approach Delay, s/veh	30.7						4.8			18.9		
Approach LOS	C						A			B		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	11.9	41.7	6.4		53.6							
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5							
Max Green Setting (Gmax), s	10.5	17.5	18.5		32.5							
Max Q Clear Time (g_c+l1), s	7.7	3.8	2.6		2.5							
Green Ext Time (p_c), s	0.1	0.9	0.0		0.5							
Intersection Summary												
HCM 6th Ctrl Delay	13.1											
HCM 6th LOS	B											

HCM 6th TWSC

2: Russell Rd & Rockville Rd

11-12-2021

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↱			↱			↱	
Traffic Vol, veh/h	0	238	2	24	236	0	1	0	26	1	0	0
Future Vol, veh/h	0	238	2	24	236	0	1	0	26	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	264	2	27	262	0	1	0	29	1	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	266	0	0	581	581	265	596	582	262
Stage 1	-	-	-	-	-	-	265	265	-	316	316	-
Stage 2	-	-	-	-	-	-	316	316	-	280	266	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1298	-	0	425	425	774	415	425	777
Stage 1	0	-	-	-	-	0	740	689	-	695	655	-
Stage 2	0	-	-	-	-	0	695	655	-	727	689	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1298	-	-	417	415	774	392	415	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	417	415	-	392	415	-
Stage 1	-	-	-	-	-	-	740	689	-	695	639	-
Stage 2	-	-	-	-	-	-	678	639	-	700	689	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.7			10			14.2		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1						
Capacity (veh/h)	750	-	-	1298	-	392						
HCM Lane V/C Ratio	0.04	-	-	0.021	-	0.003						
HCM Control Delay (s)	10	-	-	7.8	0	14.2						
HCM Lane LOS	B	-	-	A	A	B						
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0						

HCM 6th Roundabout

4: Abernathy Rd & Rockville Rd

11-12-2021

Intersection				
Intersection Delay, s/veh	5.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	282	208	280	182
Demand Flow Rate, veh/h	288	213	286	186
Vehicles Circulating, veh/h	193	284	169	294
Vehicles Exiting, veh/h	287	171	312	203
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	5.5	5.4	5.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	288	213	286	186
Cap Entry Lane, veh/h	1133	1033	1161	1022
Entry HV Adj Factor	0.979	0.977	0.981	0.980
Flow Entry, veh/h	282	208	280	182
Cap Entry, veh/h	1109	1009	1139	1002
V/C Ratio	0.254	0.206	0.246	0.182
Control Delay, s/veh	5.6	5.5	5.4	5.3
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	1

APPENDIX B

Phase 2 Employees, Visitation & Event Details

APPENDIX B
PHASE 2
YEAR 2040
TRAFFIC ACTIVITY DETAILS

**1st Year of Expected Full Production Gallons/Year Production:
500,000**

PROJECTED MAY NON-CRUSH CONDITIONS	PROJECTED SEPTEMBER CRUSH CONDITIONS
A. Full-time admin employees # on Weekdays: 3 # on Saturday: 0 # on Sunday 0 Work hours: Weekday 9 to 5 Saturday _____ to _____ Sunday _____ to _____	Full-time admin employees # on Weekdays 3 # on Saturday 0 # on Sunday Work hours: Weekday 9 to 5 Saturday _____ to _____ Sunday _____ to _____
B. Part-time admin employees # on Weekdays 0 # on Saturday 0 # on Sunday 0 Work hours: Weekday _____ to _____ Saturday _____ to _____ Sunday _____ to _____	Part-time admin employees # on Weekdays 0 # on Saturday 0 # on Sunday 0 Work hours: Weekday _____ to _____ Saturday _____ to _____ Sunday _____ to _____
C. Full-time production employees # on Weekdays 5 # on Saturday 0 # on Sunday 0 Work hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____	Full-time production employees # on Weekday 5 # on Saturday 0 # on Sunday 0 Work hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____
D. Part-time production employees # on Weekdays 3 # on Saturday 0 # on Sunday 0 Work hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____	Part-time production employees # on Weekdays 6 # on Saturday 0 # on Sunday 0 Work hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____

APPENDIX B
PHASE 2
YEAR 2040
TRAFFIC ACTIVITY DETAILS

PROJECTED MAY NON-CRUSH CONDITIONS	PROJECTED SEPTEMBER CRUSH CONDITIONS
E. Tours & tasting employees # on Weekdays 3 # on Saturday 5 # on Sunday 5 Work hours: Weekday 10 to 5 Saturday 10 to 5 Sunday 10 to 5	Tours & tasting employees # on Weekdays 3 # on Saturday 5 # on Sunday 5 Work hours: Weekday 0 to 5 Saturday 10 to 5 Sunday 10 to 5
F. Other employees # on Weekdays 0 # on Saturday 0 # on Sunday 0 Work hours: Weekday _____ to _____ Saturday _____ to _____ Sunday _____ to _____	Other employees # on Weekdays 0 # on Saturday 0 # on Sunday 0 Work hours: Weekday _____ to _____ Saturday _____ to _____ Sunday _____ to _____
G. Maximum tours/tasting visitors # on Weekdays 100 # on Saturday 300 # on Sunday 300 Tasting hours: Weekday 10 to 5 Saturday 10 to 5 Sunday 10 to 5	Maximum tours/tasting visitors # on Weekdays 100 # on Saturday 300 # on Sunday 300 Tasting hours: Weekday 10 to 5 Saturday 10 to 5 Sunday 10 to 5
H. Grape delivery trucks # on Weekdays 2 # on Saturday 0 # on Sunday 0 Delivery hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____ # days of grape delivery: _____	Grape delivery trucks # on Weekdays 20 # on Saturday 0 # on Sunday 0 Delivery hours: Weekday 7 to 4 Saturday _____ to _____ Sunday _____ to _____ # days of grape delivery: _____

APPENDIX B
PHASE 2
YEAR 2040
TRAFFIC ACTIVITY DETAILS

PROJECTED MAY NON-CRUSH CONDITIONS	PROJECTED SEPTEMBER CRUSH CONDITIONS
I. Other large trucks* # on Weekdays 0 # on Saturday 2 # on Sunday 2 Delivery hours: Weekday 0 to 0 Saturday 12 to 5 Sunday 12 to 5 Please Detail: * Do not include UPS, FedEx, U.S. mail.	Other large trucks* # on Weekdays 0 # on Saturday 2 # on Sunday 2 Delivery hours: Weekday 0 to 0 Saturday 12 to 5 Sunday 12 to 5 Please Detail:

J. Bottling

Days of existing on-site bottling per year: 10-20

K. Grape Source & Trucks

Percent grapes grown on site for existing production: 10%

Percent of grapes grown off site, via specific access routes to the winery entrance

From the north on 0 : 0%

From the south on 80 : 60%

From the east on 80 : 20%

From the west on 80 : 20%

APPENDIX B
PHASE 2
MARKETING EVENTS

MARKETING EVENTS DURING THE YEAR

Marketing Event #1	# events/year: 15 maximum # people/event: 50 typical days: Sat _____ typical hours: 12-5
Marketing Event #2	# events/year: 12 maximum # people/event: 75 typical days: ____ Sat - Sun _____ typical hours: 12-5
Marketing Event #3	# events/year: 4 maximum # people/event: 00 typical days: Sat _____ typical hours: 12-5
Marketing Event #4	# events/year: 10 maximum # people/event: 100 typical days: _____ typical hours: 12-5

APPENDIX B
PHASE 2
MARKETING EVENTS
TRAFFIC ACTIVITY DETAILS

MARKETING EVENT	STAFF/GUEST CATEGORY	# OF PEOPLE	# OF VEHICLES	DAYS & TIMES	REGULAR VISITATION ELIMINATED DURING MARKETING EVENT?
Marketing Event #1 #/year _15____	Guests	150	55*	Sat & Sun 12-5	Yes ___ No _X_
	Extra winery staff	2	2		
	Caterers	2	1		
	Entertainers	1	1		
	Delivery vehicles	3	1		
	Other?				
Marketing Event #2 #/year _12____	Guests	75	26*	Sat & Sun 12-5	Yes ___ No x
	Extra winery staff	0	0		
	Caterers	0			
	Entertainers	0			
	Delivery vehicles	0			
	Other?				
Marketing Event #3 #/year _4____	Guests	300	120*	Sat & Sun 12-5	Yes ___ No x
	Extra winery staff	5	3		
	Caterers	5	2		
	Entertainers	1	1		
	Delivery vehicles	2	2		
	Other?				
Marketing Event #4 #/year _10____	Guests	100	35*		Yes ___ No x
	Extra winery staff	2	2		
	Caterers	4	2		
	Entertainers	1	1		
	Delivery vehicles	1	1		
	Other?				

* 2.6 guests/vehicle on weekdays & 2.8 guests/vehicle on weekend days, per factors used in Napa County.

Source: Compiled by Crane Transportation Group