Appendix I Traffic Impact Study Draft Traffic Impact Analysis Report

Shiloh Resort & Casino

Sonoma County, California

April 17, 2024



Contents

Executive Summary	1
1.0 Introduction	7
1.1 Study Purpose	7
1.2 Study Intersections	7
1.3 Study Scenarios	8
2.0 Study Methodology	14
2.1 Vehicle Miles Traveled	14
2.2 Level of Service Analysis Methodology	16
2.3 Level of Service Standards	18
3.0 Existing Conditions	
3.1 Existing Traffic Conditions	20
3.2 Intersection Level of Service Analysis – Existing Conditions	24
3.3 Intersection Queuing Analysis – Existing Conditions	26
4.0 Existing plus Alternative A Project Conditions	
4.1 Alternative A Vehicle Miles Traveled	29
4.2 Alternative A Project Trip Generation	
4.3 Alternative A Project Trip Distribution and Assignment	33
4.4 Intersection Level of Service Analysis – Existing plus Alternative A Project Conditions	36
4.5 Intersection Queuing Analysis – Existing plus Alternative A Project Conditions	41
5.0 Existing plus Alternative B Project Conditions	
5.1 Alternative B Vehicle Miles Traveled	46
5.2 Alternative B Project Trip Generation	47
5.3 Alternative B Project Trip Assignment	49
5.4 Intersection Level of Service Analysis – Existing plus Alternative B Project Conditions	51
5.5 Intersection Queuing Analysis – Existing plus Alternative B Project Conditions	56
6.0 Existing plus Alternative C Project Conditions	61
6.1 Alternative C Vehicle Miles Traveled	61
6.2 Alternative C Project Trip Generation	62



6.3 Alternative C Project Trip Assignment	64
6.4 Intersection Level of Service Analysis – Existing plus Alternative C Project Conditions	66
6.5 Intersection Queuing Analysis – Existing plus Alternative C Project Conditions	71
7.0 Opening Year 2028 No Project Conditions	. 75
7.1 Intersection Level of Service Analysis – Opening Year 2028 No Project Conditions	75
7.2 Intersection Queuing Analysis – Opening Year 2028 No Project Conditions	79
8.0 Opening Year 2028 plus Alternative A Project Conditions	. 82
8.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative A Project Conditions	82
8.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative A Project Conditions	88
9.0 Opening Year 2028 plus Alternative B Project Conditions	. 94
9.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative B Project Conditions	94
9.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative B Project Conditions	100
10.0 Opening Year 2028 plus Alternative C Project Conditions	105
10.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative C Project Conditions	105
10.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative C Project Conditions	110
11.0 General Plan 2040 No Project Conditions	115
11.1 Intersections Level of Service Analysis – General Plan 2040 No Project Conditions	115
11.2 Intersection Queuing Analysis – General Plan 2040 No Project Conditions	120
12.0 General Plan 2040 plus Alternative A Project Conditions	123
12.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative A Project Conditions .	123
12.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative A Project Conditions	130
12.3 Fair Share Analysis – General Plan plus Alternative A Project Conditions	136
13.0 General Plan 2040 plus Alternative B Project Conditions	137
13.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative B Project Conditions	137
13.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative B Project Conditions	144
13.3 Fair Share Analysis – General Plan 2040 plus Alternative B Project Conditions	150
14.0 General Plan 2040 plus Alternative C Project Conditions	151
14.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative C Project Conditions .	151
14.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative C Project Conditions	158
14.3 Fair Share Analysis – General Plan 2040 plus Alternative C Project Conditions	164



15.0 Additional Analysis	. 165
15.1 Roadway Segment Analysis	165
15.2 Site Access, Circulation, and Parking	170
15.3 Parking	171
15.4 Recommendations	172

Tables

Table 1: Signalized Intersection Delay and LOS Definitions	17
Table 2: Unsignalized Intersection Delay and LOS Definitions	17
Table 3: Intersection Level of Service Analysis – Existing Conditions	25
Table 4: 95 th Percentile Queue Lengths – Existing Conditions	26
Table 5: Vehicle Miles Traveled Rates for Various Land Uses	29
Table 6: Land Use Changes for Base Year plus Alternative A Project	29
Table 7: Home Based VMT per Employee Comparison under Alternative A Project Conditions	30
Table 8: Alternative A Project Trip Generation	32
Table 9: Intersection Level of Service Analysis – Existing plus Alternative A Project Conditions	37
Table 10: 95 th Percentile Queue Lengths – Existing plus Alternative A Project Conditions	42
Table 11: Land Use Changes for Base Year plus Alternative B Project	46
Table 12: Home Based VMT per Employee Comparison under Alternative B Project Conditions	46
Table 13: Alternative B Project Trip Generation	48
Table 14: Intersection Level of Service Analysis – Existing Conditions plus Alternative B Project Condit	
Table 15: 95 th Percentile Queue Lengths – Existing plus Alternative B Project Conditions	
Table 16: Land Use Changes for Base Year plus Alternative C Project	61
Table 17: Home Based VMT per Employee Comparison under Alternative C Project Conditions	61
Table 18: Alternative C Project Trip Generation	63
Table 19: Intersection Level of Service Analysis – Existing plus Alternative C Project Conditions	67
Table 20: 95 th Percentile Queue Lengths – Existing plus Alternative C Project Conditions	72
Table 21: Intersection Level of Service Analysis – Opening Year 2028 No Project Conditions	76
Table 22: 95 th Percentile Queue Lengths – Opening Year 2028 plus No Project Conditions	79



Table 23: Intersection Level of Service Analysis – Opening Year 2028 Plus Alternative A Project Conditi	
Table 24: 95 th Percentile Queue Lengths – Opening Year 2028 plus Alternative A Project Conditions	89
Table 25: Intersection Level of Service Analysis – Opening Year 2028 plus Alternative B Project Conditi	
Table 26: 95 th Percentile Queue Lengths – Opening Year 2028 plus Alternative B Project Conditions	101
Table 27: Intersection Level of Service Analysis – Opening Year 2028 plus Alternative C Project Conditi	
Table 28: 95 th Percentile Queue Lengths – Opening Year 2028 plus Alternative C Project Conditions	111
Table 29: Intersection Level of Service Analysis – General Plan 2040 No Project Conditions	116
Table 30: 95 th Percentile Queue Lengths – General Plan 2040 No Project Conditions	120
Table 31: Intersection Level of Service Analysis – General Plan 2040 plus Alternative A Project Conditio	
Table 32. 95 th Percentile Queue Lengths– General Plan 2040 plus Alternative A Project Conditions	132
Table 33. Fair Share Analysis – Alternative A	136
Table 34: Intersection Level of Service Analysis – General Plan 2040 plus Alternative B Conditions	140
Table 35. 95 th Percentile Queue Lengths– General Plan 2040 plus Alternative B Project Conditions	146
Table 36. Fair Share Analysis – Alternative B	150
Table 37: Intersection Level of Service Analysis – General Plan 2040 plus Alternative C Conditions	154
Table 38. 95 th Percentile Queue Lengths– General Plan 2040 plus Alternative C Project Conditions	160
Table 39. Fair Share Analysis – Alternative C	164
Table 40. V/C Criteria	165
Table 41: Roadway Segment Analysis – Existing Conditions	168
Table 42: Roadway Segment Analysis – 2028 Opening Year Conditions	168
Table 43: Roadway Segment Analysis – General Plan 2040 Conditions	168
Table 44: Roadway Segment Analysis – Existing Conditions with Mitigations	169
Table 45: Roadway Segment Analysis – 2028 Opening Year Conditions with Mitigations	169
Table 46: Roadway Segment Analysis – General Plan 2040 Conditions with Mitigations	169

Figures

Figure 1: Vicinity Map



Figure 2: Site Plan Alternative A	11
Figure 3: Site Plan Alternative B	12
Figure 4: Site Plan Alternative C	13
Figure 5: ADT Counts	21
Figure 6: Project Lane Geometry Existing Conditions	22
Figure 7: Existing Conditions Peak Hour Traffic Volumes	23
Figure 8: Project Trip Distribution	34
Figure 9: Alternative A Trip Assignment	35
Figure 10: Project Lane Geometry Existing plus Alternative A Project Conditions	39
Figure 11: Existing plus Alternative A Project Conditions Peak Hour Traffic Volumes	40
Figure 12: Alternative B Trip Assignment	50
Figure 13: Project Lane Geometry Existing plus Alternative B Project Conditions	54
Figure 14: Existing plus Alternative B Project Conditions Peak Hour Traffic Volumes	55
Figure 15: Alternative C Trip Assignment	65
Figure 16: Project Lane Geometry Existing plus Alternative C Project Conditions	69
Figure 17: Existing plus Alternative C Project Conditions Peak Hour Traffic Volumes	70
Figure 18: Project Lane Geometry 2028 Opening Year No Project Conditions	77
Figure 19: Opening Year 2028 No Project Conditions Peak Hour Traffic Volumes	78
Figure 20: Project Lane Geometry 2028 Opening Year plus Alternative A Project Conditions	86
Figure 21: Opening Year 2028 plus Alternative A Project Conditions Peak Hour Traffic Volumes	87
Figure 22: Project Lane Geometry 2028 Opening Year plus Alternative B Project Conditions	98
Figure 23: Opening Year 2028 plus Alternative B Conditions Peak Hour Traffic Volumes	99
Figure 24: Project Lane Geometry 2028 Opening Year plus Alternative C Project Conditions	108
Figure 25: Opening Year 2028 plus Alternative C Conditions Peak Hour Traffic Volumes	109
Figure 26: Project Lane Geometry General Plan 2040 No Project Conditions	118
Figure 27: General Plan 2040 No Project Conditions Peak Hour Traffic Volumes	119
Figure 28: Project Lane Geometry General Plan 2040 plus Alternative A Project Conditions	128
Figure 29: General Plan 2040 plus Alternative A Project Conditions Peak Hour Traffic Volumes	129
Figure 30: Project Lane Geometry General Plan 2040 plus Alternative B Project Conditions	142
Figure 31: General Plan 2040 plus Alternative B Project Conditions Peak Hour Traffic Volumes	143



Figure 32:	Project La	ane Geom	etry Genera	al Plan 2040) plus Alterna	ative C Projec	t Conditions		156
Figure 33:	General P	lan 2040 i	olus Alterna	ative C Proj	ect Conditio	ns Peak Hour	Traffic Volur	nes	157

Appendices

- Appendix A Existing Turning Movement Counts
- Appendix B Existing Conditions Intersection Level of Service Worksheets
- Appendix C Existing plus Alternative A Project Conditions Intersection Level of Service Worksheets
- Appendix D Existing plus Alternative B Project Conditions Intersection Level of Service Worksheets
- Appendix E Existing plus Alternative C Project Conditions Intersection Level of Service Worksheets
- Appendix F Opening Year 2028 Conditions Intersection Level of Service Worksheets
- Appendix G Opening Year 2028 plus Alternative A Project Conditions Intersection Level of Service Worksheets
- Appendix H Opening Year 2028 plus Alternative B Project Conditions Intersection Level of Service Worksheets
- Appendix I Opening Year 2028 plus Alternative C Project Conditions Intersection Level of Service Worksheets
- Appendix J General Plan 2040 No Project Conditions Intersection Level of Service Worksheets
- Appendix K General Plan 2040 plus Alternative A Project Conditions Intersection Level of Service Worksheets
- Appendix L General Plan 2040 plus Alternative B Project Conditions Intersection Level of Service Worksheets
- Appendix M General Plan 2040 plus Alternative C Project Conditions Intersection Level of Service Worksheets
- Appendix N Napa County Winery Trip Generation Worksheet



EXECUTIVE SUMMARY

This report summarizes the results of the Traffic Impact Study (TIS) conducted for the proposed Shiloh Resort & Casino development located at the southeast corner of Shiloh Road and Old Redwood Highway in unincorporated Sonoma County, immediately southeast of the Town of Windsor. Three proposed project alternatives referred to as Alternative A, Alternative B, and Alternative C in this report are analyzed. **Alternative A represents a "full buildout" of the proposed project and would construct a casino with a**n approximately 122,600 square foot (sq. ft.) gaming floor, 3,380 gaming positions, a hotel with 400 rooms, approximately 74,190 sq. ft. of versatile meeting space, and a 2,800 seat event center. Alternative B would serve **as a "reduced intensity" project and would construct a casino with a**n approximately 122,600 sq. ft. gaming floor, 3,380 gaming positions, a 200-room hotel (rather than a 400-room hotel), an approximately 33,140 sq. ft. conference space (down from 74,190 sq. ft.), and no event center. Alternative C represents a **"non-gaming" option that incorporates a** 20,000 sq. ft. winery and 5,000 sq. ft. tasting area, a 200-room hotel, a 14,000 sq. ft. spa, and a 4,700 sq. ft. dining area.

The purpose of this report is to provide summaries of changes in vehicle miles traveled (VMT) and traffic impacts on the surrounding transportation system with the proposed project. The VMT analysis is based on the methodology suggested by the *Technical Advisory on Evaluating Transportation Impacts in CEQA* **published by the Governor's Office of Planning & Research (OPR) in December 2018. To evaluate the** effects on the transportation infrastructure due to the addition of traffic from the proposed project, a level of service (LOS) analysis was conducted to determine consistency with the plans and standards of the Town of Windsor and the County of Sonoma.

The following study intersections were selected based on their proximity to the project site and major thoroughfares in the area, as well as the availability of existing traffic volume data:

- 1. Shiloh Road & Old Redwood Highway (Signal)
- 2. Shiloh Road & Hembree Lane (Signal)
- 3. Shiloh Road & US 101 Northbound Off-ramp (Signal)
- 4. Shiloh Road & US 101 Southbound Off-ramp (Signal)
- 5. Shiloh Road & Caletti Avenue (One-Way Stop)
- 6. Shiloh Road & Conde Lane (Signal)
- 7. Shiloh Road & Casino Entrance 1/Gridley Dr. (Two-Way Stop)
- 8. Old Redwood Highway & Casino Entrance 1 (Two-Way Stop)
- 9. Shiloh Road & Casino Entrance 2 (One–Way Stop)
- 10. Old Redwood Highway & US 101 Northbound Off-ramp/Lakewood Drive (Signal)
- 11. Old Redwood Highway & US 101 Northbound On-ramp (Free)
- 12. Old Redwood Highway & US 101 Southbound Ramps (Signal)



Vehicle Miles Traveled

Based on the OPR recommendations, VMT impacts attributable to the proposed project may be considered potentially significant if home-based work VMT per employee (VMT per job) exceeds 85 percent of the average rate for Sonoma County. The latest 2021 SCTA travel demand model run was used to determine the VMT significance threshold for this project of 10.53 VMT per employee. The proposed project in its various forms under Alternative A, Alternative B, and Alternative C would generate 10.20 VMT per employee, 10.26 VMT per employee, and 10.25 VMT per employee, respectively, all of which are less than the significance threshold of 10.53 VMT per employee. The project is expected to cause a less-than-significant impact.

Project Trip Generation

TJKM developed estimated project trip generation for the proposed project based on a combination of published trip generation rates from the Institute of Transportation Engineers (ITE) publication *Trip Generation* (11th Edition) and prior traffic studies for similar tribal casino resorts in Northern California. TJKM identified the 2015 traffic impact study for the Wilton Rancheria Casino Project, prepared by Kimley-Horn, as providing the most robust presentation of trip generation at such tribal gaming facilities. Alternative A of the proposed project is expected to generate 11,213 total daily weekday trips and 15,779 total daily Saturday trips, including 473 weekday a.m. peak hour trips (279 in, 194 out), 1,205 weekday p.m. peak hour trips (710 in, 495 out), and 1,340 midday Saturday peak hour trips (657 in, 683 out). Alternative B of the proposed project is expected to generate 8,763 total daily weekday trips and 13,319 total daily Saturday trips, including 473 weekday a.m. peak hour trips (279 in, 194 out), 863 weekday p.m. peak hour trips (448 in, 415 out), and 1,272 midday Saturday peak hour trips (607 in, 665 out). Finally, Alternative C of the proposed project is expected to generate 2,078 total daily weekday trips and 2,704 total daily Saturday trips, including 153 weekday a.m. peak hour trips (92 in, 61 out), 197 weekday p.m. peak hour trips (102 in, 95 out), and 361 midday Saturday peak hour trips (170 in, 191 out).

Existing Conditions

Under this scenario, all of the study intersections operate within applicable jurisdictional LOS standards during all three study peak hours.

Existing plus Alternative A Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday PM and Saturday midday peak hours)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday PM and Saturday midday peak hours)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



Existing plus Alternative B Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Saturday midday peak hour)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Saturday midday peak hour)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Existing plus Alternative C Project Conditions

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.

Opening Year 2028 No Project Conditions

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.

Opening Year 2028 plus Alternative A Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday PM and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday PM and Saturday midday peak hours)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday PM peak hour)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Opening Year 2028 plus Alternative B Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Saturday midday peak hour)
- 2) Shiloh Rd. & Hembree Ln. (Saturday midday peak hour)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Saturday midday peak hour)



With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Opening Year 2028 plus Alternative C Project Conditions

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.

General Plan 2040 No Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Ramps (Weekday AM peak hour)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd. & Conde Ln. (Weekday AM and PM peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday AM and PM peak hours)
- 12) Old Redwood Hwy. & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

General Plan 2040 plus Alternative A Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM, and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off Ramp (Weekday AM and PM, and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd. & Conde Ln. (Weekday AM and PM peak hours)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday AM and PM, and Saturday midday peak hours)
- 12) Old Redwood Hwy. & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



General Plan 2040 plus Alternative B Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM, and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off-ramp (Weekday AM and PM, and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd & Conde Ln. (Weekday AM and PM peak hours)
- 7) Shiloh Rd. & Casino Entrance West/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance (Weekday AM and PM, and Saturday midday peak hours)
- 12) Old Redwood Hwy & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

General Plan 2040 plus Alternative C Project Conditions

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off-ramp (Weekday AM and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd & Conde Ln. (Weekday AM and PM peak hours)
- 8) Old Redwood Hwy. & Project Entrance (Weekday AM and PM peak hours)
- 12) Old Redwood Hwy & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Roadway Segment Analysis

A roadway segment analysis concluded that all study segments along Shiloh Road experience the greatest degradations in operating conditions. The effects of the proposed project, as well as effects from additional future developments along Shiloh Road, would be reduced to levels consistent with the



Town of Windsor and Sonoma County standards and plans by improvements listed in the intersection level of service analysis sections of this report.

Vehicle Access and On-Site Circulation

TJKM concluded that the site plan will operate acceptably and provide adequate connection to existing streets and circulation within the site.

Pedestrian and Bicycle Access and Circulation

The Town of Windsor plans to include improved pedestrian (concrete sidewalks) and bicycle facilities (Class II bike lanes) on both sides of Shiloh Road and Old Redwood Highway near the project site. The proposed project should provide adequate pedestrian and bicycle facilities on its site (particularly at its planned driveways) to facilitate pedestrian and bicycle traffic to and from the project site.

Transit Access

TJKM concluded that the proposed project would add ridership to bus route 60 operated by the Sonoma County Transit (SCT). Bus patrons would be served at an existing stop along the project frontage. The current headway is between one to two hours. The bus line has adequate capacity to accommodate the additional traffic from the proposed project.

Parking

TJKM concluded that all alternatives of the proposed project would provide a generous supply of parking to future patrons. Planned parking supplies are adequate for project needs.

Queuing Analysis

Queueing operations were calculated for all dedicated left-turn lane and right-turn lane groups at the study intersections. Under all plus project scenarios, project-related trips would be added to some dedicated left-turn lane and right-turn lane groups. While all scenarios experience 95th percentile queue lengths that are not consistent with Town of Windsor standards, the addition of project-related intersection improvements, restriping to increase storage length, and planned improvements by the Town of Windsor and County of Sonoma would mitigate project-related impacts to a level that would be consistent with standards of the Town of Windsor.

Recommendations

TJKM recommends the following:

- Implement the recommended intersection and segment improvements to mitigate projectrelated impacts on the surrounding transportation network.
- Provide concrete sidewalks, and marked crosswalks at the proposed project driveways to connect with existing and planned pedestrian facilities along Shiloh Road and Old Redwood Highway.
- Provide continuous, accessible pedestrian pathways between the nearby transit stops and project entrances.
- Provide pedestrian and bicycle facilities between the proposed project's driveways and the project's main facilities to improve on-site pedestrian and bicycle circulation



1.0 INTRODUCTION

This report summarizes the results of the TIS conducted for the proposed casino project located at the southeast corner of Shiloh Road and Old Redwood Highway in unincorporated Sonoma County. Three proposed project alternatives referred to as Alternative A, Alternative B, and Alternative C in this report are analyzed. Alternative A represents a "full buildout" of the proposed project and would construct a casino with an approximately 122,600 square foot (sq. ft.) gaming floor, 3,380 gaming positions, a hotel with 400 rooms, approximately 74,190 sg. ft. of versatile meeting space, and a 2,800 seat event center. The project would be accessed via two entrances on Shiloh Road and one entrance on Old Redwood Highway. Alternative B would construct a "reduced intensity" version of the project complete with a casino with an approximately 122,600 sq. ft. gaming floor, 3,380 gaming positions, a 200-room hotel (rather than a 400room hotel), an approximately 33,140 sq. ft. conference space (down from 74,190 sq. ft.), and no event center. Alternative B includes the same two entrances on Shiloh Road and one entrance on Old Redwood Highway similar to Alternative A. Finally, Alternative C represents a "non-gaming" option that incorporates a 20,000 sg. ft. winery and 5,000 sg. ft. tasting area, a 200-room hotel, a 14,000 sg. ft. spa, and a 4,700 sg. ft. dining area. Alternative C includes only one public entrance on Shiloh Road and one public entrance on Old Redwood Highway; a service road entrance for on-site water and wastewater treatment facilities is located off of Shiloh Road but would be closed to general traffic.

This chapter discusses the TIS purpose, project study area, and analysis scenarios. Figure 1 shows the study area, project site location, study intersections, and study segments that were analyzed. Figure 2, Figure 3, and Figure 4 show the project site plans for Alternatives A, B, and C, respectively.

1.1 Study Purpose

The purpose of this report is to provide summaries of changes in VMT and traffic impacts on the surrounding transportation system with the proposed project. Since Sonoma County has not yet adopted criteria and impact thresholds for evaluating VMT impacts, TJKM followed advice contained in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* published by OPR in December 2018. To evaluate the effects on the transportation infrastructure due to the addition of traffic from the proposed project, an LOS analysis was conducted to determine consistency with Town of Windsor and Sonoma County plans and standards.

1.2 Study Intersections

TJKM evaluated traffic conditions at twelve study intersections during the a.m. and p.m. peak hours for a typical weekday, as well as the Saturday midday peak period **to account for the "recreational" nature of** the project. The study intersections were selected based on their proximity to the project site and major thoroughfares in the area. Data collection efforts included measuring existing traffic counts and utilizing material in the *Town of Windsor General Plan 2040* and its Environmental Impact Report (2018).

The peak periods observed were between 7:00-9:00 a.m. and 4:00-6:00 p.m. on weekdays, and 10:00 a.m.-4:00 p.m. on Saturdays. The study intersections and associated traffic controls are as follows:



- 1. Shiloh Road & Old Redwood Highway (Signal)
- 2. Shiloh Road & Hembree Lane (Signal)
- 3. Shiloh Road & US 101 Northbound Off-ramp (Signal)
- 4. Shiloh Road & US 101 Southbound Off-ramp (Signal)
- 5. Shiloh Road & Caletti Avenue (One-Way Stop)
- 6. Shiloh Road & Conde Lane (Signal)
- 7. Shiloh Road & Casino Entrance 1/Gridley Dr. (Two-Way Stop)
- 8. Old Redwood Highway & Casino Entrance 1 (Two-Way Stop)
- 9. Shiloh Road & Casino Entrance 2 (One–Way Stop)
- 10. Old Redwood Highway & US 101 Northbound Off-ramp/Lakewood Drive (Signal)
- 11. Old Redwood Highway & US 101 Northbound On-ramp (Free)
- 12. Old Redwood Highway & US 101 Southbound Ramps (Signal)

1.3 Study Scenarios

The roadway operations analysis addresses the following 12 traffic scenarios:

- Existing Conditions This scenario evaluates the study intersections based on existing traffic volumes, lane geometry and traffic controls.
- Existing plus Alternative A Project Conditions This scenario includes Existing Conditions, along with the addition of traffic from the proposed project in its Alternative A configuration.
- Existing plus Alternative B Project Conditions This includes Existing Conditions, along with the addition of traffic from the proposed project in its Alternative B configuration.
- Existing plus Alternative C Project Conditions This includes Existing Conditions, along with the addition of traffic from the proposed project in its Alternative C configuration.
- Opening Year 2028 No Project Conditions This scenario includes Existing Conditions, but with the addition of traffic from approved projects that are in the development pipeline in the Town of Windsor and Sonoma County, as well as effects from planned roadway improvements constructed by approved projects. A compounding annual growth rate of 2.189 percent was applied to existing traffic up to the opening year of 2028.
- Opening Year 2028 plus Alternative A Project Conditions This scenario is identical to Opening Year 2028 Conditions, but with the addition of traffic from the proposed Alternative A project.
- Opening Year 2028 plus Alternative B Project Conditions This scenario is identical to Opening Year 2028 Conditions, but with the addition of traffic from the proposed Alternative B project.
- Opening Year 2028 plus Alternative C Project Conditions This scenario is identical to Opening Year 2028 Conditions, but with the addition of traffic from the proposed Alternative C project.



- General Plan 2040 No Project Conditions This scenario expands Existing Conditions based on an annual growth rate derived from the Town of Windsor General Plan. Under this scenario, no infrastructure improvements were assumed at the study intersections or the roadway segments except for those constructed by the approved developments included in Opening Year 2028 No Project Conditions. A compounding annual growth rate of 2.189 percent derived from the General Plan was applied to measured 2022 volumes.
- General Plan 2040 plus Alternative A Project Conditions This scenario is identical to General Plan 2040 Conditions, but with the addition of traffic from the proposed Alternative A project.
- General Plan 2040 plus Alternative B Project Conditions This scenario is identical to General Plan 2040 Conditions, but with the addition of traffic from the proposed Alternative B project.
- General Plan 2040 plus Alternative C Project Conditions This scenario is identical to General Plan 2040 Conditions, but with the addition of traffic from the proposed Alternative C project.





((ТЈКМ

Figure 2: Site Plan - Alternative A







Figure 3: Site Plan - Alternative B





Figure 4: Site Plan - Alternative C







2.0 STUDY METHODOLOGY

Traffic impacts related to the proposed project were evaluated for compliance with applicable regulatory documents and environmental significance. An LOS analysis was conducted to determine consistency with the Town of Windsor and Sonoma County plans and standards.

2.1 VEHICLE MILES TRAVELED

This section of the report provides a discussion of the methodology used to analyze potential impacts of VMT attributable to the project. As Sonoma County has not yet adopted criteria and impact thresholds for evaluating VMT impacts, for this VMT Analysis, TJKM followed advice contained in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* published by the Governor's Office of Planning & Research (OPR) in December 2018.

SB 743, which was signed into law by Governor Brown in 2013 and codified in Public Resources Code 21099, tasked OPR with establishing new criteria for determining the significance of transportation impacts under CEQA. SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." SB 743 changes the way that public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (see Pub. Resource Code, § 21099, subd. (b)(2)). In December 2018, OPR circulated its most recent Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR) that provides recommendations and describes various options for assessing VMT for transportation analysis purposes. The VMT analysis options described by OPR are primarily tailored towards single-use development residential, office or office projects, not mixed use projects and not hotel projects. OPR recommends the following methodology and criteria for specific land uses:

- For residential projects, OPR recommends that VMT impacts be considered potentially significant if a residential project is expected to generate VMT per Capita (i.e., VMT per resident) at a rate that exceeds 85 percent of a regional average. For office projects, OPR recommends that VMT impacts be considered potentially significant if a residential project is expected to generate VMT per Employee at a rate that exceeds 85 percent of a regional average.
- For retail projects, OPR recommends that VMT impacts be considered potentially significant if a
 project results in a net increase in total VMT. This approach takes into account the likelihood that
 retail developments may lead to increases or decreases in VMT, depending on previously existing
 retail travel patterns. This approach may also be used for other types of projects with customer
 components.
- OPR does not provide specific guidance on evaluating other land use types, such as hotels, except to say that other land uses could choose to use the method applicable to the land use with the most similarity to the proposed project.



 For mixed-use projects, OPR describes several options that include (1) evaluating each land use separately; or (2) evaluating mixed-use projects based on the method applicable to the dominant land use. Evaluating each land use separately would potentially fail to measure the positive effects of mixed-use projects in reducing VMT.

OPR also recommends exempting some project types from VMT analysis based on the likelihood that such projects will generate low rates of VMT. OPR recommends that projects generating less than 110 trips per day generally may be assumed to cause a less than significant transportation impact.

Potentially relevant to the analysis of VMT attributable to employee VMT: OPR's Technical Advisory also notes that "low wage workers in particular would be more likely to choose a residential location close to their workplace if one is available."

Section 15064.3 of the State CEQA Guidelines describes the requirements for assessing transportation impacts based on vehicle miles traveled (VMT) that apply statewide beginning on July 1, 2020. As described in Section 15064.3:

- "Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a
 project." Other relevant considerations may include the effects of the project on transit or nonmotorized travel. As described separately in the Technical Advisory on Evaluating Transportation
 Impacts in CEQA (OPR, December 2018), VMT re-routed from other origins or destinations as the
 result of a project would not be attributable to a project except to the extent that the re-routing
 results in a net increase in VMT. For example, OPR guidelines note that retail projects typically reroute travel from other retail destinations, and therefore a retail project may lead to increases or
 decreases in VMT, depending on previously existing travel patterns. Similarly, a large share of
 retail trips are "pass-by trips" that would not be considered attributable to a retail project.
- Lead agencies have discretion to choose the most appropriate methodology to evaluate a project's vehicles miles traveled, including whether to express the change in absolute terms, per capita, per household or any other measure.
- If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered: a lead agency may evaluate the project's vehicle miles travelled qualitatively.
- A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence.

Based on the OPR recommendations, VMT impacts attributable to the proposed casino may be considered potentially significant if home-based work VMT per employee (VMT per job) exceeds 85 percent the average rate for Sonoma County. The latest 2021 SCTA travel demand model run was used to determine VMT significance thresholds for this project.



2.2 Level of Service Analysis Methodology

LOS can be used to determine conformity with an adopted general plan or congestion management program. LOS is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. The LOS generally describes these conditions in terms of such factors as speed and travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The operational LOS are given letter designations from A to F, with A representing the best operating conditions (free-flow) and F the worst (severely congested flow with high delays). Intersections generally are the capacity-controlling locations with respect to traffic operations on arterial and collector streets in urban areas.

Signalized Intersections

The study intersections under traffic signal control were analyzed using the 6th Edition Highway Capacity Manual (HCM) Operations Methodology for signalized intersections described in Chapter 18 (HCM 6th Ed.). This methodology determines LOS based on average control delay per vehicle for the overall intersection during peak hour intersection operating conditions. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using Synchro 11 analysis software and was correlated to a LOS designation as shown in Table 1.

Unsignalized Intersections

The study intersections under stop control (unsignalized) were analyzed using the 6th Edition HCM Operations Methodology for unsignalized intersections described in Chapter 20 (HCM 6th Ed.). LOS ratings for stop-sign controlled intersections are based on the average control delay expressed in seconds per vehicle. At the side street, one-way or two-way stop controlled intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The weighted average delay for the entire intersections is presented for all-way stop controlled intersections. The average control delay for unsignalized intersections was calculated using Synchro 11 analysis software and was correlated to a LOS designation as shown in Table 2.



Level of Service	Description	Average Control Delay
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
В	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
С	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major-contributing causes of such delay levels.	greater than 80.0

Table 1: Signalized Intersection Delay and LOS Definitions
--

Source: Highway Capacity Manual 6th Ed., Chapter 18 (Transportation Research Board, 2010) Average Control Delay per Vehicle in seconds

Level of Service	Description	Average Control Delay
А	Little or no traffic delay	≤10
В	Short Traffic delays	>10 - 15
С	Average traffic delays	>15 - 25
D	Long traffic delays	>25 - 35
E	Very long traffic delays	>35 - 50
F	Extreme traffic delays	>50

Table 2: Unsignalized Intersection Delay and LOS Definitions

Source: Highway Capacity Manual 6th Ed., Chapter 20 (Transportation Research Board, 2010) Average Control Delay per Vehicle in seconds



2.3 Level of Service Standards

Level of service analysis is used for determining consistency with adopted agency plans and standards. Where standards refer to significant environmental impacts, this analysis instead identifies these as significant inconsistencies with adopted plans.

Town of Windsor

The Town of Windsor General Plan defines LOS D as the minimum acceptable level of congestion during **the peak periods of weekday mornings and evenings for** "high-volume facilities such as freeways, crosstown streets, and signalized or all-way stop-**controlled intersections.**" An exception is made for the following intersections where an LOS E is tolerated by the Town as they are regional gateways to the **Town's commercial** and civic areas:

- Old Redwood Highway & US 101 Northbound Off-Ramp/Lakewood Drive
- Old Redwood Highway & US 101 Southbound Ramps
- Old Redwood Highway/Windsor River Road & Conde Lane

The Town has also established standards for "side-street stop-controlled unsignalized intersections." The standards apply to both controlled movements and overall intersections. Controlled movements operating at unacceptable LOS E or LOS F are allowed if:

- The intersection is projected to operate at LOS C or better overall, and
- The projected traffic volume on the controlled movement is 30 vehicles or less per hour on approaches with single lanes, or on multi-lane approaches, 30 vehicles or less per hour per lane.

A project's impact on a side-street stop-controlled unsignalized intersection with an overall intersection operating condition of LOS E or LOS F would be considered less-than-significant if it does not cause operating conditions to fall from LOS E to LOS F and it increases average delay for the intersection as a whole by 5 seconds or less.

LOS standards do not apply to minor intersections comprised of only local streets.

The Town of Windsor also requires intersection queuing to be evaluated in tandem with LOS. A project impact would be considered significant if:

- Project traffic added to the 95th percentile queue length causes the queue length to exceed the available stacking length, or
- Project traffic added to the 95th percentile queue length causes the queue length to increase by more than 10 feet or approximately one-half a car-length given that the 95th percentile queue length already exceeds the available stacking length.



The Town Engineer may make exception to these rules if physical restraints make mitigation of such impacts practicably infeasible.

As such, this study will use LOS D as a threshold for substantial impacts for study intersections located within the Town of Windsor.

Sonoma County

The Sonoma County General Plan establishes LOS C and LOS D as the minimum acceptable operating conditions on roadway segments and at roadway intersections, respectively. The Plan allows such levels of service to be exceeded if they are determined to be acceptable due to environmental or community values or if a project has an overriding public benefit that outweighs lower levels of service and increased congestion.

Thus, this study will consider LOS D as a threshold for substantial impacts for study intersections located outside the Town of Windsor and within the County of Sonoma.



3.0 EXISTING CONDITIONS

This section describes existing traffic volumes and operating conditions at the study intersections, including the results of LOS calculations.

3.1 Existing Traffic Conditions

TJKM evaluated existing traffic conditions at selected study intersections and study segments during the a.m. and p.m. peak hours on a typical weekday, and during the midday peak hours on a typical Saturday. Intersection turning movement counts of vehicles, bicycles, and pedestrians were collected during the weekday a.m. peak period (7:00-9:00 a.m.) and the weekday p.m. peak period (4:00-6:00 p.m.) on January 28, 2022. Similar turning movement counts were collected during the Saturday midday peak hours (10:00 a.m.-4:00 p.m.) on January 30, 2022. The average daily traffic (ADT) volumes of vehicles were also collected for each study segment on July 28, 2022.

The traffic count data are included in Appendix A. The existing segment ADT volumes, existing intersection lane geometries, and existing intersection peak hour volumes are shown on Figure 5, Figure 6, and Figure 7, respectively.





((ТЈКМ

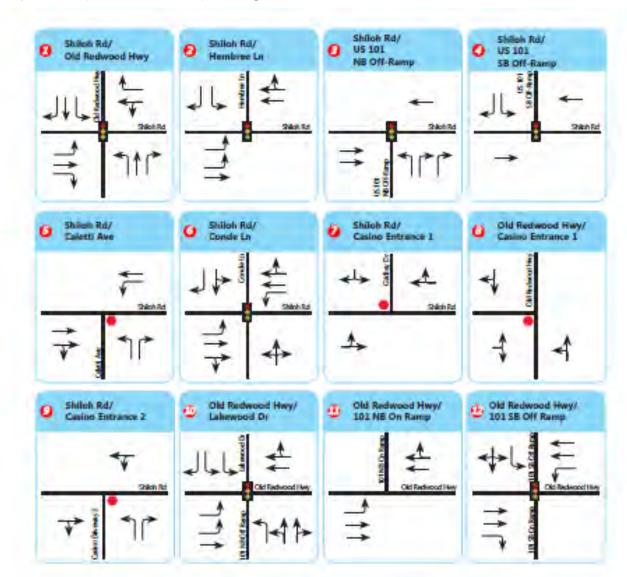


Figure 6: Project Lane Geometry **Existing** Conditions



🦲 ТЈКМ



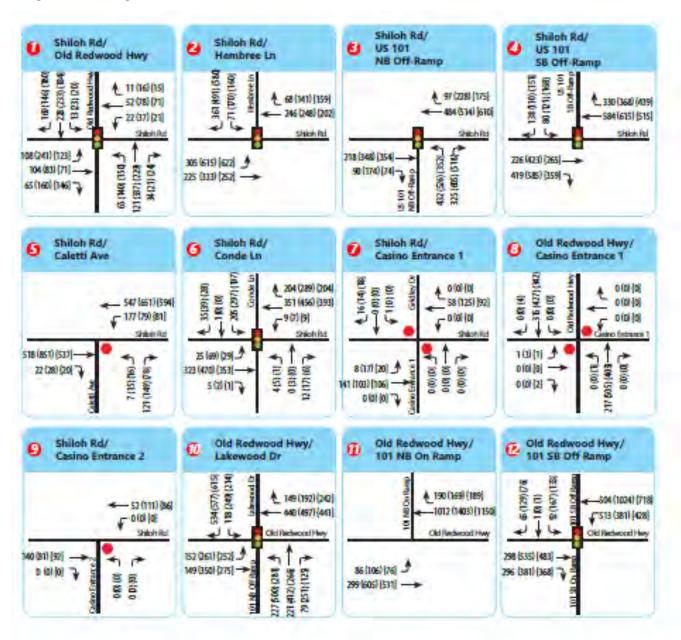
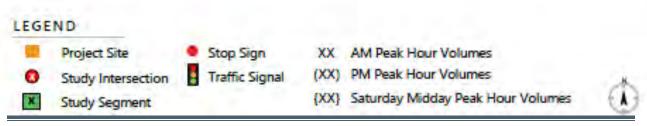


Figure 7: Existing Conditions Peak Hour Traffic Volumes





3.2 INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING CONDITIONS

This scenario evaluates the study intersections based on adjusted existing traffic volumes, and existing lane geometry and traffic controls, as described above. The peak hour factors calculated from the existing turning movement counts were used for the study intersections for the Existing Conditions analysis. The results of the LOS analysis using the HCM 6th Ed. methodology and Synchro 11 software program for Existing Conditions are summarized in Table 3. LOS worksheets are provided in Appendix B.

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.



	Table 3: The section Lever of Service Analysis – Existing Conditions				onditions
#	Study Intersections	Control	Peak Hour –	Delay	LOS
			AM	16.0	В
1	Shiloh Rd. & Old Redwood Hwy.	Signal	PM	20.4	С
			Saturday Midday	18.0	В
			AM	8.4	А
2	Shiloh Rd. & Hembree Ln. ⁵	Signal	PM	11.9	В
			Saturday Midday	11.2	В
			AM	10.5	В
3	Shiloh Rd. & US-101 NB Ramps	Signal	PM	10.8	В
			Saturday Midday	10.2	В
			AM	6.2	А
4	Shiloh Rd. & US-101 SB Ramps ⁵	Signal	PM	6.3	А
			Saturday Midday	8.4	А
			AM	13.5	В
5	Shiloh Rd. & Caletti Ave.	OWSC ³	PM	21.1	С
			Saturday Midday	16.4	С
			AM	14.6	В
6	Shiloh Rd. & Conde Ln. ⁵	Signal	PM	25.6	С
			Saturday Midday	15.4	В
			AM	8.8	А
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	PM	9.3	А
			Saturday Midday	8.9	А
			AM	13.4	В
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	PM	22.1	С
			Saturday Midday	12.7	В
			AM	0.0	А
9	Shiloh Rd. & Casino Entrance 26	OWSC ³	PM	0.0	А
			Saturday Midday	0.0	А
	Old Redwood Hwy. & US-101 NB Off		AM	17.4	В
10	Ramp/Lakewood Dr.	Signal	PM	24.6	С
			Saturday Midday	18.8	В
			AM	-	-
11	Old Redwood Hwy. & US-101 NB On Ramp ⁷	Free	PM	-	-
			Saturday Midday	-	-
			AM	24.1	С
12	Old Redwood Hwy. & US-101 SB Ramps	Signal	PM	18.8	В
			Saturday Midday	20.4	С

Table 3: Intersection	Level of Service	e Analysis – Exis	tina Conditions

Notes:

 Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
 LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



3.3 INTERSECTION QUEUING ANALYSIS – EXISTING CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 4 details the results of the analysis. Under Existing Conditions, the following lane would experience 95th percentile queue lengths exceeding the available storage length:

- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o NBL during weekday PM peak hour
 - o SBL during weekday PM and Saturday midday peak hours

		-	-	-	-	Existing Conditions
#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	Queue Length (ft.)
						[A]
					AM	98
		EBL	375	1	PM	217
					Saturday Midday	113
					AM	16
		EBR	140	1	PM	49
					Saturday Midday	47
					AM	0
		WBR	50	1	PM	0
					Saturday Midday	0
1	Shiloh Rd. and Old Redwood Hwy.				AM	71
	-	NBL	200	1	PM	161
					Saturday Midday	136
					AM	5
		NBR	100	1	PM	0
					Saturday Midday	0
					AM	24
		SBL	130	1	PM	44
					Saturday Midday	34
		SBR	95	1	AM	72

Table 4: 95th Percentile Queue Lengths – Existing Conditions



		_				Existing Conditions
# Study Inter	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	Queue Length (ft.)
		Group	Longth (rt.)	OF Editos		[A]
					PM	80
					Saturday Midday	65
					AM	63
		EBL	-	Trap Lane	PM	143
					Saturday Midday	138
					AM	45
2	Shiloh Rd. and Hembree Ln.	SBL	-	Trap Lane	PM	118
					Saturday Midday	44
					AM	24
		SBR	-	Trap Lane	PM	35
					Saturday Midday	4
					AM	245
		NBL	-	Trap Lane	PM	352
2	US 101 NB Off Ramp				Saturday Midday	189
3	and Shiloh Rd.				AM	11
		NBR	265	2	PM	30
					Saturday Midday	28
					AM	46
		SBL	-	Trap Lane	PM	68
4	Shiloh Rd. and US 101				Saturday Midday	73
4	SB Off Ramp				AM	33
		SBR	275	1	PM	30
					Saturday Midday	14
					AM	30
		EBL	90	1	PM	76
					Saturday Midday	34
6	Conde Ln. and Shiloh Rd.				AM	16
	itu.	WBL	130	1	PM	16
					Saturday Midday	17
		SBR	40	1	AM	29



				<u> </u>		Existing Conditions
#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	Queue Length (ft.)
						[A]
					PM	31
					Saturday Midday	24
					AM	74
		EBL	155	1	PM	151
					Saturday Midday	142
					AM	161
		NBL	270	2	PM	413
10	US 101 NB Off				Saturday Midday	187
10 Ramp/Lakewood Dr. & Old Redwood Hwy.					AM	62
	SBL	120	1	PM	153	
				Saturday Midday	134	
					AM	232
		SBR	-	Trap Lane	PM	239
				Saturday Midday	316	
US 101 SB On Ramp/US 101 SB Off Ramp & Old Redwood Hwy.					AM	52
		EBR	-	Trap Lane	PM	49
					Saturday Midday	49
				AM	451	
	Ramp & Old Redwood	WBL	-	Trap Lane	PM	340
					Saturday Midday	354
					AM	90
		SBL	420	2	PM	152
					Saturday Midday	96

Notes:

- 1. NBL Northbound left
- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



4.0 EXISTING PLUS ALTERNATIVE A PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario evaluates Existing Conditions with the addition of traffic from the proposed Alternative A project. The proposed Alternative A project would construct a casino with a 122,600 sg. ft. gaming floor, 3,380 gaming positions, a 400-room hotel, a 74,190 sg. ft. conference space, and a 2,800-seat event center on a site that is currently a vineyard.

4.1 ALTERNATIVE A VEHICLE MILES TRAVELED

As noted in section 2.1, TJKM followed guidance contained in the Technical Advisory on Evaluating Transportation Impacts in CEQA published by OPR in December 2018 since Sonoma County has not yet adopted criteria and impact thresholds for evaluating VMT impacts. Based on the OPR recommendations, VMT impacts attributable to the proposed casino may be considered potentially significant if home-based work VMT per employee (VMT per job) exceeds 85 percent the average rate for Sonoma County. The latest 2021 SCTA travel demand model run was used to determine VMT significance thresholds for this project. The average VMT rates for various project types in Sonoma County are shown in Table 5.

Table 5: \	Table 5: Vehicle Miles Traveled Rates for Various Land Uses								
Project Type	VMT Performance Metric	Countywide Average							
Residential	Home-Based VMT per Capita	16.60							
Office/Employment	Home-Based Commute VMT per Employee	12.39							
Industrial	Home-Based Commute VMT per Employee	12.39							

OPR guidelines set the significance threshold for VMT at 85% of the regional average. For Office/Employment based projects, the significance threshold will be set at 12.39 multiplied by 0.85, which is 10.53 VMT per employee. This threshold applies to all scenarios with plus project conditions.

Since the SCTA travel demand model does not have a casino component in its land use designations, TJKM used the service square footage category to calculate VMT per employee for the project. The project is located in TAZ #88 of the SCTA model, and currently there are no employment type projects within the zone. Table 6 shows the land use changes to the SCTM model to represent the Shiloh Road Casino Project.

Table 6: Land Use Changes for Base Ye	'ear plus Alternative A Project
---------------------------------------	---------------------------------

TAZ	Hotel Rooms	Service Square Footage	Total Employees	
#88	+400	+405,882	+537*	

*Total employees was derived from the SCAG employee density study, Table II-A for Hotel/Motel employer type.



The 122,600 square foot gaming floor contains 210 employees, the 74,190 square foot conference / meeting space employs 127 employees, while the hotel employs 200 people (1 employee per 2 rooms on average) for a total of 537 employees in the proposed project.

The land use changes were made into the base year land use of the SCTM model and a base year plus project model run was conducted to extract VMT statistics for the project. The results are summarized in Table 7.

	· · · · ·			5
TAZ	Base Year Average Daily Home-Based VMT per Employee (per SCTA Model)	Regional Average (per SCTA Model)	15% Below Regional Average (per SCTA Model)	Base Year <u>Plus</u> Project Average Daily Home-Based VMT per Employee (per Model run)
#88	0*	12.39	10.53	10.20

*0 value since in the base year no employment land use type are found in TAZ #88.

The project's Home-Based VMT per employee value of 10.20 is lower than the 85% VMT threshold for the Sonoma County region (10.53 VMT per employee). Thus, the proposed project at full buildout is expected to have a less-than-significant impact on VMT.

4.2 Alternative A Project Trip Generation

TJKM developed estimated project trip generation for the proposed project based on a combination of published trip generation rates from the Institute of Transportation Engineers (ITE) publication *Trip Generation* (11th Edition) and prior traffic studies for similar tribal casino resorts in Northern California. TJKM identified the 2015 traffic impact study for the Wilton Rancheria Casino Project, prepared by Kimley-Horn, as providing the most robust presentation of trip generation at such tribal gaming facilities. The traffic study was incorporated into the certified final EIR in 2015, prepared for the U.S. Department of the Interior Bureau of Indian Affairs. The Wilton Rancheria study includes observed trip generation and facility data at Thunder Valley Casino and Cache Creek Casino, as well as a discussion of how those data were applied to the Wilton Rancheria project. In addition, that project consists of a similar mix of uses that mirror the proposed Shiloh Road casino project. The trip generation estimates provided below are closely based on the same assumptions and data as the Wilton Rancheria study. The only updated assumption is the use of rates from the newer 11th edition of *Trip Generation*.

As the Wilton Rancheria study omitted the a.m. peak hour in its analysis due to relatively low trip generation rates, TJKM utilized a.m. peak hour trip generation rates developed for the Siletz Tribe Casino Traffic Impact Study for estimating a.m. peak hour trips. The Siletz Tribe Casino Traffic Impact Study calculated casino trip rates using the size of the gaming use exclusively.

For the proposed project, TJKM used published trip rates for the ITE land use Hotel (ITE Code 310), observed trip generation rates from the Thunder Valley Casino and the Cache Creek Casino, and conservative estimates of occupancy at events taking place in the meeting space and event center. Hotel trips were reduced by 75 percent to represent the large proportion of hotel guests who would also be



casino guests and captured under the Casino trip generation estimate. Trip rates for the meeting space and event center were calculated using the same assumptions found in the Wilton Rancheria study, regarding physical capacity, hotel occupancy and vehicle occupancy by attendees, event size, and event start times. The trip rates and total number of trips are shown in Table 8.

The proposed project is expected to generate 11,213 net new daily weekday trips, including 473 a.m. peak hour trips (279 in, 194 out), 1,205 p.m. peak hour trips (710 in, 495 out), and 15,779 net new daily Saturday trips, including 1,340 p.m. peak hour trips (657 in, 683 out).



						TUDI	. 0. 7 11	ternat	10070	iioje		o cinci	ation								
Land Use (ITE Code)	Size		Weekc	lay Daily			A.M. Pea	ik				P.M. Peak	k		Saturo	day Daily		Sat	urday P.N	1 Peak	
Land Use (TTE Code)	5120		Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total	Rate	Trips	Rate	In:Out	In	Out	Total
Casino - Gaming Positions	3,380 po	sitions	0.45	7,540	0.14	59:41	279	194	473	0.21	47:53	336	379	715	0.28	12,086	0.36	47:53	565	638	1,203
Subtotal				7,540			279	194	473			336	379	715		12,086			565	638	1,203
Hotel (310)	400 rc	oms	7.99	3,196			0	0	0	0.59	51:49	120	116	236	8.19	3,276	0.72	56:44	161	127	288
Internal Capture (75% PM/Sat.)			-75%	- <i>2,3</i> 97			0	0	0	-75%		-90	-87	-177	-75%	-2,457	-75%		-121	-95	-216
Subtotal				799			0	0	0			30	29	59		819			40	32	72
Meeting/Conference Space	74.19	ksf	24.96	1,852			0	0	0	3.74	80:20	222	56	278	24.96	1,852	0.56	80:20	34	8	42
Subtotal				1,852			0	0	0			222	56	278		1,852			34	8	42
Event Center	2,800 s	seats	0.37	1,023			0	0	0	0.05	80:20	122	31	153	0.37	1,023	0.01	80:20	18	5	23
Subtotal				1,023			0	0	0			122	31	153		1,023			18	5	23
Net New Trips				11,213			279	194	473			710	495	1,205		15,779			657	683	1,340

Table 8: Alternative A Project Trip Generation

Notes:

1. Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE), 2021



4.3 ALTERNATIVE A PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution is a process that determines in what proportion vehicles would be expected to travel between the project site and various destinations outside the project study area. Assignment determines the various routes that vehicles would take from the project site to each destination using the calculated trip distribution. Trip distribution assumptions for the proposed development project were developed based on the existing travel patterns and the locations of regional destinations and complementary land uses. The distribution assumptions for the proposed project are as follows:

- 45 percent to/from US 101 to the south
- 25 percent to/from US 101 to the north
- 10 percent to/from Old Redwood Highway to the southeast
- 10 percent to/from Old Redwood Highway to the northwest
- 5 percent to/from Shiloh Road to the east
- 5 percent to/from Shiloh Road to the west

The same trip distribution is used for all plus project alternatives and scenarios.

Figure 8 and Figure 9 illustrate the trip distribution and trip assignment at the study intersections, respectively. The project trips were then added to traffic volumes under Existing Conditions to generate Existing plus Project Conditions traffic volumes.





((ТЈКМ

117-12**3 | 10**/202**2**

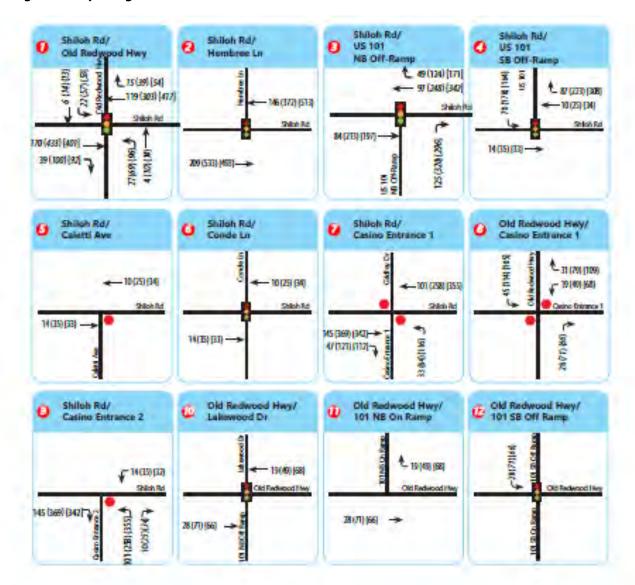
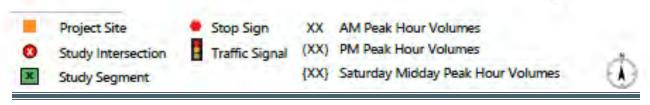


Figure 9: Trip Assignment Alternative A Volumes



117-123 | 10/2022

4.4 INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING PLUS ALTERNATIVE A PROJECT CONDITIONS

The intersection LOS analysis results for Existing plus Alternative A Project Conditions are summarized in Table 9.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday PM and Saturday midday peak hours)
- 7) Shiloh Rd. & Casino Entrance 1 (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday PM and Saturday midday peak hours)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - Convert split phasing in EB/WB direction to protected phasing;
 - Convert existing westbound-through lane to an exclusive left-turn lane (storage length of 200 feet and taper length of 75 feet) and a shared through/right turn lane
 - Add one northbound left-turn lane
- 7) Shiloh Rd. & Casino Entrance 1
 - Signalize intersection
- 8) Old Redwood Hwy. & Casino Entrance 1
 - Signalize intersection

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Figures 10 and 11 show lane geometries and projected peak hour turning movement volumes at all the study intersections for Existing plus Alternative A Project Conditions, respectively. LOS worksheets are provided in Appendix C.



#	Study Intersections	Control	Pook Hour	Exist Condi	9		0	ernative nditions	Projec	g + Alterr t Conditi ⁄litigatior	ons w/
#	Study Intersections	Control	Peak Hour	Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old	Signal	AM PM	16.0 20.4	B C	22.6 61.6	C E	6.6 41.2	21.6 27.2	C C	5.6 6.8
	Redwood Hwy.	0	Saturday Midday	18.0	В	82.8	F	64.8	25.1	С	7.1
2	Shiloh Rd. & Hembree Ln. ⁵	Signal	AM PM Saturday	8.4 11.9	A B	8.6 16.2	A B	0.2 4.3	-	-	-
			Midday	11.2	В	17.3	В	6.1	-	-	-
3	Shiloh Rd. & US-101 NB Ramps	Signal	AM PM Saturday	10.5 10.8	B B	12.5 22.6	B B	2.0 11.8	-	-	-
	ND Kamps		Midday	10.2	В	43.2	D	33.0	-	-	-
4	Shiloh Rd. & US-101	Signal	AM PM	6.2 6.3	A A	8.0 11.8	A B	1.8 5.5	-	-	-
	SB Ramps⁵	0	Saturday Midday	8.4	А	12.3	В	3.9	-	-	-
5	Shiloh Rd. & Caletti	OWSC ³	AM PM	13.5 21.1	B C	13.7 22.5	B C	0.2 1.4	-	-	-
0	Ave.	01100	Saturday Midday	16.4	С	17.5	С	1.1	-	-	-
6	Shiloh Rd. & Conde	Signal	AM PM	14.6 25.6	B C	14.7 27.0	B C	0.1 1.4	- -	-	-
	Ln. ⁵	0	Saturday Midday	15.4	В	15.3	В	-0.1	-	-	-
	Shiloh Rd. & Casino		AM PM	8.8 9.3	A A	13.8 42.8	B E	5.0 33.5	- 9.6	- A	- 0.3
7	Entrance 1/Gridley Dr.	TWSC ⁴	Saturday Midday	8.9	A	50.3	F	41.4	9.5	A	0.6
8	Old Redwood Hwy. &	TWSC ⁴	AM PM	13.4 22.1	B C	16.0 43.6	C E	2.6 21.5	- 8.0	- A	- -14.1
0	Casino Entrance	TWSC	Saturday Midday	12.7	В	20.5	С	7.8	-	-	-
	Shiloh Rd. & Casino		AM PM	0.0 0.0	A A	10.7 14.5	B B	10.7 14.5	-	-	-
9	Entrance 2 ⁶	OWSC ³	Saturday Midday	0.0	A	15.7	C	15.7	-	-	-
10	Old Redwood Hwy. & US-101 NB Off	Signal	AM PM	17.4 24.6	B C	17.2 24.6	B C	-0.2 0.0	-	-	-
10	Ramp/Lakewood Dr.	Signar	Saturday Midday	18.8	В	18.5	В	-0.3	-	-	-
	Old Redwood Hwy. &	_	AM PM	-	-	-	-	-	-	-	-
11	US-101 NB On Ramp ⁷	Free	Saturday Midday	-	-	-	-	-	-	-	-
	Old Dodwood Liver		AM	24.1	С	24.6	С	0.5	-	-	-
12	Old Redwood Hwy. & US-101 SB Ramps	Signal	PM Saturday Midday	18.8 20.4	B C	20.8 21.8	C C	2.0 1.4	-	-	-

Table 9: Intersection Level of Service Analysis - Existing plus Alternative A Project Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control



4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



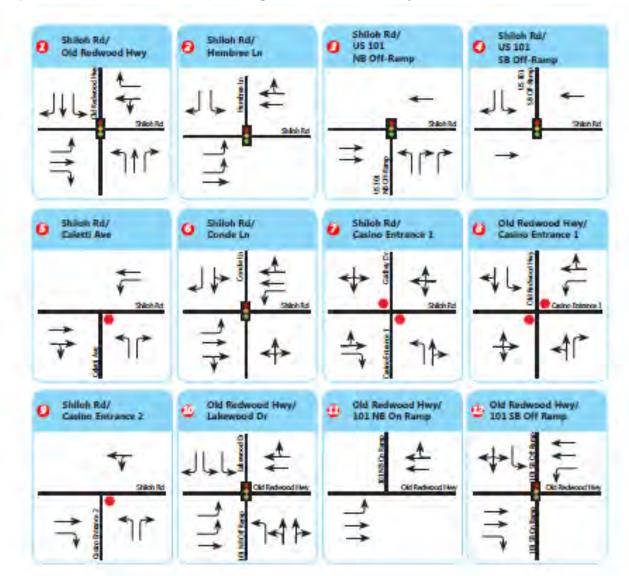


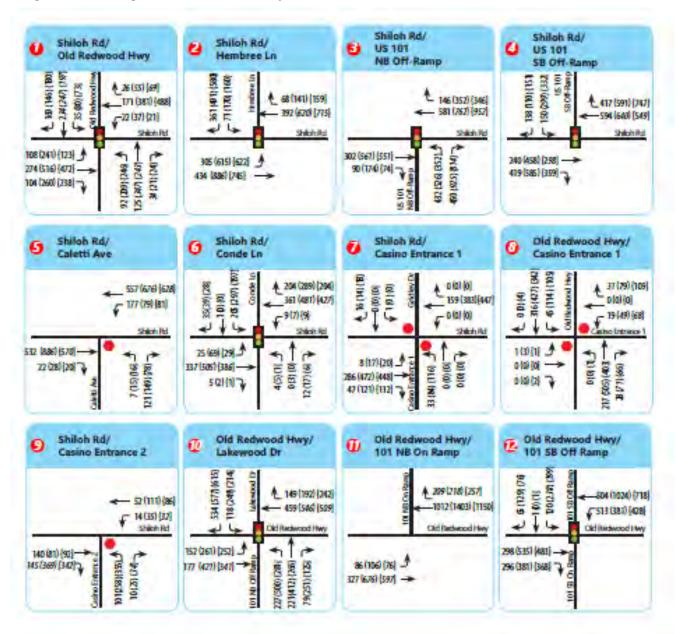
Figure 10: Project Lane Geometry Existing Plus Alternative A Project Conditions



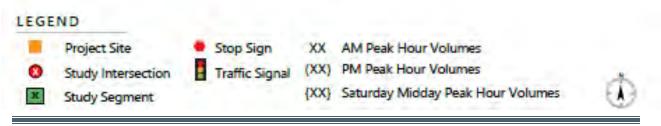
🦲 ТЈКМ



117-123 | 10/2022









4.5 INTERSECTION QUEUING ANALYSIS – EXISTING PLUS ALTERNATIVE A PROJECT CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 10 details the results of the analysis. Under Existing plus Alternative A Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBR during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 10) US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.
 - o NBL during weekday PM peak hour (no new impact)
 - o SBL during weekday PM and Saturday midday peak hours (no new impact)

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 10. At the northbound left turn lane, while the 95th percentile queue would overflow, the average queue length indicates that this would be rare and suggests the impact would be less than significant. It should also be noted that the Town of Windsor Traffic Impact Fee (TIF) program includes a project to restripe this intersection to provide two northbound left turn lanes. With this TIF project implemented, all queue impacts would be fully mitigated. At intersection 10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

1) Restripe EBR to give 150 ft. storage length. Restripe SBL to 190 ft. Restripe SBR to 105 ft.
 Construct TIF project to add second NBL turn lane and second WB receiving lane.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.



							<u> </u>		-	+ Alternative	
	Study	Lane	Storage	Number of	Peak	Existing Conditions		+ Alternative A ct Conditions	A Projec	t Conditions	
#	# Intersections Gro		Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue Length (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue Length (ft.) [B-A]	Comments
					AM	98	122	24	111	13	
		EBL	375	1	PM	217	286	69	317	100	
					Saturday Midday	113	153	40	171	58	
					AM	16	48	32	45	29	
		EBR	140	1	PM	49	213	164	147	98	Re-Stripe EBR Storage Length to
			(150)		Saturday Midday	47	200	153	129	82	150 feet
					AM				37	-	LOS mitigation requires
		WBL	(200)	(1)	PM				78	-	providing 1 WBL lane at the
			× ,	()	Saturday Midday				47	-	intersection.
					AM	0	0	0	0	0	
		WBR	50	1	PM	0	5	5	9	9	
1	Shiloh Rd. and Old				Saturday Midday	0	0	0	0	0	
1	Redwood Hwy.				AM	71	127	56	60	-11	
		NBL	200	1	PM	161	397	236	150	-11	Add second NBL turn lane and
				(2)	Saturday Midday	136	455	319	154	18	WB receiving lane
					AM	5	3	-2	4	-1	
		NBR	100	1	PM	0	0	0	0	0	
					Saturday Midday	0	0	0	0	0	
					AM	24	64	40	61	37	
		SBL	130	1	PM	44	194	150	190	146	Re-Stripe SBL Storage Length to
			(190)		Saturday Midday	34	171	137	141	107	190 feet
					AM	72	101	29	85	13	
		SBR	95	1	PM	80	97	17	80	0	Re-Stripe SBR Storage Length to
			(105)		Saturday Midday	65	99	34	100	35	105 feet
2	Shiloh Rd. and	EBL	_	Trap Lane	AM	63	72	9			
~	Hembree Ln.	LDL		Hup Lanc	PM	143	209	66			

Table 10: 95th Percentile Queue Lengths – Existing plus Alternative A Project Conditions



					Saturday	138	220	82		
					Midday AM	45	51	6		
					PM	118	170	52		
		SBL	-	Trap Lane	Saturday					
					Midday	44	173	129		
-					AM	245	245	0		
		NBL	-	Trap Lane	PM	352	352	0		
	US 101 NB Off	INDL		hap Lane	Saturday	189	187	-2		
	Ramp and Shiloh				Midday					
	Rd.									
_										
					AM	46	84	38		
		SBL	-	Trap Lane	PM	68	165	97		
	Shiloh Rd. and US				Saturday Midday	73	154	81		
	101 SB Off Ramp				maaay					
-					AM	30	31	1		
					PM	30 76	77	1		
		EBL	90	1	Saturday					
	Conde Ln. and				Midday	34	35	1		
	Shiloh Rd.									
_										



	- Chudu	Lane	Storage	Number of	Peak	Existing Conditions	Existing Projec	+ Alternative A ct Conditions	A Projec	+ Alternative et Conditions litigations	-
#	Study Intersections	Croup Leng	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue Length (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue Length (ft.) [B-A]	Comments
					AM	29	29	0			
		SBR	40	1	PM	31	30	-1			
					Saturday Midday	24	24	0			
					AM	74	74	0			
		EBL	155	1	PM	151	151	0			
					Saturday Midday	142	142	0			
					AM	161	161	0			
		NBL	270	2	PM	413	413	0			
10	US 101 NB Off Ramp/Lakewood				Saturday Midday	187	187	0			
10	Dr. & Old Redwood				AM	62	62	0			
	Hwy.	SBL	120	1	PM	153	153	0			
		351 120	·	Saturday Midday	134	134	0				
					AM	232	238	6			
		SBR	-	Trap Lane	PM	239	250	11			
		obit			Saturday Midday	316	338	22			
					AM	52	52	0			
		EBR	-	Trap Lane	PM	49	49	0			
					Saturday Midday	49	49	0			
	US 101 SB On				AM	451	451	0			
12	Ramp/US 101 SB	WBL	-	Trap Lane	PM	340	340	0			
	Off Ramp & Old Redwood Hwy.				Saturday Midday	354	354	0			
					AM	90	103	13			
		SBL	420	2	PM	152	208	56			
					Saturday Midday	96	137	41			

Notes:

1. NBL – Northbound left



- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95^{th} percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. Average storage per lane, where dual turn lanes provide different storage lengths



5.0 EXISTING PLUS ALTERNATIVE B PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. The proposed Alternative B project would construct a casino with a 122,600 sq. ft. gaming floor, a 200-room hotel (rather than a 400-room hotel), a 33,140 sq. ft. conference space (down from 74,190 sq. ft.), and no event center on a site that is currently a vineyard.

5.1 Alternative B Vehicle Miles Traveled

The VMT significance threshold for Alternative B project conditions is the same as that for Alternative A project conditions, which is 10.53 VMT per employee.

Since the SCTA travel demand model does not have a casino component in its land use designations, TJKM used the service square footage category to calculate VMT per employee for the project. The project is located in TAZ #88 of the SCTA model, and currently there are no employment type project within the zone. Table 11 shows the land use changes to the SCTM model to represent the Shiloh Road Casino Project.

Table 11: Land Use Changes for Base Year plus Alternative B Project

TAZ	Hotel Rooms	Service Square Footage	Total Employees
#88	+200	+405,882	+295*

*Total employees was derived from the SCAG employee density study, Table II-A for Hotel/Motel employer type.

The 114,345 square foot gaming floor contains 195 employees, while the hotel employs 100 people (1 employee per 2 room on average) for a total of 295 employees in the Shiloh Road Casino project.

The land use changes were made into the base year land use of the SCTM model and a base year plus project model run was conducted to extract VMT statistics for the project. The results are summarized in Table 12.

Table 12: Home Based VMT per Employee Comparison under Alternative B Project Conditions

TAZ	Base Year Average Daily Home-Based VMT per Employee (per SCTA Model)	Regional Average (per SCTA Model)	15% Below Regional Average (per SCTA Model)	Base Year <u>Plus</u> Project Average Daily Home-Based VMT per Employee (per Model run)
#88	0*	12.39	10.53	10.26

*0 value since in the base year no employment land use type are found in TAZ #88.

The project's Home-Based VMT per employee value of 10.26 is lower than the 85% VMT threshold for the Sonoma County region (10.53). Thus, the proposed Shiloh Road Casino project is expected to have a less-than-significant impact on VMT.



5.2 ALTERNATIVE B PROJECT TRIP GENERATION

The methodology for trip generation under Alternative B "reduced intensity" project conditions is identical to that of Alternative A "full buildout" project conditions. The trips rates and total number of trips are shown in Table 13.

The proposed project is expected to generate 8,763 net new daily weekday trips, including 473 a.m. peak hour trips (279 in, 194 out), 863 p.m. peak hour trips (448 in, 415 out), and 13,319 net new daily Saturday trips, including 1,272 p.m. peak hour trips (607 in, 665 out).



					Tar	Jie 13:	Anei	native	BPI	ojeci	mp G	enera	lion								
Land Use (ITE Code)	c	lize	Weekd	ay Daily		F	A. <i>M. Peak</i>	(1	P.M. Peak	(Saturd	ay Daily		Satur	day P.M.	Peak	
Land Use (ITE COde)	-	120	Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total	Rate	Trips	Rate	In:Out	In	Out	Total
Casino - Gaming Positions	3,380	positions	0.45	7,540	0.14	59:41	279	194	473	0.21	47:53	334	376	710	0.28	12,086	0.36	47:53	572	645	1,217
Subtotal				7,540			279	194	473			334	376	710		12,086			572	645	1,217
Hotel (310)	200	rooms	7.99	1,598			0	0	0	0.59	51:49	60	58	118	8.19	1,638	0.72	56:44	81	63	144
Internal Capture (75% PM/Sat.)			-75%	- 1, 199			0	0	0	-75%		-45	-44	-89	-75%	- 1,229	-75%		-61	-47	- 108
Subtotal				400			0	0	0			15	14	29		410			20	16	36
Meeting/Conference Space	33.14	ksf	24.87	824			0	0	0	3.73	80:20	99	25	124	24.87	824	0.56	80:20	15	4	19
Subtotal				824			0	0	0			99	25	124		824			15	4	19
Net New Tri	ps			8,763			279	194	473			448	415	863		13,319			607	665	1,272

Table 13: Alternative B Project Trip Generation

Notes:

1. Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE), 2021



5.3 Alternative B Project Trip Assignment

The trip assignment for the proposed Alternative B project is shown on Figure 12. The trip distribution for Alternative B is identical to that of Alternative A.



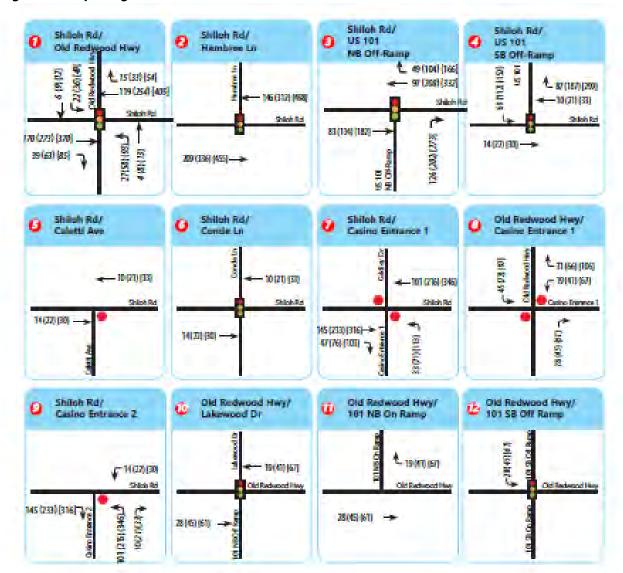


Figure 12: Trip Assignment Alternative B Volumes





5.4 INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING PLUS ALTERNATIVE B PROJECT CONDITIONS

The intersection LOS analysis results for Existing plus Alternative B Project Conditions are summarized in Table 14.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Saturday midday peak hour)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Saturday midday peak hour)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - Convert split phasing in EB/WB direction to protected phasing;
 - Convert existing westbound-through lane to an exclusive left-turn lane (storage length of 200 feet and taper length of 75 feet) and a shared through/right turn lane
 - Add one northbound left-turn lane
- 7) Shiloh Rd. & Casino Entrance 1
 - Signalize intersection

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Figures 13 and 14 show lane geometries and projected peak hour turning movement volumes at all the study intersections for Existing plus Alternative B Project Conditions, respectively. LOS worksheets are provided in Appendix D.



Table 14: Intersection Level of Service Analysis – Existing Conditions plus Alternative B Project
Conditions

				CONC	intions)							
#	Study Intersections	Control	Peak Hour	Exist Condi	0			ernative nditions	Projec	g + Alteri t Conditi ⁄litigation	ons w/		
#	Study intersections	Control		Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay		
			AM	16.0	В	22.7	С	6.7	21.6	С	5.6		
1	Shiloh Rd. & Old	Signal	PM	20.4	С	38.2	D	17.8	31.8	С	11.4		
	Redwood Hwy.	0	Saturday Midday	18.0	В	74.0	E	56.0	24.4	С	6.4		
			AM	8.4	A	8.6	A	0.2	-	-	-		
2	Shiloh Rd. & Hembree Ln. ⁵	Signal	PM Saturday	11.9	В	15.5	В	3.6	-	-	-		
	LII.		Midday	11.2	В	17.2	В	6.0	-	-	-		
			AM	10.5	В	12.5	В	2.0	-	-	-		
3	Shiloh Rd. & US-101	Signal	PM	10.8	В	17.5	В	6.7	-	-	-		
3	NB Ramps	Signal	Saturday	10.2	В	39.5	D	29.3	_	_	_		
			Midday										
	Shiloh Rd. & US-101		AM	6.2	A	8.0	A	1.8	-	-	-		
4	Shilon Rd. & US-101 SB Ramps ⁵	Signal	PM Saturday	6.3	A	9.3	A	3.0	-	-	-		
	SD Ramps		Midday	8.4	А	12.1	В	3.7	-	-	-		
			AM	13.5	В	13.7	В	0.2	-	-	-		
5	Shiloh Rd. & Caletti	OWSC ³	PM	21.1	С	22.1	С	1.0	-	-	-		
0	Ave.	01130	Saturday	16.4	С	17.4	С	1.0	_	_	_		
			Midday										
	Chilob Dd 8 Condo		AM PM	14.6 25.4	B C	14.7 26.9	B	0.1 1.3	-	-	-		
6	Shiloh Rd. & Conde Ln.⁵	Signal	Saturday	25.6	C	26.9	С	1.3	-	-	-		
	LH.		Midday	15.4	В	15.3	В	-0.1	-	-	-		
			AM	8.8	А	13.8	В	5.0	-	-	-		
7	Shiloh Rd. & Casino	TWSC ⁴	PM	9.3	А	25.6	D	16.3	-	-	-		
/	Entrance 1/Gridley Dr.	10030	Saturday Midday	8.9	А	43.7	Е	34.8	9.1	А	0.2		
			AM	13.4	В	16.0	С	2.6	-	-	-		
8	Old Redwood Hwy. &	TWSC ⁴	PM	22.1	С	34.7	D	12.6	-	-	-		
Ũ	Casino Entrance		Saturday Midday	12.7	В	19.9	С	7.2	-	-	-		
			AM	0.0	А	10.7	В	10.7	-	-	-		
9	Shiloh Rd. & Casino	OWSC ³	PM	0.0	А	12.7	В	12.7	-	-	-		
9	Entrance 2 ⁶	UW3C	Saturday Midday	0.0	А	15.2	С	15.2	-	-	-		
	Old Redwood Hwy. &		AM	17.4	В	17.2	В	-0.2	-	-	-		
10	US-101 NB Off	Signal	PM	24.6	С	24.6	С	0.0	-	-	-		
10	Ramp/Lakewood Dr.	orginar	Saturday Midday	18.8	В	18.5	В	-0.3	-	-	-		
			AM	-	-	-	-	-	-	-	-		
11	Old Redwood Hwy. &	Free	PM	-	-	-	-	-	-	-	-		
	US-101 NB On Ramp ⁷		Saturday	-	-	-	-	-	-	-	-		
			Midday AM	24.1	С	24.6	С	0.5					
	Old Redwood Hwy. &		PM	24.1 18.8	B	24.0 19.9	B	0.5	_	_	_		
12	US-101 SB Ramps	Signal	Saturday										
			Midday	20.4	С	21.6	С	1.2	-	-	-		
NI	otes.		-										

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.



2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-

NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



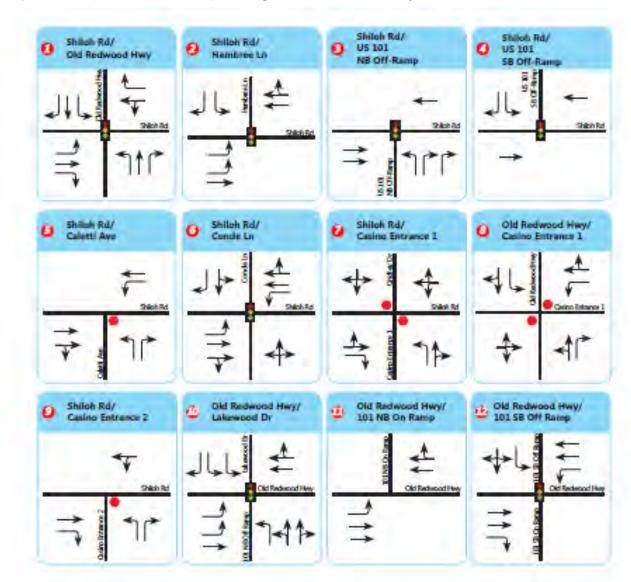


Figure 13: Project Lane Geometry Existing Plus Alternative B Project Conditions



🦲 ТЈКМ



117-123 | 10/2022

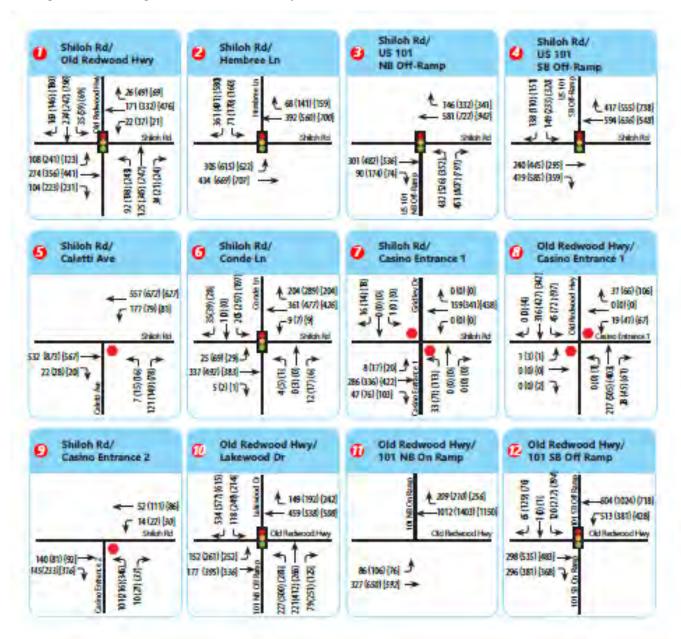
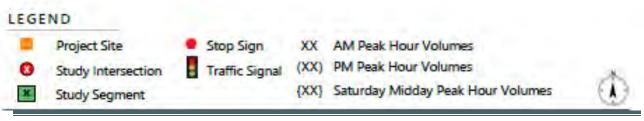


Figure 14: Existing Plus Alternative B Project Conditions Peak Hour Traffic Volumes



117-123 | 10/2022

5.5 INTERSECTION QUEUING ANALYSIS – EXISTING PLUS ALTERNATIVE B PROJECT CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 15 details the results of the analysis. Under Existing plus Alternative B Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBR during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o NBL during weekday PM peak hour (no new impact)
 - o SBL during weekday PM and Saturday midday peak hours (no new impact)

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 15. At the northbound left turn lane, while the 95th percentile queue would overflow, the average queue length indicates that this would be rare and suggests the impact would be less than significant. It should also be noted that the Town of Windsor Traffic Impact Fee (TIF) program includes a project to restripe this intersection to provide two northbound left turn lanes. With this TIF project implemented, it is expected that all queue impacts would be fully mitigated. At intersection 10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe EBR to give 150 ft. storage length. Restripe SBL to 190 ft. Restripe SBR to 105 ft. Construct TIF project to add second NBL turn lane and WB receiving lane.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.



* Study intersections Lane Group Storage Length (ft.) (Mitigated) Number of Lanes (Mitigated) Peak (Mitigated) Existing Conditions Existing Mitigated Alternative B rouce (height (ft.)) Existing Peak (ft.) Full care (ft.) Study (ft.) Pack (ft.) Existing Peak (ft.) Alternative B rouce (ft.) Alternative B rouce (ft.) Course (ft.)	_											
$1 = \frac{1100}{100} = \frac{1000}{100} = \frac{1000}{100} = \frac{1000}{1000} = \frac{10000}{10000} = \frac{10000}{100000} = \frac{100000}{100000} = \frac{1000000}{100000} = \frac{1000000}{1000000} = \frac{1000000}{1000000000} = \frac{10000000}{1000000000000000000000000000$	#	Study	Lane	Length (ft.)	Lanes	Peak		Alterr	native B	Alternati Con	ve B Project ditions	Commonts
$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	#	Intersections	Group			Hour	Length (ft.)	Length (ft.)	in Queue (ft.)	Length (ft.)	Queue (ft.)	Comments
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $						AM	98		24		14	
$ \frac{1}{1 + 1} = \frac{1}{10} + \frac{1}{$			EDI	275	1		217	285	68	285	68	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			LDL	575	I		113	153	40	171	58	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			FBR		1		49	145	96	137	88	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			LDIX	(150)	I	Midday	47	188	141		80	150 feet
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$											-	LOS mitigation requires
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			WBL	(200)	(1)					55	-	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			WDL	(200)	(')	-				47	-	
Shiloh Rd. and Hwy. WBR 50 1 Saturday Midday 0 18 18 21 21 Hwy. Hwy. Midday 0 18 18 57 60 -11 NBL 200 1 PM 161 369 208 133 -28 Add second NBL turn lane and WB receiving lane NBL 200 1 PM 161 369 208 133 -28 Add second NBL turn lane and WB receiving lane NBL 200 1 PM 161 369 208 149 13 WB receiving lane NBR 100 1 PM 0 0 0 0 0 SBL 100 1 PM 0 0 0 0 0 SBL 130 1 PM 24 65 41 61 37 SBL 130 1 PM 44 139 95 139 95 Re-Stripe SBL Storage Length to 190 feat								0		0	0	
$1 Old \ Redwood \\ Hwy. \\ NBL 200 1 AM 71 \\ (2) AM 71 128 57 60 -11 \\ PM 161 369 208 133 -28 Add \ second \ NBL \ turn \ lane \ and \\ WB \ receiving \ lane \\ WB \ receiving \ lane \\ WB \ receiving \ lane \\ Midday 136 446 310 149 13 WB \ receiving \ lane \\ MBR 100 1 PM 5 3 -2 4 -1 \\ PM 0 0 0 0 0 0 \\ Saturday \\ Midday 0 0 0 0 0 0 \\ Saturday \\ Midday 0 0 0 0 0 0 \\ Saturday \\ Midday 0 0 0 0 0 0 \\ Midday 0 0 0 0 0 0 \\ Midday 0 0 0 0 0 0 0 \\ Midday 0 0 0 0 0 0 0 0 0 \\ Midday 0 0 0 0 0 0 0 0 0 $		Shiloh Rd, and	W/BR	50	1		0	0	0	0	0	
$\frac{1}{100} + \frac{1}{100} + \frac{1}$	1	Old Redwood	WBR	30	1		0	18	18	21	21	
$\frac{1}{100} + \frac{1}{100} + \frac{1}$		Hwy.						128				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			NBI	200			161	369	208	133	-28	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			NBE	200	(2)		136	446	310	149	13	WB receiving lane
NBR 100 I Saturday Midday 0 0 0 0 0 AM 24 65 41 61 37 SBL 130 PM 44 139 95 139 95 Re-Stripe SBL Storage Length to 190 feet								3	-2	4	-1	
Saturday 0 0 0 0 0 Midday 0 0 0 0 AM 24 65 41 61 37 SBL 130 1 PM 44 139 95 139 95 Re-Stripe SBL Storage Length to 190 feet			NBR	100	1		0	0	0	0	0	
SBL 130 PM 44 139 95 139 95 Re-Stripe SBL Storage Length to			TIDI(100	,	Midday	0		0	0	0	
SBL (100) Saturday 190 feet												
			SBI		1		44	139	95	139	95	
Midday 34 163 129 125 91			002	(190)		Saturday Midday	34	163	129	125	91	190 feet
95 AM 72 101 29 86 14 Re-Stripe SBR Storage Length to			SBR		1							
(105) PM 80 98 18 92 12 105 feet			JUN	(105)	I	PM	80	98	18	92	12	105 feet

Table 15: 95th Percentile Queue Lengths – Existing plus Alternative B Project Conditions



	-	-	-	-	· · · ·		·					
					-				_	-		
					Saturday Midday	65	99	34	99	34		
					AM	45	51	6				
2	Shiloh Rd. and Hembree Ln.	SBL	-	Trap Lane	PM Saturday	118	162	44				
					Midday	44	172	128				_
					AM	245	245	0				
		NBL	-	Trap Lane	PM Saturday	352 189	352	0 -2				
3	US 101 NB Off Ramp and Shiloh				Midday	189	187	-2				
	Rd.											
					AM	46	84	38				
		SBL	-	Trap Lane	PM Saturday	68 73	126 148	58 75				
4	Shiloh Rd. and US				Midday AM	33	34					
	101 SB Off Ramp				PM	33 30	34 30	1 0				
					Saturday Midday	14	14	0				
6	Conde Ln. and	EBL	90	1	AM	30	31	1				
	Shiloh Rd.	LUL	70	I	PM	76	78	2				



4	Study	Lane	Storage	Number of	Peak	Existing Conditions	Alterr	ting + native B Conditions	Alternati Con	ting + ve B Project ditions tigations	Commonto
#	Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					Saturday Midday	34	35	1			
					AM	16	16	0			
		WBL	130	1	PM	16	16	0			
				·	Saturday Midday	17	17	0			
					AM	29	29	0			
		SBR	40	1	PM	31	31	0			
					Saturday Midday	24	24	0			
					AM	74	74	0			
		EBL	155	1	PM	151	151	0			
					Saturday Midday	142	142	0			
					AM	161	161	0			
		NBL	270	2	PM	413	413	0			
10	US 101 NB Off Ramp/Lakewood				Saturday Midday	187	187	0			
10	Dr. & Old				AM	62	62	0			
	Redwood Hwy.	SBL	120	1	PM Saturday	153	153	0			
					Midday	134	134	0			
					AM	232	238	6			
		SBR	-	Trap Lane	PM	239	247	8			
					Saturday Midday	316	338	22			
					AM	52	52	0			
	US 101 SB On Ramp/US 101 SB	EBR	-	Trap Lane	PM Saturday	49	49	0			
12	Off Ramp & Old				Midday	49	49	0			
	Redwood Hwy.	WBL	-	Trap Lane	AM	451	451	0			
					PM	340	340	0			



"	Study	Lane	Storage	Number of	Peak	Existing Conditions	Alterr	ting + native B Conditions	Alternati Con	sting + ve B Project ditions tigations	Commente
#	Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					Saturday Midday	354	354	0			
					AM	90	103	13			
		SBL	120	2	PM	152	190	38			
		JDL	420	2	Saturday Midday	96	133	37			

Notes:

1. NBL – Northbound left

2. NBR – Northbound right

- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left

6. EBR – Eastbound right

7. WBL – Westbound left

8. WBR – Westbound right

9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.

10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet

11. *Average storage per lane, where dual turn lanes provide different storage lengths



6.0 EXISTING PLUS ALTERNATIVE C PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario evaluates Existing Conditions with the addition of traffic from the proposed Alternative C project. The proposed Alternative C project would construct a 46,000 sq. ft. winery and 5,000 sq. ft. tasting area, a 200-room hotel, a 14,000 sq. ft. spa, and a 4,700 sq. ft. dining area. on a site that is currently a vineyard.

6.1 Alternative C Vehicle Miles Traveled

The VMT significance threshold for Alternative C project conditions is the same as that for Alternatives A and B project conditions, which is 10.53 VMT per employee.

Since the SCTA travel demand model does not have a casino component in its land use designations, TJKM used the service square footage category to calculate VMT per employee for the project. The project is located in TAZ #88 of the SCTA model, and currently there are no employment type project within the zone. Table 16 shows the land use changes to the SCTM model to represent the Shiloh Road Casino Project.

Table 16: Land Use Changes for Base Year	r plus Alternative C Project
--	------------------------------

TAZ	Hotel Rooms	Service Square Footage	Total Employees	
#88	+200	+82,400	+241*	

*Total employees was derived from the SCAG employee density study, Table II-A for Hotel/Motel employer type.

The 82,000 square foot winery and restaurants contains 141 employees, while the hotel employs 100 people (1 employee per 2 room on average) for a total of 241 employees in the Shiloh Road Casino project.

The land use changes were made into the base year land use of the SCTM model and a base year plus project model run was conducted to extract VMT statistics for the project. The results are summarized in Table 17.

Table 17: Home Based VMT per Employee Comparison under Alternative C Project Conditions

TAZ	Base Year Average Daily Home-Based VMT per Employee (per SCTA Model)	Regional Average (per SCTA Model)	15% Below Regional Average (per SCTA Model)	Base Year <u>Plus</u> Project Average Daily Home-Based VMT per Employee (per Model run)
#88	0*	12.39	10.53	10.25

*0 value since in the base year no employment land use type are found in TAZ #88.



The project's Home-Based VMT per employee value of 10.25 is lower than the 85% VMT threshold for the Sonoma County region (10.53). Thus, the proposed Shiloh Road Casino project Alternative C is expected to have a less-than-significant impact on VMT.

6.2 Alternative C Project Trip Generation

For Alternative C, a winery is proposed as the main attraction of the resort rather than a casino. The winery is composed of a visitor center where wine tasting would occur, and a warehouse facility where **wine production would take place. TJKM applied the published ITE trip rates for "winery" land uses (ITE** Code 970) to the visitor center component of the winery. As for the warehouse facility component of the winery, TJKM projected trip generation based on the factors of number of full-time and part-time employees, gallons of wine production, and tons of grape haul. The number of employees was estimated using data from the United States Census Bureau¹, a winery study by Washington State University², and a Sonoma County Winery Trip Generation Form³. Trip generation rates, as well as the annual tons of grape haul based on estimated annual wine production, were obtained from a Napa County Winery Trip Generations listed under Table 18, trip generation for the warehouse facility component of the winery as computed.

For the remaining land uses, TJKM used published ITE trip rates for the Hotel (ITE Code 310) and Dining (ITE Code 932). The spa was assumed to be a floor of the hotel that would not generate trips independently. Note also that the hotel is proposed to have 200 rooms rather than Alternative A's 400-room hotel.

Finally, internal capture rates of 50 percent for the dining land use and 30 percent for the visitor center were applied to account for patrons who were originally attracted to the resort by the hotel land use.

⁴ Napa County. (n.d.). Winery Trip Generation Worksheet. Available in Appendix N.



¹ United States Census Bureau. (2019). [Table CB1900CBP for NAICS 312130 Wineries in Sonoma County, CA]

² Fickle, L. A. A., Folwell, R. J., Ball, T., & Clary, C. (2005). Small Winery Investment and Operating Costs. Retrieved from http://ses.wsu.edu/wp-content/uploads/2015/02/eb1996_05.pdf

³ Sonoma County. (1998). Winery Trip Generation. Retrieved from <u>https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Archive/Regulations/Cannabis%20Program/_Docum ents/_Documents/TJKM-Memo-Explanation-Form-dated-08-03-1998-20150812.pdf</u>

					Tac	bie 18:	Antei	nativ	ve C PI	ojec	пр	Gene	allor	I							
Land Use (ITE Code)		Size -	Weekday	/ Daily		A	A. <i>M. Peak</i>	:			I	P.M. Peak	:		Saturda	y Daily		Saturo	day P.M P	eak	
Land Use (ITE COde)		5120	Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total	Rate	Trips	Rate	In:Out	In	Out	Total
Hotel (310) ¹	200	rooms	7.99	1,598	0.46	56:44	52	40	92	0.59	51:49	60	58	118	8.19	1,638	0.72	56:44	81	63	144
Subtotal				1,598			52	40	92			60	58	118		1,638			81	63	144
Dining (932) ²	4,700	sq. ft.	107.20	504	9.57	55:45	25	20	45	9.05	61:39	26	17	43	122.40	575	11.19	51:49	27	26	53
Internal Capture (50% all times)			-50%	-252	-50%		-13	-10	-23	-50%		- 13	-9	-22	-50%	-288	-50%		-14	- 13	-27
Subtotal				252			12	10	22			13	8	21		287			13	13	26
	20	full-time employees	3.05	61	1.53	70:30	22	9	31	1.53	50:50	16	15	31	3.05	61	3.05	47:53	15	46	61
	1	part-time employees	1.90	2	0.95	70:30	1	0	1	0.95	50:50	0	1	1	1.90	2	1.90	47:53	1	1	2
Winery	35,663	gal. wine production ⁴	0.000018	1			0	0	0			0	0	0	0.000018	1	0.000018		0	0	0
	223	tons grape haul	0.013889	3			0	0	0			0	0	0	0.013889	3	0.013889		0	0	0
Subtotal				67			23	9	32			16	16	32		67			16	47	63
Visitor Center (970) ³	5,000	sq. ft.	45.96	230	2.07	70:30	7	3	10	7.31	50:50	19	18	37	203.48	1,017	36.50	47:53	86	97	183
Internal Capture (30% all times)			-30%	-69	-30%		-2	- 1	-3	-30%		-6	-5	-11	-30%	-305	-30%		-26	-29	-55
Subtotal				161			5	2	7			13	13	26		712			60	68	128
Net New Tri	ps			2,078			92	61	153			102	95	197		2,704			170	191	361

Table 18: Alternative C Project Trip Generation

Notes:

1, 2, 3. Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE), 2021

4. Assumes annual wine production of 15,000 cases.

5. Peak hour employee rates were assumed to be half of daily employee rates for the winery (warehouse facility).

6. Directional distribution of trips during AM and PM peak hours for winery (warehouse facility) was assumed to be equal to that of visitor center (tasting room).

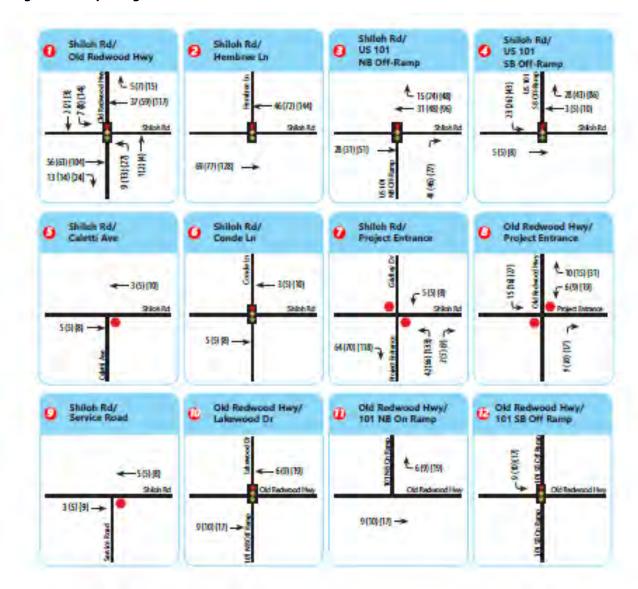
7. Trucks were assumed to make deliveries outside of peak hours.



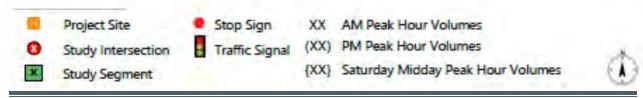
6.3 Alternative C Project Trip Assignment

The trip assignment for the proposed Alternative C project is shown on Figure 15. The trip distribution for Alternative C is identical to that of Alternative A and Alternative B except that trips would not be distributed to intersection #9 (Shiloh Road & Casino Entrance 2) because a third entrance/exit would not be built. Under Alternative C, intersection #9 would connect to a service road instead.











6.4 INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING PLUS ALTERNATIVE C PROJECT CONDITIONS

The intersection LOS analysis results for Existing plus Alternative C Project Conditions are summarized in Table 19.

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.

Figures 16 and 17 show lane geometries and projected peak hour turning movement volumes at all the study intersections for Existing plus Alternative C Project Conditions, respectively. LOS worksheets are provided in Appendix E.



#	- Study Intersections	Control	Peak Hour	Exist Condi		Existing	+ Alterna Conditio	tive C Project
#	Study Intersections	Control	Peak Houi	Delay	LOS	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old Redwood Hwy.	Signal	AM PM Saturday	16.0 20.4	B C	17.7 22.7	B C	1.7 2.3
			Midday	18.0	В	23.3	С	5.3
2	Shiloh Rd. & Hembree Ln. ⁵	Signal	AM PM	8.4 11.9	A B	8.4 12.9	A B	0.0 1.0
			Saturday Midday	11.2	В	12.8	В	1.6
3	Shiloh Rd. & US-101 NB Ramps	Signal	AM PM Saturday	10.5 10.8	B B	11.1 11.7	B B	0.6 0.9
			Midday	10.2	В	12.6	В	2.4
			AM PM	6.2 6.3	A A	6.5 6.6	A A	0.3 0.3
4	Shiloh Rd. & US-101 SB Ramps ⁵	Signal	Saturday Midday	8.4	A	9.8	A	1.4
			AM PM	13.5	В	13.5 21.3	В	0.0
5	Shiloh Rd. & Caletti Ave.	OWSC ³	Saturday Midday	21.1 16.4	C C	21.3 16.6	C C	0.2 0.2
			AM	AM 14.6 B 14.6 PM 25.6 C 25.7		В	0.0	
6	Shiloh Rd. & Conde Ln. ⁵	Signal	Saturday Midday	25.0 15.4	В	25.7 15.4	C B	0.1 0.0
			AM	8.8	A	11.3	В	2.5
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	PM Saturday Midday	9.3 8.9	A A	12.8 13.6	B B	3.5 4.7
			AM	13.4	В	14.2	В	0.8
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	PM Saturday Midday	22.1 12.7	C B	24.2 14.5	C B	2.1 1.8
			AM	-	-	-	-	-
9	Shiloh Rd. & Casino Entrance 26	OWSC ³	PM Saturday Midday	-	-	-	-	-
			AM	17.4	В	17.3	В	-0.1
10	Old Redwood Hwy. & US-101 NB Off Ramp/Lakewood Dr.	Signal	PM Saturday Midday	24.6 18.8	C B	24.6 18.7	C B	0.0 -0.1
4.7	Old Redwood Hwy. & US-101		AM	-	-	-	-	-
11	NB On Ramp ⁷	Free	Saturday Midday	-	-	-	-	-
	Old Redwood Hwy. & US-101 SB		AM PM	24.1 18.8	C B	24.2 19.0	C B	0.1 0.2
12	Ramps	Signal	Saturday Midday	20.4	С	20.7	C	0.2

Table 19: Intersection Level of Service Analysis – Existing plus Alternative C Project Conditions

Notes:

 Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
 LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control



- 5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-
- NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.
- 6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.
- 7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



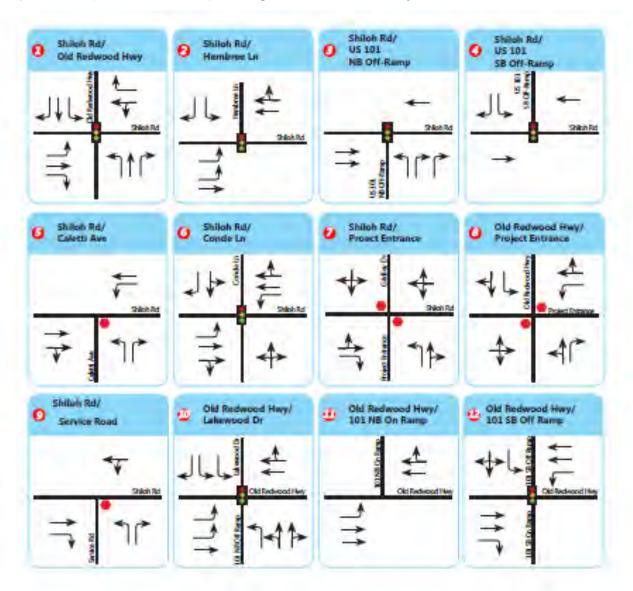


Figure 16: Project Lane Geometry Existing Plus Alternative C Project Conditions



🦲 ТЈКМ



117-123 | 10/2022

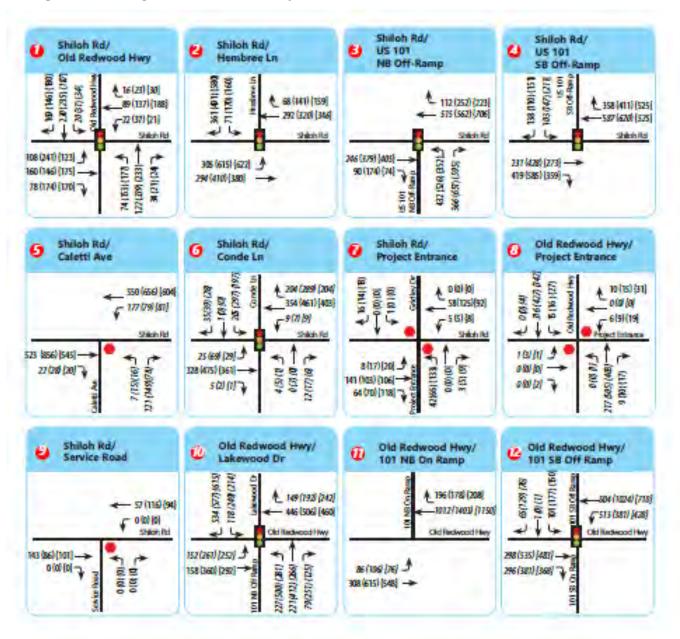


Figure 17: Existing Plus Alternative C Project Conditions Peak Hour Traffic Volumes





117-123 | 10/2022

6.5 INTERSECTION QUEUING ANALYSIS – EXISTING PLUS ALTERNATIVE C PROJECT CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 20 details the results of the analysis. Under Existing plus Alternative C Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o NBL during weekday PM and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o NBL during weekday PM peak hour (no new impacts)
 - o SBL during weekday PM and Saturday midday peak hours (no new impacts)

Mitigation Measures

At intersection #1, queue overflows can be mitigated by restriping to extend storage length as indicated in Table 20. At intersection 10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe NBL to give 250 ft. storage length.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



	Table 20: 95 ^m P					Existing Conditions	Exist Altern Pro	ing + ative C nject	_
#	Study Intersections	Lane Group	Storage Number Length (ft.) of Lanes (Mitigated)		Peak Hour	Queue Length (ft.) [A]	Cond Queue Length (ft.) [B]	litions Change in Queue (ft.) [B-A]	Comments
		EBL	375	1	AM PM Saturday Midday	98 217 113	107 234 133	9 17 20	
		EBR	140	1	AM PM Saturday Midday	16 49 47	26 53 54	10 4 7	
		WBR	50	1	AM00PM00Saturday Midday00AM7188	0 0 0			
1	Shiloh Rd. and Old Redwood Hwy.	NBL	200 (240)	1	AM PM Saturday	71 161 136	88 211 234	17 50 98	Restripe NBL Storage length to 240 feet
		Redwood Hwy. (240) I Saturday Midday AM NBR 100 1 PM Saturday	5 0 0	4 0 0	-1 0 0	1661			
		SBL	130	1	Midday AM PM Saturday Midday	24 44 34	37 56 58	13 12 24	
		SBR	95	1	AM PM Saturday Midday	72 80 65	83 86 80	11 6 15	
		EBL		Trap Lane	AM PM Saturday	63 143 138	65 155 156	2 12 18	
2	Shiloh Rd. and Hembree Ln.	SBL	-	Trap Lane	Midday AM PM Saturday	45 118 44	46 127 124	1 9 80	
		SBR	-	Trap Lane	Midday AM PM Saturday	24 35 4	25 62 107	1 27 103	
	US 101 NB Off	NBL	-	Trap Lane	Midday AM PM Saturday	245 352 189	245 352 189	0 0 0	
3	Ramp and Shiloh Rd.	NBR	265	2	Midday AM PM Saturday	11 30 28	11 49 44	0 19 16	
4		SBL	-	Trap Lane	Midday AM	46	59	13	

Table 20: 95th Percentile Queue Lengths – Existing plus Alternative C Project Conditions



#	Study Intersections	Lane Group	Storage Length (ft.) (Mitigated)	Number of Lanes	Change		ative C jject itions Change in Queue (ft.)	Comments	
					PM Saturday Midday	68 73	82 91	14 18	
	Shiloh Rd. and US 101 SB Off Ramp	SBR	275	1			14	0	
		EBL	90	1	AM PM Saturday	30 76 34	30 77 34	0 1 0	
6	Conde Ln. and Shiloh Rd.	WBL	130	1	Midday AM PM Saturday	16 16 17	16 16 17	0 0 0	
		SBR	40	1	Midday AM PM Saturday Midday	29 31 24	29 31 24	0 0 0	
		EBL	155	1	AM PM Saturday	74 151 142	74 151 142	0 0 0	
	US 101 NB Off	NBL	270	2	Midday AM PM Saturday	161 413 187	161 413 187	0 0 0	
10	Ramp/Lakewood Dr. & Old Redwood Hwy.	SBL	120	1	Midday AM PM Saturday	62 153 134	62 153 134	0 0 0	
		SBR	-	Trap Lane	Midday AM PM Saturday	232 239 316	233 241 323	1 2 7	
		EBR	-	Trap Lane	Midday AM PM Saturday Midday	52 49 49	52 49 49	0 0 0	
12	US 101 SB On Ramp/US 101 SB Off Ramp & Old Redwood Hwy	WBL	-	Trap Lane	AM PM Saturday Midday	451 340 354	451 340 354	0 0 0	
	Redwood Hwy.	SBL	420	2	AM PM Saturday Midday	90 152 96	93 165 103	3 13 7	

Notes:

1. NBL – Northbound left

2. NBR – Northbound right



- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95^{th} percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



7.0 OPENING YEAR 2028 NO PROJECT CONDITIONS

The Opening Year 2028 No Project **Conditions analysis forecasts how the study area's transportation** system would operate with the growth and changes of the surrounding community by the year 2028 when the proposed project is planned to open. This scenario assumes that no project would be built. Corridor volumes on Shiloh Road and Old Redwood Highway in the immediate project vicinity were obtained from the SCTA traffic model. Traffic forecasts were developed by applying a growth increment of 2.189 percent to existing volumes to reflect growth through year 2028, accounting for projects not yet proposed as well as proposed projects that lacked final project descriptions or traffic studies at the time of analysis. Additionally, trips from the following approved projects were also added to the study intersections to estimate year 2028 traffic demands.

- Clearwater Traffic Impact Study Senior living and care facility and commercial development
 - o Senior Living Complex 141 Units
 - o Memory care Unit 34-bed
 - o Commercial development 21,000 square feet
- Shiloh Crossing Project Multi-Family residential development and commercial development
 - o Multi-family 173 affordable units
 - o Commercial development 8,000 square feet
- Shiloh Terrace Project Affordable apartment complex
 - o Apartments 134 units

Under this scenario, no infrastructure improvements were assumed at the study intersections or the roadway segments except for the intersection of Shiloh Road and Hembree Lane (intersection #2) as per the approved developments.

- Northbound approach 1 exclusive left-turn lane and 1 shared through right-turn lane
- Southbound approach 1 shared left-through lane and 1 exclusive right-turn lane
- Eastbound approach 2 exclusive left-turn lanes and 1 shared through right-turn lane
- Westbound approach 1 exclusive left-turn lane and 1 through lane and 1 shared though-right turn lane

7.1 INTERSECTION LEVEL OF SERVICE ANALYSIS – OPENING YEAR 2028 NO PROJECT CONDITIONS

The intersection LOS analysis results for Opening Year 2028 No Project Conditions are summarized in Table 21.

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.



Figures 18 and 19 shows lane geometries and projected peak hour turning movement volumes at the study intersections for Opening Year 2028 No Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix F.

#	Study Intersections	Control	Peak Hour	Opening Y Condi	
			· · · · · · · · ·	Delay	LOS
			AM	17.3	В
1	Shiloh Rd. & Old Redwood Hwy.	Signal	PM	23.7	С
	-	-	Saturday Midday	22.4	С
			AM	16.7	В
2	Shiloh Rd. & Hembree Ln.	Signal	PM	25.1	С
			Saturday Midday	35.6	D
			AM	16.2	В
3	Shiloh Rd. & US-101 NB Ramps	Signal	PM	17.6	В
			Saturday Midday	18.0	В
			AM	6.9	А
4	Shiloh Rd. & US-101 SB Ramps	Signal	PM	8.3	А
			Saturday Midday	11.7	В
			AM	15.6	С
5	Shiloh Rd. & Caletti Ave.	OWSC ³	PM	29.7	D
			Saturday Midday	20.2	С
			AM	15.1	В
6	Shiloh Rd. & Conde Ln.	Signal	PM	38.1	D
			Saturday Midday	15.8	В
			AM	8.9	А
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	PM	9.5	А
			Saturday Midday	9.0	А
			AM	14.5	В
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	PM	26.4	D
			Saturday Midday	13.7	В
			AM	0.0	А
9	Shiloh Rd. & Casino Entrance 2	OWSC ³	PM	0.0	А
			Saturday Midday	0.0	А
	Old Redwood Hwy. & US-101 NB		AM	18.3	В
10	Ramps/Lakewood Dr.	Signal	PM	28.7	С
	Kamps/Lakewood DL		Saturday Midday	20.4	С
			AM	-	-
11	Old Redwood Hwy. & US-101 NB Ramps	Free	PM	-	-
			Saturday Midday	-	-
			AM	30.5	С
12	Old Redwood Hwy. & US-101 SB Ramps	Signal	PM	25.5	С
			Saturday Midday	28.7	С

Table 01 latence attack to a formula for when he	sis – Opening Year 2028 No Project Conditions
I ADIA 71. INTARGACTION LAVAL AT SARVICA ADAIN	$V_{\text{SIS}} = (1) \Delta \Delta D D D D D D D D D D D D D D D D D $
-1 able 21. Intersection Level of Service Analy	

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



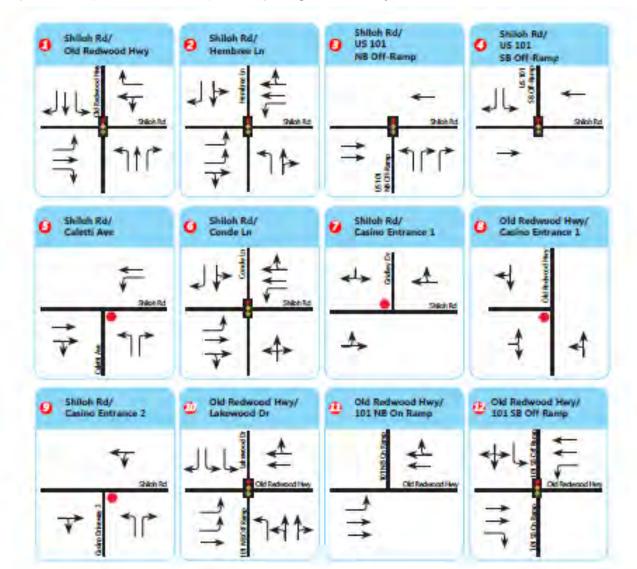
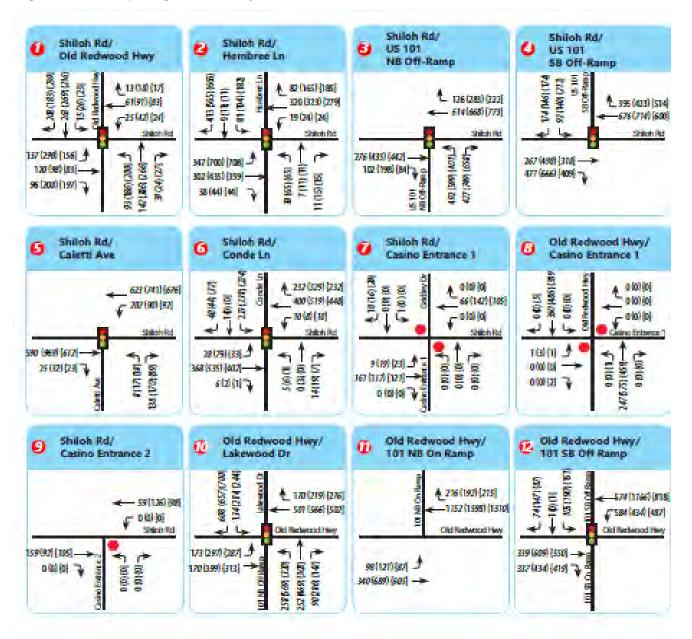


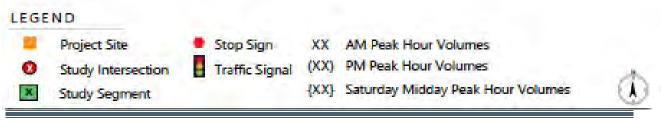
Figure 18: Project Lane Geometry 2028 Opening Year No Project Conditions













117-123 | 10/2022

7.2 INTERSECTION QUEUING ANALYSIS – OPENING YEAR 2028 NO PROJECT CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 22 details the results of the analysis. Under Opening Year 2028 No Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length::

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM, PM, and Saturday midday peak hours
- 6) Conde Ln. & Shiloh Rd.
 - o EBL during weekday PM peak hour
- 10) US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM peak hour
 - o SBL during weekday PM and Saturday midday peak hours

#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	Opening Year 2028 Conditions Queue Length (ft.) [A]
					AM	135
		EBL	375	1	PM	280
					Saturday Midday	149
					AM	33
		EBR	140	1	PM	56
					Saturday Midday	54
					AM	0
		WBR	50	1	PM	Queue Length (ft.) [A] 135 280 149 33 56 54
					Saturday Midday	0
	Shiloh Rd. and Old				AM	105
1	Redwood Hwy.	NBL	200	1	PM	
	Redwood Hwy.				Saturday Midday	135 280 149 333 56 54 0 0 0 0 105 274 243 7 0 0 0 0 105 274 243 7 0 0 0 105 274 243 7 0 0 0 105 274 243 7 0 0 0 105 274 243 7 0 0 0 105 274 243 7 0 0 0 0 0 105 274 243 7 0 0 0 0 0 105 274 243 7 0 0 0 0 0 0 0 0 0 0 0 0 0
					AM	7
		NBR	100	1		k HourQueue Length (ft.)[A]AM135PM280ay MiddayAM33PM56ay Midday54AM0PM0ay Midday0ay Midday274ay Midday274ay Midday243AM7PM0ay Midday0ay Midday0ay Midday0ay Midday4M105PM111ay Midday105AM144PM356
			AM 135 375 1 PM 280 Saturday Midday 149 149 AM 33 33 140 1 PM 56 Saturday Midday 54 34 50 1 PM 0 200 1 PM 274 50 3 PM 0 7 PM 0 3 700 1 PM 0 70100 1 PM 0			
		SBL	130	1		50
					Saturday Midday	40
						105
		SBR	95	1		111
					Saturday Midday	105
	Shiloh Rd. and				AM	144
2	Hembree Ln.	EBL	-	Trap Lane	PM	356
	Hemplee LII.				Saturday Midday	362

Table 22: 95th Percentile Queue Lengths – Opening Year 2028 plus No Project Conditions



#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	Opening Year 2028 Conditions Queue Length (ft.) [A]
					AM	32
		WBL	-	Trap Lane	PM	37
				- F	Saturday Midday	37
					AM	53
		NBL	-	Trap Lane	PM	92
					Saturday Midday	92
					AM	49
		SBR	-	Trap Lane	PM	218
					Saturday Midday	448
					AM	293
		NBL	_	Trap Lane	PM	461
	US 101 NB Off Ramp	NDL		hap Earle	Saturday Midday	221
3	and Shiloh Rd.				AM	10
	und Shilon Kd.	NBR	265	2	PM	98
		NDK	205	2	Saturday Midday	71
					AM	62
		SBL		Traplana	PM	
	Chilob Dal and UC 101	SBL	-	Trap Lane		91
4	Shiloh Rd. and US 101					
	SB Off Ramp	000	075	4		
		SBR	275	1		
		EBL	90	1		
	Conde Ln. and Shiloh		Saturday Midday 107 AM 42 SBR 275 1 PM 39 Saturday Midday 15 15 15 EBL 90 1 PM 92 Saturday Midday 40 40 16 WBL 130 1 PM 92 Saturday Midday 40 40 18 WBL 130 1 PM 18 Saturday Midday 19 19 19 SBR 40 1 PM 33			
6	Rd.	WBL	130	1		
		SBR	40	1		
					Saturday Midday	27
					AM	86
		EBL	155	1	PM	179
					Saturday Midday	180
					AM	181
		NBL	270	2	PM	498
10	US 101 NB Off				Saturday Midday	215
10	Ramp/Lakewood Dr.				AM	72
	& Old Redwood Hwy.	SBL	120	1	PM	181
					Saturday Midday	162
					AM	331
		SBR	-	Trap Lane	PM	341
					Saturday Midday	521
					AM	62
		EBR	-	Trap Lane	PM	55
					Saturday Midday	50
	US 101 SB On				AM	544
12	Ramp/US 101 SB Off	WBL	_	Trap Lane	PM	403
-	Ramp & Old				Saturday Midday	424
	Redwood Hwy.				AM	101
	-					. • •
		SBL	420	2	PM	181

Notes:

1. NBL – Northbound left

2. NBR – Northbound right

3. SBL – Southbound left



- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



8.0 OPENING YEAR 2028 PLUS ALTERNATIVE A PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to Opening Year 2028 No Project Conditions, but with the addition of traffic from the proposed Alternative A project. The project trip generation, trip distribution, and trip assignment are identical to those of Existing plus Alternative A Project Conditions.

8.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative A Project Conditions

The intersection LOS analysis results for Opening Year 2028 plus Alternative A Project Conditions are summarized in Table 23.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday PM and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday PM and Saturday midday peak hours)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday PM peak hour)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - Convert split phasing in EB/WB direction to protected phasing;
 - Convert existing westbound-through lane to an exclusive left-turn lane (storage length of 200 feet and taper length of 75 feet) and a shared through/right turn lane
 - Add one northbound left-turn lane
- 2) Shiloh Rd. & Hembree Ln.
 - Optimize splits and cycle length
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr.
 - Signalize intersection
- 8) Old Redwood Hwy. & Casino Entrance 1
 - Signalize intersection



With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Figures 20 and 21show lane geometries and projected peak hour turning movement volumes at the study intersections for Opening Year 2028 plus Alternative A Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix G.



				Cond	litions	5					
#	Study Intersections	Control	Peak Hour	Oper Year 2 _ Condi	2028	Altern			Altern	ng Year 2 hative A F ns w/ Mi	Project tigations
				Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay
			AM	17.3	В	25.8	С	8.5	-	-	-
1	Shiloh Rd. & Old Redwood Hwy.	Signal	PM Saturday	23.7	С	79.9	E	56.2	32.4	С	8.7
			Midday	22.4	С	113.8	F	91.4	31.9	С	9.5
			AM	16.7	В	18.6	В	1.9	-	-	-
2	Shiloh Rd. & Hembree Ln.	Signal	PM Saturday	25.1	С	56.4	E	31.3	42.4	D	17.3
	LII.		Midday	35.6	D	58.7	E	23.1	49.3	D	13.7
			AM	16.2	В	21.8	С	5.6	-	-	-
3	Shiloh Rd. & US-101	Signal	PM	17.6	В	45.2	D	27.6	-	-	-
	NB Ramps		Saturday Midday	18.0	В	53.1	D	35.1	-	-	-
			AM	6.9	А	9.0	А	2.1	-	-	-
4	Shiloh Rd. & US-101	Signal	PM	8.3	А	13.6	В	5.3	-	-	-
	SB Ramps	0	Saturday Midday	11.7	В	17.7	В	6.0	-	-	-
			AM	15.6	С	15.9	С	0.3	-	-	-
5	5 Shiloh Rd. & Caletti	OWSC ³	PM	29.7	D	32.4	D	2.7	-	-	-
	Ave.		Saturday Midday	20.2	С	22.0	С	1.8	-	-	-
			AM	15.1	В	15.2	В	0.1	-	-	-
6	Shiloh Rd. & Conde Ln.	Signal	PM	38.1	D	39.3	D	1.2	-	-	-
		U	Saturday Midday	15.8	В	15.9	В	0.1	-	-	-
			AM	8.9	А	14.7	В	5.8	-	-	-
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	PM Saturday	9.5	A	58.7	F	49.2	9.1	A	-0.4
	Entrance f/Ghuley Dr.		Midday	9.0	А	58.8	F	49.8	13.7	В	4.7
			AM	14.5	В	17.5	С	3.0	-	-	-
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	PM	26.4	D	56.3	F	29.9	7.7	А	-18.7
	Casino Entrance		Saturday Midday	13.7	В	26.0	D	12.3	-	-	-
			AM	0.0	А	11.8	В	11.8	-	-	-
9	Shiloh Rd. & Casino	OWSC ³	PM	0.0	А	22.4	С	22.4	-	-	-
	Entrance 2		Saturday Midday	0.0	А	26.9	D	26.9	-	-	-
	Old Redwood Hwy. &		AM	18.3	В	18.2	В	-0.1	-	-	-
10	US-101 NB	Signal	PM	28.7	С	29.1	С	0.4	-	-	-
	Ramps/Lakewood Dr.	5	Saturday Midday	20.4	С	20.3	С	-0.1	-	-	-
			AM	-	-	-	-	-	-	-	-
11	Old Redwood Hwy. &	Free	PM	-	-	-	-	-	-	-	-
	US-101 NB Ramps		Saturday Midday	-	-	-	-	-	-	-	-
			AM	30.5	С	31.1	С	0.6	-	-	-
12	Old Redwood Hwy. &	Signal	PM	25.5	С	28.1	С	2.6	-	-	-
	US-101 SB Ramps	2.3	Saturday Midday	28.7	С	30.2	С	1.5	-	-	-
N	otes:		maday								

Table 23: Intersection Level of Service Analysis – Opening Year 2028 Plus Alternative A Project Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.



2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-

NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



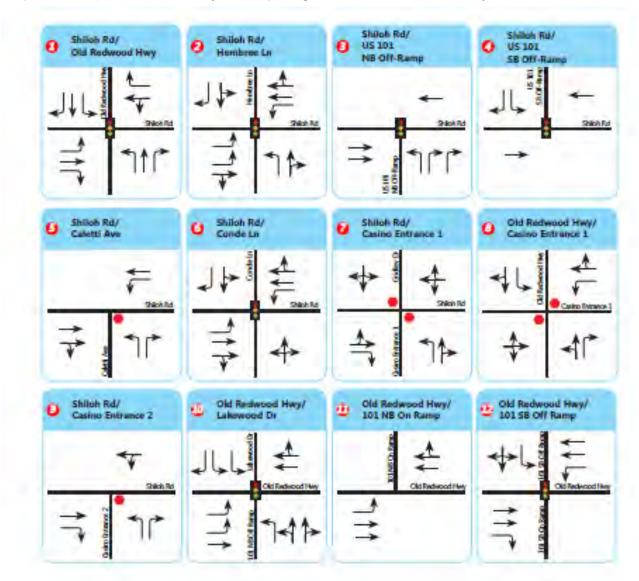


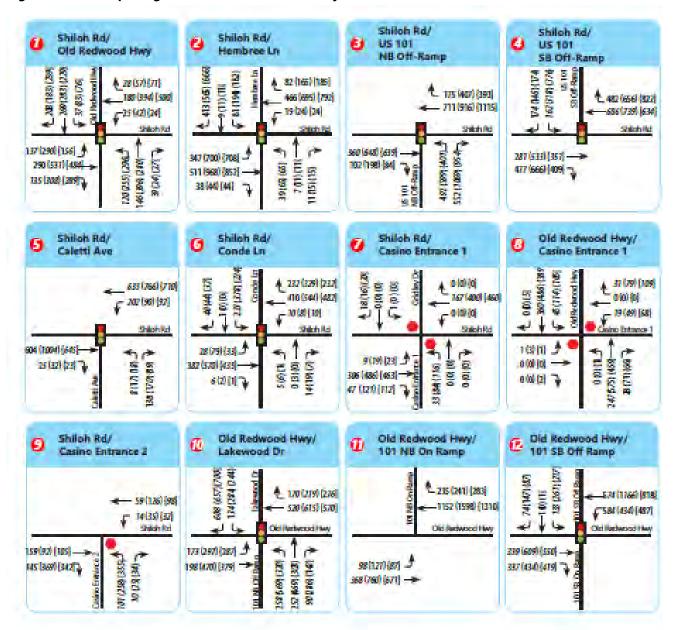
Figure 20: Project Lane Geometry 2028 Opening Year Plus Alternative A Project Conditions



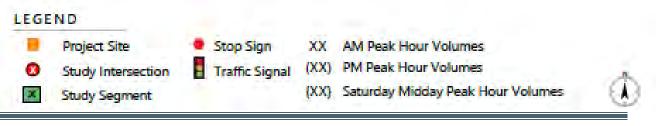
🦲 ТЈКМ



117-123 | 10/2022









8.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative A Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 24 details the results of the analysis. Under Opening Year 2028 plus Alternative A Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBR during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 3) US 101 NB Off Ramp & Shiloh Rd.
 - o NBR during weekday PM peak hour
- 6) Conde Ln. & Shiloh Rd.
 - o EBL during weekday PM peak hour (no new impact)
- 10) US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.
 - o EBL during weekday PM and Saturday midday peak hours (no new impact)
 - o NBL during weekday PM peak hour (no new impact)
 - o SBL during weekday PM and Saturday midday peak hours (no new impact)

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 24. It should also be noted that the Town of Windsor Traffic Impact Fee (TIF) program includes a project to restripe this intersection to provide two northbound left turn lanes. With this TIF project implemented, all queue impacts would be fully mitigated. At intersection 3, there is adequate ramp length to accommodate the 95th percentile queue. At intersections 6 and 10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe EBR to give 150 ft. storage length. Restripe SBL to 190 ft. Restripe SBR to 105 ft. Construct TIF project to add second NBL turn lane and second WB receiving lane.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.



#	Study Intersections	Lane Group	Storage Length (ft.) (Mitigated)	Number of Lanes (Mitigated)	Peak Hour	Opening Year 2028 Condition S Queue Length (ft.) [A]	202 Altern	ng Year 28 + ative A onditions Change in Queue (ft.) [B-A]	202 Altern Project C	ng Year 28 + conditions igations Change in Queue (ft.) [B-A]	- Comments
		EBL	375	1	AM PM Saturda y Midday	135 280 149	161 356 199	26 76 50	151 370 221	16 90 72	
		EBR	140 (175)	1	AM PM Saturda y Midday	33 56 54	82 263 258	49 207 204	62 173 168	29 117 114	Re-Stripe EBR Storage Length to 175 feet
		WBL	(200)	(1)	AM PM Saturda y Midday				43 85 54	- -	LOS mitigation requires providing 1 WBL lane at the intersection.
1	Shiloh Rd. and Old Redwood Hwy.	 WBR	50	1	AM PM Saturda y Midday	0 0 0	0 8 16	0 8 16	0 12 20	0 12 20	
		NBL	200 (215)	1 (2)	AM PM Saturda y Midday	105 274 243	169 508 585	64 234 342	79 184 212	-26 -90 -31	Add second NBL turn lane and WB receiving lane.
		NBR	100	1	AM PM Saturda y Midday	7 0 0	6 0 0	-1 0 0	7 0 0	0 0 0	
		SBL	130	1	AM	31	75	44	68	37	

Table 24: 95 th Percentile Queue	Lengths - Opening Yea	ar 2028 plus Alternativ	e A Project Conditions



щ.	Study Intersections	-	Lane	Storage Length (ft.)	Number of Lanes	Peak	Opening Year 2028 Condition S	202 Altern	ng Year 28 + ative A Conditions	202 Altern Project C	ng Year 28 + native A Conditions igations	Comments
#	Study intersections		Group	(Mitigated)		Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Conmenta
				(195)		PM Saturda y Midday	50 40	205 195	155 155	193 174	143 134	Re-Stripe SBL Storage Length to 195 feet
			SBR	95 (130)	1	AM PM Saturda y Midday	105 111 105	135 134 148	30 23 43	98 126 120	-7 15 15	Re-Stripe SBR Storage Length to 130 feet
		-	EBL	-	Trap Lane	AM PM Saturda y Midday	144 356 362	144 370 375	0 14 13	144 368 406	0 12 44	
	Shiloh Rd. and Hembree		WBL	-	Trap Lane	AM PM Saturda y Midday	32 37 37	32 39 39	0 2 2	32 41 45	0 4 8	
2	Ln.		NBL	-	Trap Lane	AM PM Saturda y Midday	53 92 92	53 96 96	0 4 4	53 110 122	0 18 30	
			SBR	-	Trap Lane	AM PM Saturda y Midday	49 218 448	112 537 724	63 319 276	112 499 477	63 281 29	
3	US 101 NB Off Ramp and Shiloh Rd.	-	NBL	-	Trap Lane	AM PM	293 461	293 461	0 0			



#	Study Intersections		Lane	Storage Length	Number of Lanes	Peak	Opening Year 2028 Condition S	202 Altern	ng Year 28 + ative A conditions	202 Altern Project C	ng Year 28 + ative A conditions gations	Comments There is adequate ramp length for the queue without affecting mainline traffic
#	Study Intersections		Group	(ft.) (Mitigated)	(Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	
						Saturda y Midday	221	221	0			
			NBR	265	2	AM PM Saturda	10 98	23 363	13 265			ramp length for the
			NDK	200	Z	y Midday	71	238	167			affecting mainline
4	Shiloh Rd. and US 101											
4	SB Off Ramp					AM PM	42 39	43 39	1 0			
			SBR	275	1	Saturda y Midday	15	15	0			
						AM	35	35	0			
				90	1	PM Saturda	92	92	0			
						y Midday	40	41	1			
6	Conde Ln. and Shiloh					AM	18	18	0			
U	Rd.					PM	18	18	0			
			WBL	130	1	Saturda	10	20	1			
						y Midday	19	20	1			
			CDD	40	1	AM	32	32	0			
			SBR	40	1	PM	33	33	0			



	Study Intersections		Lane	Storage Length	Number of Lanes (Mitigated)	Peak Hour	Opening Year 2028 Condition S	Opening Year 2028 + Alternative A Project Conditions		Opening Year 2028 + Alternative A Project Conditions w/Mitigations		Querrante
		Gro	Group	(ft.) (Mitigated)			Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
						Saturda y Midday	27	27	0			
	US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.					AM	86	86	0			
			EBL	155	1	PM Saturda	179	179	0			
			100	I	y Midday	180	180	0				
			NBL 270			AM	181	181	0			
				270	2	PM Saturda	498	498	0			
10				210		y Midday	215	215	0			
10		SBL				AM	72	72	0			
			120	1	PM	181	181	0				
			JDL 120	120		Saturda y Midday	162	162	0			
						AM	331	335	4			
			SBR	_	Trap Lane	PM Saturda	341	350	9			
					y Midday	521	537	16				
12	US 101 SB On Ramp/US 101 SB Off Ramp & Old Redwood Hwy.		EBR - Tra			AM	62	62	0			
				Tran Long	PM Saturda	55	55	0				
				Trap Lane	Saturda y Midday	50	50	0				
			WBL - T		T	AM	544	544	0			
				Trap Lane	PM	403	403	0				



# Study Intersections	Lane	Storage Length	Number of Lanes (Mitigated)	Peak Hour	Opening Year 2028 Condition S	Opening Year 2028 + Alternative A Project Conditions		Opening Year 2028 + Alternative A Project Conditions w/Mitigations		
# Study Intersections	Group	(ft.) (Mitigated)			Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
				Saturda y Midday	424	424	0			
	SBL	420	2	AM PM Saturda y	101 181 109	113 237 155	12 56 46			
Notes				Midday						

- Notes:
- 1. NBL Northbound left
- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



9.0 OPENING YEAR 2028 PLUS ALTERNATIVE B PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to Opening Year 2028 No Project Conditions, but with the addition of traffic from the Alternative B project. The project trip generation, trip distribution, and trip assignment is identical to that of Existing plus Alternative B Project Conditions.

9.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative B Project Conditions

The intersection LOS analysis results for Opening Year 2028 plus Alternative B Project Conditions are summarized in Table 25.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Saturday midday peak hour)
- 2) Shiloh Rd. & Hembree Ln. (Saturday midday peak hour)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Saturday midday peak hour)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - Convert split phasing in EB/WB direction to protected phasing;
 - Convert existing westbound-through lane to an exclusive left-turn lane (storage length of 200 feet and taper length of 75 feet) and a shared through/right turn lane
 - Add one northbound left-turn lane
- 2) Shiloh Rd. & Hembree Ln.
 - Optimize splits and cycle length
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr.
 - Signalize intersection

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



Figures 22 and 23 show lane geometries and projected peak hour turning movement volumes at the study intersections for Opening Year 2028 plus Alternative B Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix H.

						, 					
				Opening Year 2028 Conditions		Alterr		r 2028 + 8 Project ons	Opening Year 2028 + Alternative B Project Conditions w/ Mitigations		
#	Study Intersections	Control	Peak Hour	_ Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old Redwood Hwy.	Signal	AM PM Saturday	17.3 23.7	B C	25.8 41.8	C D	8.5 18.1	-	-	-
	Redwood Hwy.		Midday	22.4	С	105.1	F	82.7	31.3	С	8.9
2	Shiloh Rd. & Hembree Ln.	Signal	AM PM Saturday	16.7 25.1	B C	18.6 26.4	B C	1.9 1.3	-	-	-
	LII.		Midday	35.6	D	57.3	E	21.7	-	-	-
3	Shiloh Rd. & US-101 NB Ramps	Signal	AM PM	16.2 17.6	B B	21.8 23.4	C C	5.6 5.8	-	-	-
			Saturday Midday	18.0	В	50.0	D	-	-	-	-
4	Shiloh Rd. & US-101	Signal	AM PM	6.9 8.3	A A	9.0 9.5	A A	2.1 1.2	-	-	-
	SB Ramps	5	Saturday Midday	11.7	В	16.6	В	4.9	-	-	-
5	Shiloh Rd. & Caletti Ave.	OWSC ³	AM PM	15.6 29.7	C D	15.9 22.1	C C	0.3 -7.6	-	-	-
0			Saturday Midday	20.2	С	22.0	С	1.8	-	-	-
6	6 Shiloh Rd. & Conde Ln.	Signal	AM PM	15.1 38.1	B D	15.2 26.9	B C	0.1 -11.2	-	-	-
			Saturday Midday	15.8	В	15.9	В	0.1	-	-	-
_	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	AM PM	8.9 9.5	A A	14.7 27.5	B D	5.8 18.0	-	-	-
7			Saturday Midday	9.0	A	59.7	F	50.7	9.1	А	0.1
8	Old Redwood Hwy. &	TWSC ⁴	AM PM	14.5 26.4	B D	17.5 34.7	C D	3.0 8.3	-	-	-
0	Casino Entrance	11100	Saturday Midday	13.7	В	25.1	D	11.4	-	-	-
9	Shiloh Rd. & Casino Entrance 2	OWSC ³	AM PM	0.0 0.0	A A	11.8 15.0	B C	11.8 15.0	-	-	-
			Saturday Midday	0.0	А	24.2	С	24.2	-	-	-
	Old Redwood Hwy. & US-101 NB Ramps/Lakewood Dr.	Signal	AM PM	18.3 28.7	B C	18.2 24.6	B C	-0.1 -4.1	-	-	-
10			Saturday Midday	20.4	C	20.3	C	-0.1	-	-	-
11	Old Redwood Hwy. & US-101 NB Ramps	Free	AM PM Saturday Midday	- -	- -	- -	-	- -	- -	- -	- -
		Signal	AM	30.5 25 5	С	31.1 10.0	C	0.6	-	-	-
12	Old Redwood Hwy. & US-101 SB Ramps		PM Saturday Midday	25.5 28.7	C C	19.9 29.9	B C	-5.6 1.2	-	-	-
N	otes:		,								

Table 25: Intersection Level of Service Analysis – Opening Year 2028 plus Alternative B Project Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.



2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-

NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



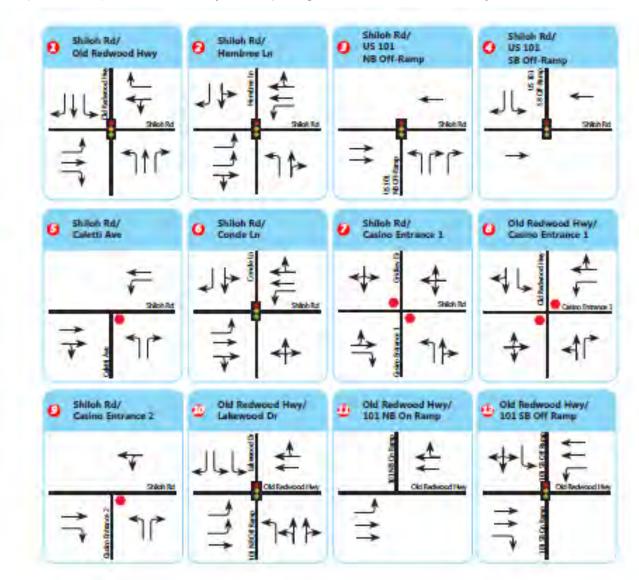


Figure 22: Project Lane Geometry 2028 Opening Year Plus Alternative B Project Conditions







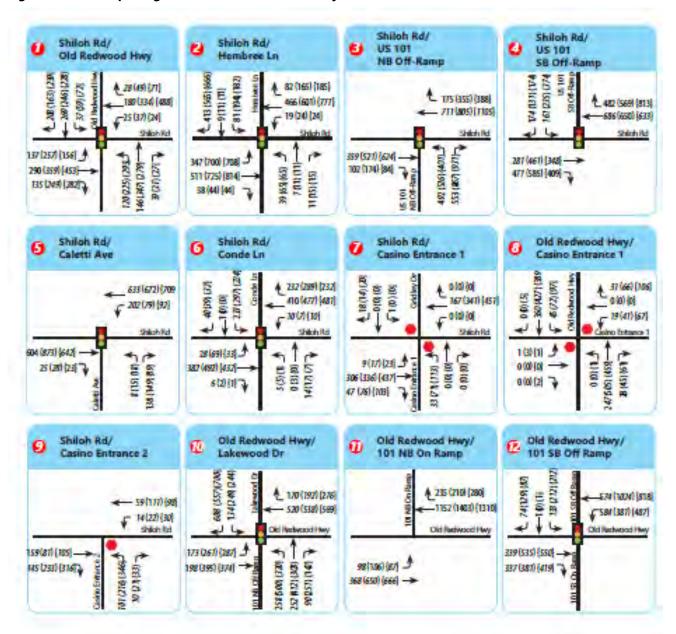
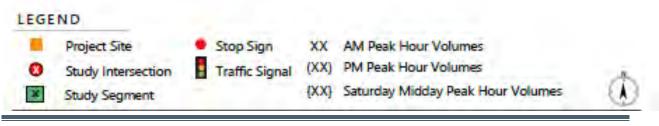


Figure 23: 2028 Opening Year Plus Alternative B Project Conditions Peak Hour Traffic Volumes



🗨 ТЈКМ

9.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative B Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 26 details the results of the analysis. Under Opening Year 2028 plus Alternative B Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBR during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 10) US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.
 - o EBL during Saturday midday peak hour
 - o NBL during weekday PM peak hour
 - o SBL during weekday PM and Saturday midday peak hours

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 26. It should also be noted that the Town of Windsor Traffic Impact Fee (TIF) program includes a project to restripe this intersection to provide two northbound left turn lanes. With this TIF project implemented, all queue impacts would be fully mitigated. At intersection 10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe EBR to give 150 ft. storage length. Restripe SBL to 190 ft. Restripe SBR to 105 ft. Construct TIF project to add second NBL turn lane.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.



	# Study Intersections	Lane Storage Group (Mitigated)		Number of	Peak	Opening Year 2028 Conditions	+ Alte	g Year 2028 ernative B Conditions	Alternat	y Year 2028 + tive B Project nditions itigations	
#	Study Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	- Comments
		EBL	375	1	AM PM	135 280	161 307	26 27	131 307	-4 27	
				·	Saturday Midday	149	199	50	214	65	
					AM	33	82	49	62	29	
		EBR	140	1	PM	56	161	105	131	75	Re-Stripe EBR Storage
			(175)		Saturday Midday	54	242	188	164	110	Length to 175 feet
					AM				43	-	LOS mitigation requires
		WBL	(200)	(1)	PM				56	-	providing 1 WBL lane at the
			. ,	. ,	Saturday Midday				53	-	intersection.
					AM	0	0	0	0	0	
		WBR	50	1	PM	0	0	0	0	0	
4	Shiloh Rd. and Old	WBI	30	,	Saturday Midday	0	14	14	19	19	
1	Redwood Hwy.				AM	105	169	64	79	-26	
		NBL	200	1	PM	274	431	157	150	-124	Add second NBL turn lane
				(2)	Saturday Midday	243	580	337	187	-56	and WB receiving lane
					AM	7	6	-1	7	0	
		NBR	100	1	PM	0	0	0	0	0	
					Saturday Midday	0	0	0	0	0	
					AM	31	75	44	68	37	
		SBL	130	1	PM	50	139	89	139	89	Re-Stripe SBL Storage Length
			(190)		Saturday Midday	40	181	141	130	90	to 190 feet
					AM	105	135	30	98	-7	
		SBR	95	1	PM	111	110	-1	80	-31	Re-Stripe SBR Storage
			(130)		Saturday Midday	105	148	43	115	10	Length to 130 feet
2		EBL	-	Trap Lane	AM	144	144	0			

Table 26: 95th Percentile Queue Lengths – Opening Year 2028 plus Alternative B Project Conditions



"		Lane	Storage	Number of Lanes	Peak	Opening Year 2028 Conditions	+ Alte	g Year 2028 ernative B Conditions	Alternat	Year 2028 + ive B Project nditions itigations	
#	Study Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	– Comments
					PM Saturday	356	310	-46			
					Midday	362	375	13			
					AM PM	32 37	32 39	0			
		WBL	-	Trap Lane	Saturday	37	39 39	2 2			
	Shiloh Rd. and				Midday AM	53	53				
	Hembree Ln.				PM	53 92	53 96	0 4			
		NBL	-	Trap Lane	Saturday Midday	92	96	4			
					AM	49	112	63			
		SBR	-	Trap Lane	PM	218	369	151			
					Saturday Midday	448	720	272			
					AM	293	293	0			
		NBL	-	Trap Lane	PM Saturday	461	352	-109			
	US 101 NB Off				Midday	221	221	0			
3	Ramp and Shiloh Rd.				AM	10	23	13			
	NG.	NBR	265	2	PM	98	176	78			
					Saturday Midday	71	225	154			
					AM	62	105	43			
		SBL	-	Trap Lane	PM Saturday	91	132	41			
	Shiloh Rd. and US				Midday	107	233	126			
4	101 SB Off Ramp				AM	42	43	1			
		SBR	275	1	PM	39	33	-6			
					Saturday Midday	15	15	0			
6	Conde Ln. and	EBL	90	1	AM	35	35	0			
	Shiloh Rd.				PM	92	78	-14			



				Saturday Midday	40	41	1		
	WBL	130	1	AM PM	18 18	18 16	0 -2		
	VVDL	130	I	Saturday Midday	19	20	1		
	SBR	40	1	AM PM	32 33	32 31	0 -2		
	SDR	40	I	Saturday Midday	27	27	0		
	EBL	155	1	AM PM	86 179	86 151	0 -28		
	LDL	100	I	Saturday Midday	180	180	0		
	NBL	270	2	AM PM	181 498	181 413	0 -85		
US 101 NB Off Ramp/Lakewood D		270	2	Saturday Midday	215	215	0		
& Old Redwood Hwy.	SBL	120	1	AM PM	72 181	72 153	0 -28		
	JDL	120	I	Saturday Midday	162	162	0		
	SBR		Trap Lane	AM PM	331 341	335 247	4 -94		
	JDK	-	Trap Larle	Saturday Midday	521	537	16		
US 101 SB On	EBR	_	Trap Lane	AM PM	62 55	62 49	0 -6		
12 Ramp/US 101 SB Off Ramp & Old	LDN	-	irap Laile	Saturday Midday	50	50	0		
Redwood Hwy.	WBL		Trap Lane	AM PM	544 403	544 340	0 -63		



#	# Study Intersections	Lane	Storage Length (ft.)	Number of Lanes	Peak	Opening Year 2028 Conditions	Opening Year 2028 + Alternative B Project Conditions		Opening Year 2028 + Alternative B Project Conditions w/Mitigations		Comments
#	Study intersections	Group	(Mitigated)	(Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	comments
					Saturday Midday	424	424	0			
					AM	101	113	12			
		SBL	420	2	PM	181	190	9			
				_	Saturday Midday	109	151	42			

Notes:

1. NBL – Northbound left

2. NBR – Northbound right

- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



10.0 OPENING YEAR 2028 PLUS ALTERNATIVE C PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to Opening Year 2028 No Project Conditions, but with the addition of traffic from the Alternative C project. The project trip generation, trip distribution, and trip assignment is identical to that of Existing plus Alternative C Project Conditions.

10.1 Intersections Level of Service Analysis – Opening Year 2028 plus Alternative C Project Conditions

The intersection LOS analysis results for Opening Year 2028 plus Alternative C Project Conditions are summarized in Table 27.

Under this scenario, all of the study intersections operate within applicable jurisdictional standards during all three peak periods.

Figures 24 and 25 show lane geometries and projected peak hour turning movement volumes at the study intersections for Opening Year 2028 plus Alternative C Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix I.



			Conditions)				
	- 			Openin 2028 Co			ening Yea ve C Proi	r 2028 + ect Conditions
#	Study Intersections	Control	Peak Hour	Delay	LOS	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old Redwood Hwy.	Signal	AM PM Saturday	17.3 23.7 22.4	B C c	19.2 26.9 31.4	B C C	1.9 3.2 9.0
2	Shiloh Rd. & Hembree Ln.	Signal	Midday AM PM Saturday	16.7 25.1	B C	17.1 26.8	B C	0.4 1.7
3	Shiloh Dd. 8, US, 101 NB Damps	Signal	Midday AM PM	35.6 16.2 17.6	D B B	40.6 17.8 20.2	D B C	5.0 1.6 2.6
3	Shiloh Rd. & US-101 NB Ramps	Signal	Saturday Midday	18.0	В	28.8	С	10.8
4	Shiloh Rd. & US-101 SB Ramps	Signal	AM PM Saturday Midday	6.9 8.3 11.7	A A B	8.2 8.8 12.5	A A B	1.3 0.5 0.8
5	Shiloh Rd. & Caletti Ave.	OWSC ³	AM PM Saturday	15.6 29.7 20.2	C D C	15.8 30.3 20.8	C D C	0.2 0.6 0.6
6	Shiloh Rd. & Conde Ln.	Signal	Midday AM PM Saturday	15.1 38.1 15.8	B D B	15.1 38.3 15.9	B D B	0.0 0.2 0.1
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	Midday AM PM Saturday	8.9 9.5 9.0	A A A	11.6 13.5 14.2	B B B	2.7 4.0 5.2
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	Midday AM PM Saturday	14.5 26.4 13.7	B D B	15.4 29.3 14.8	C D B	0.9 2.9 1.1
9	Shiloh Rd. & Casino Entrance 2	OWSC ³	Midday AM PM Saturday	0.0 0.0 0.0	A A A	10.4 10.7 11.1	B B B	10.4 10.7 11.1
10	Old Redwood Hwy. & US 101 NB Off Ramp/Lakewood Dr.	Signal	Midday AM PM Saturday Midday	18.3 28.7 20.4	B C C	18.3 28.8 20.3	B C C	0.0 0.1 -0.1
11	Old Redwood Hwy. & US 101 NB On Ramp	Free	AM PM Saturday Midday	- -	- -	- -	- -	
12	Old Redwood Hwy. & US 101 SB Ramps	Signal	AM PM Saturday Midday	30.5 25.5 28.7	C C C	30.7 25.7 28.9	C C C	0.2 0.2 0.2

Table 27: Intersection Level of Service Analysis – Opening Year 2028 plus Alternative C Project Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control



4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



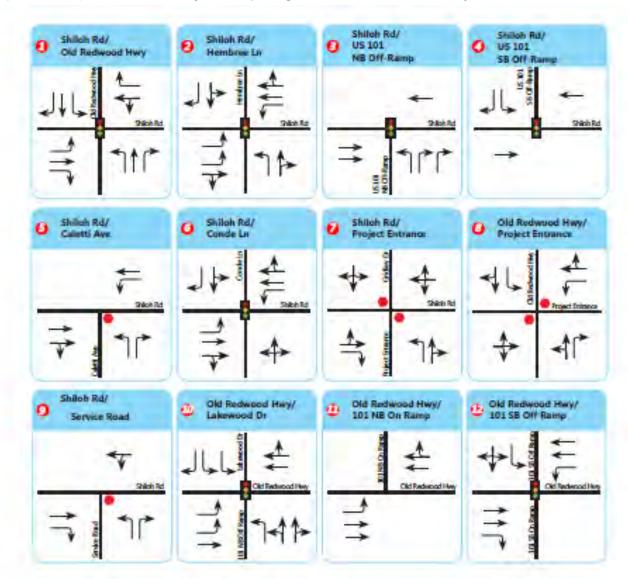


Figure 24: Project Lane Geometry 2028 Opening Year Plus Alternative C Project Conditions





117-123 | 10/2022

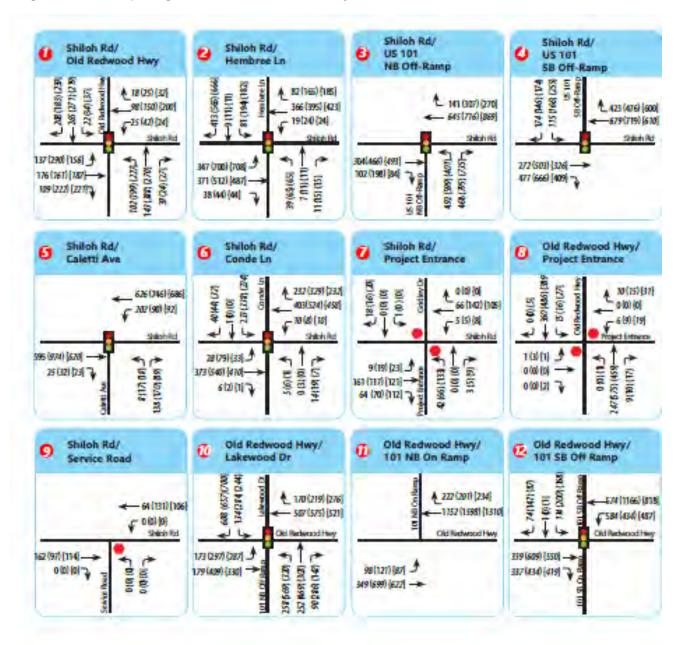


Figure 25: 2028 Opening Year Plus Alternative C Project Conditions Peak Hour Traffic Volumes





10.2 Intersection Queuing Analysis – Opening Year 2028 plus Alternative C Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 28 details the results of the analysis. Under Opening Year 2028 plus Alternative C Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 6) Conde Ln. and Shiloh Rd.
 - o EBL during weekday PM peak hour
- 10) US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM peak hour
 - o SBL during weekday PM and Saturday midday peak hours

With mitigation, the project would be consistent with the Town of Windsor General Plan standards. Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 28. At the northbound left turn lane, while the 95th percentile queue would overflow, the average queue length indicates that this would be rare and suggests the impact would be less than significant. It should also be noted that the Town of Windsor Traffic Impact Fee (TIF) program includes a project to restripe this intersection to provide two northbound left turn lanes. With this TIF project implemented, all queue impacts would be fully mitigated. At intersections #6 and #10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe SBR to give 130 ft. storage length. Construct TIF project to add second NBL turn lane and WB receiving lane.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



			95 th Percer		Longths		-	•							
						Opening		ing Year		Year 2028					
						Year 2028		Alternative		mative C					
			Storage	Number of		Conditions		roject		Conditions					
#	Study Intersections	Lane	Length (ft.)	Lanes	Peak			ditions		igations	Comments				
	,	Group	(Mitigated)	(Mitigated)	Hour	Queue	Queue	Change	Queue	Change					
						Length	Length	in Queue	Length	in Queue					
						(ft.)	(ft.)	(ft.)	(ft.)	(ft.)					
					AM	[A] 135	[B] 144	[B-A] 9	[B] 138	[B-A] 3					
					PM	280	308	28	308	28					
		EBL	375	1	Saturday										
					Midday	149	176	27	176	27					
					AM	33	35	2	34	1					
			140	1	PM	56	62	6	62	6					
		EBR	140	I	Saturday	54	62	8	62	8					
					Midday	54									
					AM	0	0	0	0	0					
		WBR	50	1	PM	0	0	0	0	0					
					Saturday	0	0	0	0	0					
									Midday AM	105	128	23	61	-44	
	Shiloh Rd. and Old		200	1	PM	274	327	23 53	121	-44 -153	Add second NBL turn lane and				
1	Redwood Hwy.	NBL		(2)	Saturday						WB receiving lane				
	Reawood Hwy.			(2)	Midday	243	370	127	131	-112	WD receiving lane				
					AM	7	7	0	8	1					
			100	100	100	1	PM	0	0	0	0	0			
		NBR	100	1	Saturday		0	0	0						
					Midday	0	0	0	0	0					
					AM	31	44	13	42	11					
		SBL	130	1	PM	50	65	15	65	15					
		JDL	150		Saturday	40	73	33	73	33					
					Midday										
			95		AM PM	105 111	<mark>117</mark> 117	12	111 117	6	Re-Stripe SBR Storage Length to				
		SBR	95 (130)	1		111	117	6	117	6	130 feet				
			(130)		Saturday Midday	105	129	24	128	23	150 Teet				
					AM	144	144	0							
					PM	356	356	0							
2	Shiloh Rd. and	EBL	-	Trap Lane	Saturday										
2	Hembree Ln.				Midday	362	362	0							
		WBL	-	Trap Lane	AM	32	32	0							
				- F •		-									

Table 28: 95 th Percentile Queue	Lengths.	– Openina Y	/ear 2028 plus A	Alternative C Project Conditions
				······································



# \$	Study Intersections	Lane Group	Storage Length (ft.) (Mitigated)	Number of Lanes (Mitigated)	Peak Hour	Opening Year 2028 Conditions Queue Length (ft.) [A]	2028 + A C P	ing Year Alternative roject ditions _ Change in Queue (ft.) [B-A]	+ Alter Project C	Year 2028 native C Conditions igations _ Change in Queue (ft.) [B-A]	Comments
					PM Saturday Midday	37 37	37 37	0			
		NBL	-	Trap Lane	AM PM Saturday Midday	53 92 92	53 92 92	0 0 0			
		SBR	-	Trap Lane	AM PM Saturday Midday	49 218 448	66 322 559	17 104 111			
	US 101 NB Off	NBL	-	Trap Lane	AM PM Saturday Midday	293 461 221	293 461 221	0 0 0			
3	Ramp and Shiloh Rd.	NBR	265	2	AM PM Saturday Midday	10 98 71	10 127 113	0 29 42			
	Shiloh Rd. and US	SBL	-	Trap Lane	AM PM Saturday Midday	62 91 107	77 106 132	15 15 25			
4	101 SB Off Ramp	SBR	275	1	AM PM Saturday Midday	42 39 15	42 39 15	0 0 0			
6	Conde Ln. and Shiloh Rd.	EBL	90	1	AM PM Saturday Midday	35 92 40	35 92 40	0 0 0			
	Shiloh Rd.	WBL	130	1	AM PM	18 18	18 18	0 0			



#	Study Intersections	Lane Group	Storage Length (ft.) (Mitigated)	Number of Lanes (Mitigated)	Peak Hour	Opening Year 2028 Conditions Queue Length (ft.) [A]	2028 + 7 C P	ing Year Alternative roject ditions Change in Queue (ft.) [B-A]	+ Alter Project (Year 2028 native C Conditions igations Change in Queue (ft.) [B-A]	Comments			
					Saturday Midday	19	19	0						
		SBR	40	1	AM PM Saturday	32 33	32 33	0 0						
					Midday	27	27	0						
					AM	86	86	0						
		EBL	155	1	PM Saturday Midday	179 180	179 180	0						
					AM	181	181	0						
1	US 101 NB Off Ramp/Lakewood Dr.	NBL	270	2	PM Saturday Midday	498 215	498 215	0						
0	& Old Redwood		BL 120					AM	72	72	0			
	Hwy.	SBL		1	PM	181	181	0						
					Saturday Midday	162	162	0						
					AM	331	332	1						
		SBR	-	Trap Lane	PM Saturday	341	342	1						
					Midday	521	526	5						
					AM PM	62 55	62 55	0 0						
		EBR	-	Trap Lane	Saturday									
					Midday	50	50	0						
1	US 101 SB On Ramp/US 101 SB Off Ramp & Old Redwood Hwy.			_	AM PM	544 403	544 403	0 0						
2		WBL	-	Trap Lane	Saturday Midday	424	424	0						
	2				AM	101	104	3						
		SBL	SBL 420	2	PM Saturday	181	194	13						
					Midday	109	116	7						



Notes:

- 1. NBL Northbound left
- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



11.0 GENERAL PLAN 2040 NO PROJECT CONDITIONS

The General Plan 2040 No Project **Conditions analysis forecasts how the study area's transportation** system would operate with the growth and changes of the surrounding community by the year 2040. This scenario assumes that no project would be built. Corridor volumes on Shiloh Road and Old Redwood Highway in the immediate project vicinity were obtained from the SCTA traffic model. Based on the growth in these corridor volumes, an annual compounding growth rate of 2.189 percent was applied to project future 2040 traffic volumes. Under this scenario, no infrastructure improvements were assumed at the study intersections or the roadway segments except for the intersection of Shiloh Road and Hembree Lane (intersection #2) as per the approved developments included in Opening Year 2028 No Project Conditions.

11.1 INTERSECTIONS LEVEL OF SERVICE ANALYSIS – GENERAL PLAN 2040 NO PROJECT CONDITIONS

The intersection LOS analysis results for General Plan 2040 No Project Conditions are summarized in Table 29.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Ramps (Weekday AM peak hour)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd. & Conde Ln. (Weekday AM and PM peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday AM and PM peak hours)
- 12) Old Redwood Hwy. & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

Figures 26 and 27 show lane geometries and projected peak hour turning movement volumes at the study intersections for General Plan 2040 No Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix J.



#	Study Intersections	Control	Peak Hour	General P Condit	
	,			 Delay ¹	LOS ²
			AM	93.8	F
1	Shiloh Rd. & Old Redwood Hwy.	Signal	PM	229.3	F
,	omion na. a ola noawooa ning.	orginar	Saturday	26.7	С
			Midday AM	64.3	E
			PM	56.3	E
2	Shiloh Rd. & Hembree Ln.	Signal	Saturday		
			Midday	94.6	F
			AM	120.3	F
3	Shiloh Rd. & US-101 NB Ramps	Signal	PM	37.9	D
0		orginal	Saturday	39.0	D
			Midday AM	22.6	С
			PM	19.4	В
4	Shiloh Rd. & US-101 SB Ramps	Signal	Saturday		
			Midday	14.6	В
			AM	79.9	F
5	Shiloh Rd. & Caletti Ave.	OWSC ³	PM	98.6	F
0		01100	Saturday	54.1	F
			Midday AM	72.0	F
			PM	83.1	E F
6	Shiloh Rd. & Conde Ln.	Signal	Saturday		
			Midday	29.9	С
			AM	9.0	А
7	Shiloh Rd. & Casino Entrance 1/Gridley Dr.	TWSC ⁴	PM	9.9	A
			Saturday	9.3	А
			Midday AM	55.7	F
			PM	359.3	F
8	Old Redwood Hwy. & Casino Entrance	TWSC ⁴	Saturday		
			Midday	15.8	С
			AM	0.0	А
9	Shiloh Rd. & Casino Entrance 2	OWSC ³	PM	0.0	A
			Saturday	0.0	А
			Midday AM	17.9	В
	Old Redwood Hwy. & US 101 NB Off		PM	33.6	С
10	Ramp/Lakewood Dr.	Signal	Saturday		
			Midday	31.6	С
			AM	-	-
11	Old Redwood Hwy. & US 101 NB On Ramp	Free	PM	-	-
	у		Saturday	-	-
			Midday AM	110.0	F
			PM	39.6	D
12	Old Redwood Hwy. & US 101 SB Ramps	Signal	Saturday		
			Midday	58.1	E

Table 29: Intersection Level of Service Analysis - General Plan 2040 No Project Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.



- 6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.
- 7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



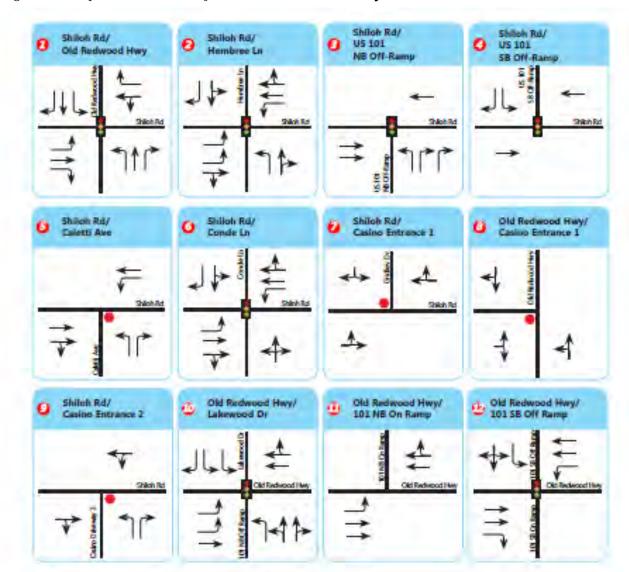


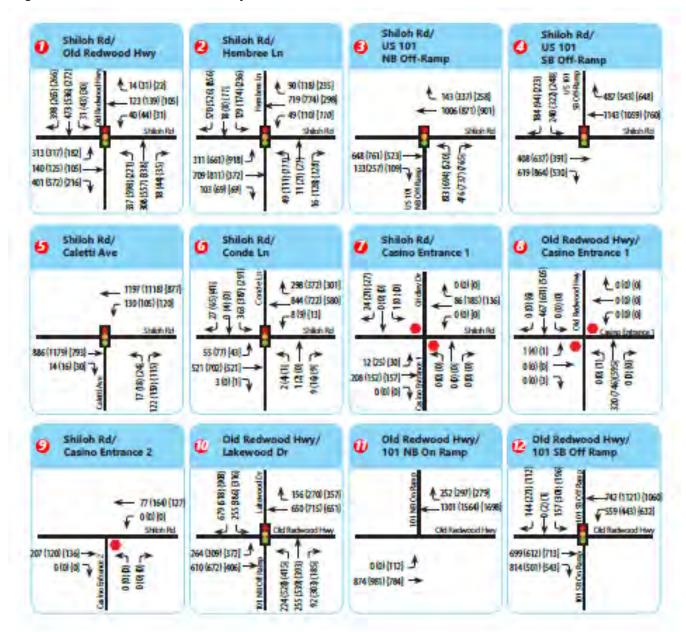
Figure 26: Project Lane Geometry General Plan 2040 No Project Conditions



🦲 ТЈКМ



117-123 | 10/2022







((ТЈКМ

117-123 | **10**/2022

11.2 INTERSECTION QUEUING ANALYSIS - GENERAL PLAN 2040 NO PROJECT CONDITIONS

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 30 details the results of the analysis. Under General Plan 2040 No Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBR during weekday PM peak hour
 - o NBL during weekday AM and PM, and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday AM and PM, and Saturday midday peak hours

#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	General Plan 2040 Conditions Queue Length (ft.) [A]
		EBL	375	1	AM PM Saturday Midday	361 345 195
		EBR	140	1	AM PM Saturday Midday	42 136 60
1	Shiloh Rd. & Old Redwood Hwy.	WBR	50	1	AM PM Saturday Midday	0 0 0
		NBL	200	1	AM PM Saturday Midday	602 1105 337
		NBR	100	1	AM PM Saturday Midday	0 10 2
		SBL	130	1	AM PM	60 85

Table 30: 95th Percentile Queue Lengths – General Plan 2040 No Project Conditions

#	- Study Intersections	Lane Group	Storage	Number of	Peak Hour	General Plan 2040 Conditions
	-		Length (ft.)	Lanes		Queue Length (ft.) [A]
					Saturday Midday	55
		SBR	95	1	AM PM Saturday Midday	378 209 155
		EBL	-	Trap Lane	AM PM Saturday Midday	134 342 504
		WBL	-	Trap Lane	AM PM Saturday	65 171 166
2	Shiloh Rd. & Hembree Ln.	NBL	-	Trap Lane	Midday AM PM Saturday	65 173 168
		SBR	-	Trap Lane	Midday AM PM Saturday	526 516 747
		NBL	-	Trap Lane	Midday AM PM Saturday	681 571 312
3	US 101 NB Off Ramp & Shiloh Rd.	NBR	265	2	Midday AM PM Saturday	75 180 132
		SBL	-	Trap Lane	Midday AM PM Saturday	262 381 168
4	Shiloh Rd. & US 101 SB Off Ramp	SBR	275	1	Midday AM PM Saturday	112 41 38
		EBL	90	1	Midday AM PM Saturday	67 91 54
6	Conde Ln. and Shiloh Rd.	WBL	130	1	Midday AM PM Saturday Midday	18 19 25
			40	1	Midday AM PM Saturday	22 44 31
10	US 101 NB Off Ramp/Lakewood Dr. & Old Redwood Hwy.	EBL	155	1	Midday AM PM	145 189



#	Study Intersections	Lane Group	Storage Length (ft.)	Number of Lanes	Peak Hour	General Plan 2040 Conditions Queue Length (ft.) [A]
					Saturday Midday	244
		NBL	270	2	AM PM Saturday Midday	173 523 285
		SBL	120	1	AM PM Saturday Midday	163 163 163
		SBR	-	Trap Lane	AM PM Saturday Midday	510 317 851
		EBR	-	Trap Lane	AM PM Saturday Midday	624 98 136
12	US 101 SB On Ramp/US 101 SB Off Ramp & Old Redwood Hwy.	WBL	-	Trap Lane	AM PM Saturday Midday	511 412 579
		SBL	420	2	AM PM Saturday Midday	172 313 158

Notes:

1. NBL – Northbound left

2. NBR – Northbound right

3. SBL – Southbound left

- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right

9. Bold indicates unacceptable 95th percentile queue length

10. 95^{th} percentile queue lengths expressed in feet, rounded to the nearest five feet

11. *Average storage per lane, where dual turn lanes provide different storage lengths



12.0 GENERAL PLAN 2040 PLUS ALTERNATIVE A PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to General Plan 2040 No Project Conditions, but with the addition of traffic from the proposed Alternative A project. The project trip generation, trip distribution, and trip assignment are identical to those of Existing plus Alternative A Project Conditions and Opening Year 2028 plus Alternative A Project Conditions.

12.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative A Project Conditions

The intersection LOS analysis results for General Plan 2040 plus Alternative A Project Conditions are summarized in Table 31.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM, and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off Ramp (Weekday AM and PM, and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd. & Conde Ln. (Weekday AM and PM peak hours)
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance 1 (Weekday AM and PM, and Saturday midday peak hours)
- 12) Old Redwood Hwy. & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Convert split phasing in EB/WB direction to protected phasing
 - Restripe NB approach to include two exclusive left turn lanes, two through lanes, and one exclusive right turn lane
 - Restripe SB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane



- Restripe EB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane
- Restripe WB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane
- 2) Shiloh Rd. & Hembree Ln.
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Convert split phasing in NB/SB direction to protected phasing
 - Restripe NB approach to include one exclusive left turn lane and one shared through-right turn lane
 - Restripe SB approach to include one exclusive left turn lane, one through lane, and two exclusive right turn lanes
 - Restripe EB approach to include two exclusive left turn lanes, one through lane, and one shared through-right turn lane
 - Restripe WB approach to include one exclusive left turn lane, one through lane, and one shared through-right turn lane
- 3) Shiloh Rd. & US 101 NB Off Ramp
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Restripe EB approach to include two through lanes
 - Restripe WB approach to include two through lanes
- 5) Shiloh Rd. & Caletti Ave.
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Restripe WB approach to include one exclusive left turn lane and two through lanes
- 6) Shiloh Rd. & Conde Ln.
 - o Optimize signal timing parameters
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr.
 - o Signalize intersection
- 8) Old Redwood Hwy. & Casino Entrance 1
 - o Signalize intersection
- 12) Old Redwood Hwy. & US 101 SB Ramps
 - o Optimize signal timing parameters



With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Figures 28 and 29 show lane geometries and projected peak hour turning movement volumes at the study intersections for General Plan 2040 plus Alternative A Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix K.



				COL	ditions	>					
#	Study Intersections	Control	Peak Hour	General Plan 2040 Conditions		General Plan 2040 + Alternative A Project Conditions			General Plan 2040 + Alternative A Project Conditions w/ Mitigations		
				Delay ¹	LOS ²	Delay ¹	LOS ²	Change in Delay ⁶	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old	Signal	AM PM	93.8 229.3	F F	133.1 367.4	F F	39.3 138.1	33.0 54.9	C D	-60.8 -174.4
	Redwood Hwy.	orgridi	Saturday Midday	26.7	С	134.7	F	108.0	26.2	С	-0.5
2	Shiloh Rd. & Hembree Ln.	Signal	AM PM Saturday	64.3 56.3	E E	82.2 118.7	F F	17.9 62.4	19.8 45.4	B D	-44.5 -10.9
	Hembree Lh.		Midday	94.6	F	177.4	F	82.8	53.6	D	-41.0
3	Shiloh Rd. & US-101 NB Ramps	Signal	AM PM Saturday	120.3 37.9	F D	132.4 76.7	F E	12.1 38.8	43.7 20.7	D C	-76.6 -17.2
_	ND Ramps		Midday	39.0	D	131.3	F	92.3	25.4	С	-13.6
4	Shiloh Rd. & US-101	Signal	AM PM	22.6 19.4	C B	29.8 53.8	C D	7.2 34.4	-	-	-
4	SB Ramps	Signai	Saturday Midday	14.6	В	39.5	D	24.9	-	-	-
5	Shiloh Rd. & Caletti	OWSC ³	AM PM	79.9 98.6	F F	85.7 117.4	F F	5.8 18.8	29.4 30.8	D D	-50.5 -67.8
0	Ave.		Saturday Midday	54.1	F	65.8	F	11.7	29.0	D	-25.1
6	Shiloh Rd. & Conde	Signal	AM PM	72.0 83.1	E F	71.4 81.7	E F	-0.6 -1.4	29.3 34.8	C C	-42.7 -48.3
	Ln.		Saturday Midday	29.9	С	30.6	С	0.7	-	-	-
_	Shiloh Rd. & Casino		AM PM	9.0 9.9	A A	15.9 74.2	C F	6.9 64.3	- 9.2	Ā	- -0.7
7	Entrance 1/Gridley Dr.	TWSC ⁴	Saturday Midday	9.3	А	89.5	F	80.2	9.1	А	-0.2
8	Old Redwood Hwy.	TWSC ⁴	AM PM	55.7 359.3	F F	76.9 1836.2	F F	21.2 1476.9	6.7 11.5	A B	-49.0 -347.8
	& Casino Entrance		Saturday Midday	15.8	С	44.7	E	28.9	8.4	А	-7.4
9	Shiloh Rd. & Casino	OWSC ³	AM PM	0.0 0.0	A A	11.8 17.8	B C	11.8 17.8	-	-	-
	Entrance 2		Saturday Midday	0.0	А	19.3	С	19.3	-	-	-
10	Old Redwood Hwy. & US 101 NB Off	Signal	AM PM	17.9 33.6	B C	18.0 36.3	B D	0.1 2.7	-	-	-
	Ramp/Lakewood Dr.	J. T.	Saturday Midday	31.6	С	32.5	С	0.9	-	-	-
11	Old Redwood Hwy. & US 101 NB On	Free	AM PM Saturday	-	-	-	-	-	-	-	-
	Ramp		Saturday Midday	-	-	-	-	-	-	-	-
12	Old Redwood Hwy.	Signal	AM PM	110.0 39.6	F D	110.0 47.6	F D	0.0 8.0	54.7 -	D -	-55.3 -
	& US 101 SB Ramps	oignar	Saturday Midday	58.1	E	60.4	E	2.3	45.1	D	-13.0
NI	otes [.]										

Table 31: Intersection Level of Service Analysis – General Plan 2040 plus Alternative A Project Conditions

Notes:



1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.

2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



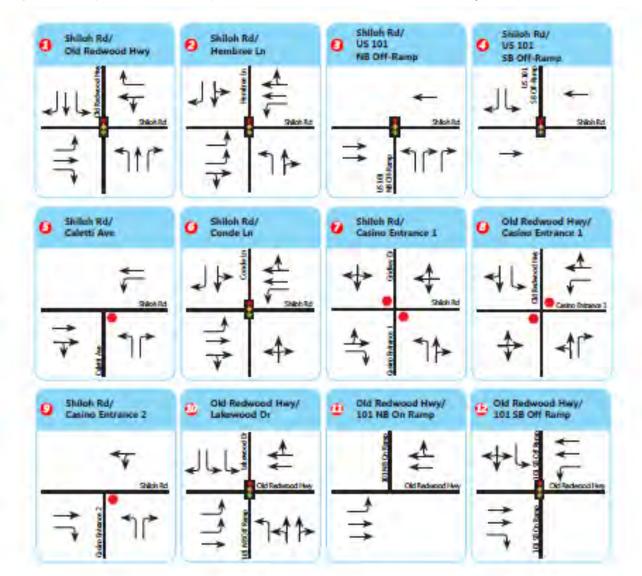


Figure 28: Project Lane Geometry General Plan 2040 Plus Alternative A Project Conditions



🦲 ТЈКМ



117-123 | 10/2022

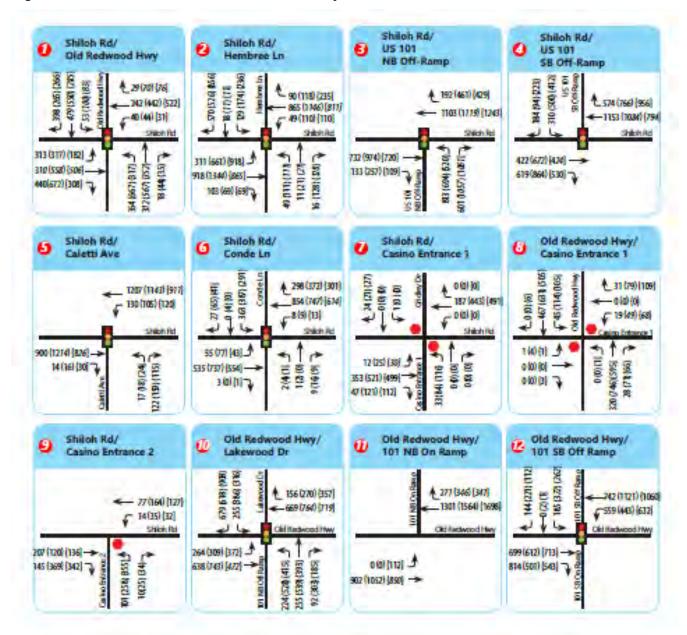
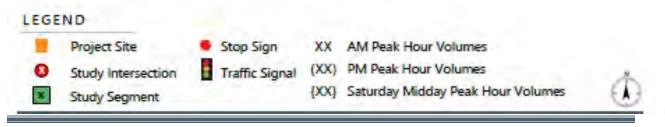


Figure 29: General Plan 2040 Plus Alternative A Project Conditions Peak Hour Traffic Volumes





12.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative A Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 32 details the results of the analysis. Under General Plan 2040 plus Alternative A Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBL during weekday AM and PM peak hours
 - o EBR during weekday AM and PM, and Saturday midday peak hours
 - o NBL during weekday AM and PM, and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 3) Shiloh Rd. & US 101 NB Off-ramp
 - o NBR during weekday PM and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday AM and PM, and Saturday midday peak hours

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 32. The mitigations for LOS described above also include restriping to provide two northbound left turn lanes. At intersection #3, restriping can mitigate the queue overflow. At intersection #10, the project would not create any new queuing impacts. Although intersection #6 would not experience queue overflows under General Plan 2040 plus Project Conditions, the signal retiming associated with LOS mitigations would create new overflows. This can be partially mitigated with restriping, and there is adequate upstream block length to accommodate the queue overflow from the eastbound left turn lane. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe EBL to give 385 ft. storage length. Restripe SBL to 145 ft. Restripe SBR to 105 ft. Construct TIF project to add second NBL turn lane and WB receiving lane.



• 6) Restripe SBR to give 65 ft. storage length.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.



#	Study	Lane	Storage Length (ft.)	Number of Lanes	Peak	General Plan 2040 Conditions	General + Alter Project (Plan 2040 mative A Conditions	General + Alter Project (w/Mit	Plan 2040 mative A Conditions igations	Comments	
ű	Intersections	Group	(Mitigated)	(Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]		
		EBL	375 (425)	1	AM PM Saturday	361 345	441 424	80 79	277 423	-84 78	Re-Stripe EBL Storage Length to 425 feet.	
			(423)		Midday	195	236	41	198	3	Length to 420 feet.	
			140		AM PM	42 136	280 791	238 655	67 189	25 53	Do Stripo EPD Storago	
		EBR	(200)	1	Saturday Midday	60	292	232	51	-9	Re-Stripe EBR Storage Length to 200 feet.	
		WBL	(200)	(1)	AM PM Saturday				59 84	-	LOS mitigation requires providing 1 WBL lane at the	
					Midday	0	0	0	53	-	intersection.	
			50	1	AM PM	0 0	0 21	0 21	0 28	0 28		
1	Shiloh Rd. & Old	WBR	50	1	Saturday Midday	0	20	20	20	20		
Ι	Redwood Hwy.	NBL	200	1	AM PM	602 1105	730 1374	128 269	184 426	-418 -679	Add second NBL turn lane	
		, ibc	(430)	(2)	Saturday Midday	337	648	311	179	-158	and WB receiving lane	
					AM	0	0	0	0	0		
		NBR	100	1	PM Saturday Midday	10 2	11 0	1 -2	15 0	5 -2		
			130		AM PM	60 85	126 249	66 164	76 157	16 72	Re-Stripe SBL Storage	
		SBL	(190)	1	Saturday Midday	85 55	249 217	162	157	72 99	Length to 190 feet	
			05		AM	378	442	64	75	-303		
		SBR	95 (160)	1	PM Saturday Midday	209 155	238 197	29 42	146 73	-63 -82	Re-stripe SBR Storage Length to 160 feet	
2		EBL	-	Trap Lane	AM	134	134	0	147	13		

Table 32. 95th Percentile Queue Lengths- General Plan 2040 plus Alternative A Project Conditions



#	Study Intersections	Lane Group	Storage Length (ft.) (Mitigated)	Number of Lanes (Mitigated)	Peak Hour	General Plan 2040 Conditions Queue Length (ft.) [A]	+ Alter	Plan 2040 native A Conditions Change in Queue (ft.) [B-A]	+ Alter Project (Plan 2040 rnative A Conditions igations Change in Queue (ft.) [B-A]	Comments
					PM Saturday Midday	342 504	342 522	0	325 501	-17 -3	
		WBL	-	Trap Lane	AM PM Saturday Midday	65 171 166	65 171 171	0 0 5	56 130 132	-9 -41 -34	
	Shiloh Rd. & Hembree Ln.	NBL	-	Trap Lane	AM PM Saturday Midday	65 173 168	65 173 173	0 0 5	56 136 133	-9 -37 -35	
		SBL	(350)	(Trap Lane)	Widday				155 232 350	-	LOS mitigation requires providing 1 SBL lane at the intersection. Storage length required is 350 feet
		SBR	- 0	Trap Lane (2)	AM PM Saturday Midday	526 516 747	559 535 1015	33 19 268	135 175 345	-391 -341 -402	
	US 101 NB Off	NBL	-	Trap Lane	,						
3	Ramp & Shiloh Rd.	NBR	265 (340)	2	AM PM Saturday Midday	75 180 132	125 411 351	50 231 219	121 332 338	46 152 206	Re-Stripe NBR Storage Length to 340 feet
4	Shiloh Rd. & US 101 SB Off Ramp	SBL		Trap Lane	AM PM Saturday Midday	262 381 168	368 638 381	106 257 213			
		SBR	275	1	AM PM	112 41	113 41	1 0			



				-	· · · · ·		- 		- 		-	
					Saturday Midday	38	47	9				
					AM	18	18	0	23	5		
6	Conde Ln. and	WBL	130	1	PM	19	19	0	26	7		
-	Shiloh Rd.			·	Saturday Midday	25	26	1	26	1		
					AM PM	145 189	145 189	0 0				
		EBL	155	1	Saturday Midday	244	244	0				
10	US 101 NB Off Ramp/Lakewood											
10	Dr. & Old Rodwood Hwy				AM PM	163	163	0				
	Redwood Hwy.	SBL	120	1	PM Saturday Midday	163 163	163 163	0 0				
					AM	510	511	1				
		SBR		Trap Lane	PM	317	320	3				
		JUN			Saturday Midday	851	859	8				
12	US 101 SB On Ramp/US 101 SB	EBR	-	Trap Lane	AM PM	624 98	624 98	0 0	697 98	73 0		



"	" Study		Storage	Number of	Peak	General Plan 2040 Conditions	General Plan 2040 + Alternative A Project Conditions		General Plan 2040 + Alternative A Project Conditions w/Mitigations		
Ŧ	# Intersections		Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
	Off Ramp & Old Redwood Hwy.				Saturday Midday	136	136	0	203	67	
	Kounood mig.	WBL	-	Trap Lane	AM PM Saturday Midday	511 412 579	511 412 579	0 0 0	434 412 602	-77 0 23	
		SBL	420	2	AM PM Saturday Midday	172 313 158	210 361 203	38 48 45	282 361 226	110 48 68	

Notes:

- 1. NBL Northbound left
- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



12.3 FAIR SHARE ANALYSIS – GENERAL PLAN PLUS ALTERNATIVE A PROJECT CONDITIONS

Study intersections requiring mitigation under this scenario were evaluated to determine the Project's fair share contribution. For intersections that required mitigation through physical improvements under Existing plus Project Alternative A conditions or Opening Year 2028 plus Alternative A Project Conditions, it is assumed that the project would be fully responsible for the cost of mitigations. Table 33 shows fair share percentages for each impacted intersection. It should be noted that intersections 2, 3, 4, and 5 would be separately affected by the planned reconstruction of the US-101/Shiloh Road interchange. For the overpass between northbound and southbound ramps on Shiloh Road, the project fair share is 27.4 percent.

Intersections Hour Volume Trips + Project Growth Share Contribution 1 Shiloh Rd. & Old Redwood Hwy. AM 992 402 2998 206 20% Mitigated under Existing and 2028 2 Shiloh Rd. & Old Redwood Hwy. Total 3741 2567 10257 6516 39.4% Orditions 2 Shiloh Rd. & Hembree Ln Total 3741 2567 10257 6516 39.4% Conditions 3 Shiloh Rd. & Hembree Ln PM 1998 995 4416 2418 37% Godditions 3 Shiloh Rd. & US- 101 NB Ramps Total 5249 2266 11466 6217 36.4% 4 1044 355 3574 1928 18% 37.2% 3 Shiloh Rd. & US- 101 NB Ramps Saturday Midday 2083 1006 4082 1999 50% 37.2% 4 Mitigated Midday 1326 67 2026 1218 6094 37.2%		Study	Peak		Project	Cumulative	Total	Project	Fair Share
1 Shiloh Rd. & Oid Redwood Hwy. AM PM Saturday Midday 992 123 402 4296 2998 2781 2006 3781 2978 378 Mitigated under Existing and 2028 2 Shiloh Rd. & Oid Hembree In. AM 1276 355 3129 183 378 2 Shiloh Rd. & Hembree In. AM 1276 355 3129 183 378 2 Shiloh Rd. & Hembree In. PM 1998 905 4416 2418 378 3 Shiloh Rd. & 101 NB Ramps PM 1978 006 3921 1946 528 36.4% 101 NB Ramps AM 1646 355 5574 1928 828 728 5 Shiloh Rd. & Catel 101 NB Ramps AM 1612 2266 12218 6094 37.2% 6 Midday 1326 67 2026 700 10% 59% 6 Midday 132 66 2429 766 88 78 6 Saturday Midday 1221	#	2		0				-	
1 Shilch Rd. & Old Redwood Hwy. PM Saturday Midday 1515 124 1025 140 4296 293 2781 1729 378 66% Middag and 2028 Conditions 2 Shilch Rd. & Hembree Ln. AM 1726 1234 3741 1140 2963 1729 66% and 39.4% 2 Shilch Rd. & Hembree Ln. AM 1726 3751 3129 1833 19% 3 Shilch Rd. & Hembree Ln. AM 1705 1006 3921 1946 52% 36.4% 3 Shilch Rd. & 101 NB Ramps AM 1646 355 3574 1928 18% 18% 37.2% 5 Shilch Rd. & US- 101 NB Ramps AM 1737 206 2218 6094 37.2% 6 Shilch Rd. & Caletti Ave. PM 1773 60 2655 882 7% 37.2% 6 Shilch Rd. & Caletti Ave. PM 1654 60 2420 766 382 7% 6 Shilch Rd. & Casimo Ln. AM 174 151 7071 280 5% 7 Shilch Rd. & Casimo Ln.		Intersections				,			
1 Shilon Rd. & Old Redwood Hwy. Saturday Midday Total 1234 1140 2963 1729 66% 66 and 2028 Conditions 2 Am 1276 355 3129 1853 19% 1975 39.4% 2 Shiloh Rd. & Hembree Ln. AM 1276 355 3129 1853 19% 377 3 Shiloh Rd. & Hembree Ln. Saturday Midday 1975 1006 3921 1966 52% 36.4% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 4M 1646 355 3574 1928 18% 37.2% 5 Shiloh Rd. & US- 101 NB Ramps AM 1322 266 1218 609 37.2% 5 Shiloh Rd. & Caletti Ave. AM 1322 266 2218 607 2026 700 10% 5.9% 6 Shiloh Rd. & Caletti Ln. AM 1174 24 2155 981 2% 6.3% 4.343 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Mitigated</td></t<>									Mitigated
Redwood Hwy. Midday Total 1234 1140 2963 1729 80% and 2028 Conditions 2 Shiloh Rd. & Hembree Ln. AM 1226 355 3129 1853 19% 36.4% 3 Shiloh Rd. & Hembree Ln. AM 1998 905 4416 2418 37% 36.4% 3 Shiloh Rd. & US- 101 NB Ramps Total 5249 2266 11466 6217 36.4% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 5 Shiloh Rd. & US- 101 NB Ramps AM 1392 24 2390 998 2% 6 Shiloh Rd. & Caletti Ave. FM 1392 67 2026 700 10% 59% 6 Shiloh Rd. & Caletti Ln. FM 151 7071 2580 5-9% 7 Shiloh Rd. & Casino Ln. AM 1274 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Ln.	1	Shiloh Rd. & Old			1025		2701		0
2 Shiloh Rd. & Hembree Ln. AM AM Baturday Midday 1712 1705 10257 355 6516 3129 3438 1833 19% 1833 19% 1833 19% 1833 19% 1833 19% 1833 19% 1975 1006 3921 1946 52% 36.4% 3 Shiloh Rd. & US- 101 NB Ramps Total 5249 2266 11466 6217 36.4% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 5 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 6 Midday 2083 1006 4082 1999 50% 37.2% 5 Shiloh Rd. & Caletti Ave. AM 1322 24 2390 998 27% 6 Saturday Midday 1326 67 2026 700 10% 59% 6 Saturday Midday 1221 67 1868 647 10% 6.3% 7 Total 4491 151 7	I	Redwood Hwy.		1234	1140	2963	1729	66%	
2 Shilon Rd. & Hembree Ln. AM PM 1276 PM 355 905 3129 4416 1853 2418 19% 37.2% 3 Shilon Rd. & Hembree Ln. No 1998 Saturday Midday 1975 1006 3921 1946 52% 36.4% 3 Shilon Rd. & US- 101 NB Ramps AM 1646 555 3574 1928 18% 5 Shilon Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 6 Shilon Rd. & US- 101 NB Ramps AM 1302 266 12218 6094 37.2% 6 Shilon Rd. & Caletti Ave AM 1322 667 2026 700 10% 59% 6 Shilon Rd. & Caletti Ave Total 4191 151 7071 2580 5.9% 6 Shilon Rd. & Canetti Ln. AM 1174 24 2155 981 2% 7 Shilon Rd. & Canetti Ln. AM 1174 24 2155 981 2% 7 Shilon R			-	3741	2567	10257	6516	39.4%	Conditions
2 Shiloh Rd. & Hembree Ln. PM Midday Midday 1998 905 4416 2418 37% 36.4% 3 Shiloh Rd. & US- 101 NB Ramps 701 5249 2266 11466 6217 36.4% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 5 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 5 Shiloh Rd. & US- 101 NB Ramps 2083 1006 4082 1999 50% 37.2% 6 Shiloh Rd. & Caletti Ave. AM 1302 226 12218 6094 37.2% 6 Shiloh Rd. & Caletti Ave. AM 1372 2266 12218 6094 37.2% 6 Shiloh Rd. & Caletti Ave. AM 1326 67 2026 700 10% 6.3% 7 Total 4491 151 7071 2580 5.9% 6.3% 7 Total 4049 151 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
2 Shiloh Rd. & Hembree Ln. Saturday Midday Total 1975 1006 3921 1946 52% 36.4% 3 Shiloh Rd. & US- 101 NB Ramps Total 5249 2266 11466 6217 36.4% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 5 Shiloh Rd. & US- 101 NB Ramps AM 1646 355 3574 1928 18% 6 Shiloh Rd. & US- 101 NB Ramps AM 1646 2266 12218 6094 37.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 24 2390 998 2% 6 Midday Total 6124 2266 12218 6094 37.2% 6 Shiloh Rd. & Caletti Ln. Total 4491 151 7071 280 5.9% 6 Shiloh Rd. & Casino Ln. AM 1221 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrace 1/Gridley Dr.									
3 AM PM Saturday Saturday Total 1646 PM 2395 355 905 3574 4562 1928 2167 18% 42% 2167 37.2% 42% 3 101 NB Ramps 6124 2083 1006 4082 1999 50% 37.2% 5 Shiloh Rd. & Caletti Ave. 6124 2266 12218 6094 37.2% 6 Shiloh Rd. & Caletti Ave. AM 1392 24 2390 998 2% 7 Shiloh Rd. & Caletti Ave. AM 1392 60 2655 882 7% 6 Shiloh Rd. & Caletti Ln. AM 1174 24 2350 981 2% 7 Shiloh Rd. & Canop Ln. AM 1174 24 2155 981 2% 7 Midday 1221 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casion Entrance 1/Gridley Dr. PM 259 832 1215 956 87% Mitigated under Existing and 2028 8 Old Redwood Hwy. & Casino Entrance A	2		Saturday						36.4%
3 Shiloh Rd. & US- 101 NB Ramps PM Saturday Midday 2395 905 4562 2167 42% 37.2% 5 101 NB Ramps 6124 2266 12218 6094 37.2% 5 Shiloh Rd. & Caletti Ave. 6124 2266 12218 6094 37.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 24 2390 998 2% 60 2655 882 7% 5.9% 7.9% 5.9% 6 Midday Ave. 1326 67 2026 700 10% 5.9% 6 Shiloh Rd. & Caletti Ave. AM 1174 24 2155 981 2% 7 Total 4491 151 7071 2580 5.9% 6 Shiloh Rd. & Casino Entrance 1/Gridley Dr. Total 1221 67 1868 647 10% and 2028 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. Total 719 2084 3148 2429 88%			Total	5249	2266	11466	6217	36.4%	
3 Shilon Rd. & OS- 101 NB Ramps Saturday Midday 2083 1006 4082 1999 50% 37.2% 5 101 NB Ramps Total 6124 2266 12218 6094 37.2% 5 Shilon Rd. & Caletti Ave. Midday 1326 24 2390 998 2% 5 Shilon Rd. & Caletti Ave. Midday 1326 67 2026 700 10% 5.9% 6 Shilon Rd. & Conde Ln. Midday 1326 67 2026 700 10% 6.3% 6 Shilon Rd. & Conde Ln. Midday 121 67 1868 647 10% 6.3% 7 Total 4049 151 6443 2394 6.3% 7 Shilon Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956 87% Mitigated under Existing and 2028 7 Midday 236 925.4 1275.4 1039 89% 2000 8 Old Redwo			AM	1646	355	3574	1928	18%	
3 101 NB Ramps Saturday Midday 2083 1006 4082 1999 50% 37.2% 5 Total 6124 2266 12218 6094 37.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 24 2390 998 2% 5 Shiloh Rd. & Caletti Ave. AM 1392 24 2390 998 2% 6 Midday 1326 67 2026 700 10% 5.9% 6 Shiloh Rd. & Conde Ln. AM 1174 24 2155 981 2% 7 AM 1174 24 2155 981 2% 8 Shiloh Rd. & Conde Ln. PM 1654 60 2420 766 8% 7 Midday 1221 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 326.4 657.4 433 75% Mitigated under Existing and 2028			PM	2395	905	4562	2167	42%	
5 AM PM 1392 PM 24 PM 2390 2655 988 882 2% 7% 5 PM Ave. 1326 67 2026 700 10% 5.9% 6 Ave. Total 4491 151 7071 2580 5.9% 6 AM 1174 24 2155 981 2% 6 AM 1174 24 2155 981 2% 6 AM 1174 24 2155 981 2% 6 AM 1174 60 2420 766 8% 6 AM 1221 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 326.4 657.4 433 75% Mitigated under Existing 7 Shiloh Rd. & Casino Dr. PM 259 832 1215 96 87% Mitigated under Existing 7 Total 719 2084 3148	3		5	2083	1006	4082	1999	50%	37.2%
5 Shiloh Rd. & Caletti Ave. PM Saturday Midday Total 1773 60 2655 882 7% 5.9% 5 Saturday Midday 1326 67 2026 700 10% 5.9% 6 AM 1174 24 2155 981 2% 6 AM 1174 24 2155 981 2% 6 AM 1174 24 240 766 8% 6 AM 1174 24 240 766 8% 6 AM 1174 24 240 766 8% 6 AM 1221 67 1868 647 10% 6.3% 7 Kiloh Rd. & Casino PM 229 326.4 657.4 433 75% Amat 2028 7 Midday 236 925.4 1275.4 1039 89% and 2028 7 Total 719 2084 3148 2429 85.8%			Total	6124	2266	12218	6094	37.2%	
5 Shiloh Rd. & Caletti Ave. Saturday Midday 1326 67 2026 700 10% 5.9% 6 Fotal 4491 151 7071 2580 5.9% 4491 151 7071 2580 5.9% 6 Shiloh Rd. & Conde Ln. AM 1174 24 2155 981 2% 7 Shiloh Rd. & Conde Ln. AM 1174 24 2155 981 2% 7 Shiloh Rd. & Conde Ln. AM 121 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 236 925.4 1275.4 1039 89% and 2028 Conditions 8 Old Redwood Hwy. AM 534 122.6 910.6 377 33% Mitigated under Existing Saturday 753 348.6 1459.6 707			AM	1392	24	2390	998	2%	
5 Ave. Saturday Midday Adday 1326 67 2026 700 10% 5.9% 6 Total 4491 151 7071 2580 5.9% 6 Shiloh Rd. & Conde Ln. AM 1174 24 2155 981 2% 7 Shiloh Rd. & Conde Ln. AM 1174 24 2420 766 8% 7 Shiloh Rd. & Conde Ln. AM 1221 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. Saturday Midday 236 925.4 1275.4 1039 89% and 2028 8 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Mitigated under Existing and 2028 001 7 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 <td< td=""><td></td><td>Shiloh Pd. & Calatti</td><td>PM</td><td>1773</td><td>60</td><td>2655</td><td>882</td><td>7%</td><td></td></td<>		Shiloh Pd. & Calatti	PM	1773	60	2655	882	7%	
6 AM PM Ln. 1174 PM Saturday Midday 24 60 2155 2420 981 766 2% 8% 2% 8% 7 Shiloh Rd. & Conde Ln. PM Nidday 121 67 1868 647 10% 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 8 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 236 925.4 1275.4 1039 89% And 2028 Conditions 8 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Conditions 8 Old Redwood Hwy. & US 101 SB Ramps AM 534 122.6 910.6 377 33% Conditions 12 Old Redwood Hwy. & US 101 SB Ramps Saturday Midday 753 348.6 1459.6 707 49% And 2028 Conditions 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 28 3143 1374 2% PM 2617 71 3272 655 11%	5		2	1326	67	2026	700	10%	5.9%
6 8 9M 1654 60 2420 766 8% 10 3 121 67 1868 647 10% 6.3% 10 704 4049 151 6443 2394 6.3% 10 704 4049 151 6443 2394 6.3% 10 AM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 10 PM 259 832 1215 956 87% Mitigated under Existing and 2028 10 PM 236 925.4 1275.4 1039 89% and 2028 10 Total 719 2084 3148 2429 85.8% Onditions 10 RM 534 122.6 910.6 377 33% Mitigated under Existing and 2028 10 Redwood Hwy, & Casino Entrance PM 935 313 1694 759 41% under Existing and 2028 10			Total	4491	151	7071	2580	5.9%	
6 Shiloh Rd. & Conde Ln. Saturday Midday 1221 67 1868 647 10% 6.3% 7 Total 4049 151 6443 2394 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 326.4 657.4 433 75% Mitigated under Existing 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956 87% Mitigated under Existing 8 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 236 925.4 1275.4 1039 89% and 2028 8 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Mitigated under Existing 8 Old Redwood Hwy. & Casino Entrance FM 935 313 1694 759 41% Mitigated under Existing 701 Z222 784 4064 1842 42.6% Conditions 10 Midday 207 71 3272 655 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>									
6 Ln. Saturday Midday Total 1221 67 1868 647 10% 6.3% 7 Total 4049 151 6443 2394 6.3% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 7 Entrance 1/Gridley Dr. PM 259 832 1215 956 87% Mitigated under Existing and 2028 8 Midday 236 925.4 1275.4 1039 89% and 2028 01d Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Mitigated under Existing and 2028 8 Old Redwood Hwy. & Casino Entrance PM 935 313 1694 759 41% under Existing and 2028 701 2222 784 4064 1842 42.6% Conditions 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 28 3143 1374 2% 5.2%		Shiloh Rd. & Conde		1654	60	2420	766	8%	
AM 224 326.4 657.4 433 75% Mitigated under Existing and 2028 (under Existing and 2028) (under Existin	6		5	1221	67	1868	647	10%	6.3%
7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956 87% Mitigated under Existing Add 2028 7 Entrance 1/Gridley Dr. Saturday Midday 236 925.4 1275.4 1039 89% and 2028 Conditions 8 Total 719 2084 3148 2429 85.8% Conditions 8 Old Redwood Hwy. & Casino Entrance FM 534 122.6 910.6 377 33% Mitigated under Existing 8 Old Redwood Hwy. & Casino Entrance FM 935 313 1694 759 41% Mitigated under Existing 12 Old Redwood Hwy. & Casino Entrance AM 753 348.6 1459.6 707 49% and 2028 conditions 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 28 3143 1374 2% 9Midday 207 666 3323 1116 6% 5.2%			Total	4049	151	6443	2394		
Shilon Rd. & Casibo PM 259 832 1215 956 87% under Existing under Existing 7 Entrance 1/Gridley Dr. Saturday Midday 236 925.4 1275.4 1039 89% and 2028 B Dr. Midday 719 2084 3148 2429 85.8% Conditions B Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Mitigated under Existing Saturday & Casino Entrance PM 935 313 1694 759 41% Mitigated under Existing 12 Old Redwood Hwy. & US 101 SB Ramps 753 348.6 1459.6 707 49% and 2028 12 Old Redwood Hwy. & US 101 SB Ramps 2222 784 4064 1842 42.6% PM 2617 71 3272 655 11% 5.2%				224	326.4	657.4	433	75%	Mitigated
7 Entrance 1/Gridley Saturday 236 925.4 1275.4 1039 89% and 2028 Dr. Midday 719 2084 3148 2429 85.8% Conditions 8 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% Mitigated under Existing and 2028 8 Old Redwood Hwy. & Casino Entrance PM 935 313 1694 759 41% Mitigated under Existing and 2028 753 348.6 1459.6 707 49% and 2028 Conditions Total 2222 784 4064 1842 42.6% 12 Old Redwood Hwy. & US 101 SB Ramps PM 2617 71 3272 655 11% 12 Old Redwood Hwy. & US 101 SB Ramps Saturday Midday 2207 66 3323 1116 6% 5.2%				259	832	1215	956	87%	
12 Old Redwood Hwy. & Casino Entrance AM 534 122.6 910.6 377 33% 313 Mitigated under Existing and 2028 12 Old Redwood Hwy. & Casino Entrance PM 935 313 1694 759 41% Mitigated under Existing and 2028 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 28 3143 1374 2% 12 Old Redwood Hwy. & US 101 SB Ramps Saturday Midday 2207 66 3323 1116 6% 5.2%	7	,	2	236	925.4	1275.4	1039	89%	and 2028
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			Total	719	2084	3148	2429	85.8%	Conditions
8 Old Redwood Hwy, & Casino Entrance PM 935 313 1694 759 41% under Existing and 2028 Midday 753 348.6 1459.6 707 49% and 2028 Total 2222 784 4064 1842 42.6% Conditions 12 Old Redwood Hwy, & US 101 SB Ramps PM 2617 71 3272 655 11% 12 Old Redwood Hwy, & US 101 SB Ramps Saturday Midday 2207 66 3323 1116 6% 5.2%			AM	534	122.6	910.6	377	33%	Mitigated
8 & Casino Entrance Saturday Midday 753 348.6 1459.6 707 49% and 2028 Conditions Total 2222 784 4064 1842 42.6% Conditions Total 2222 784 4064 1842 42.6% Conditions Midday AM 1769 28 3143 1374 2% PM 2617 71 3272 655 11% Saturday & US 101 SB Ramps Saturday Midday 2207 66 3323 1116 6% 5.2%		Old Podwood Lluny	PM	935	313	1694	759	41%	0
Total 222 784 4064 1842 42.6% Conditions 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 28 3143 1374 2% 12 Old Redwood Hwy. & US 101 SB Ramps PM 2617 71 3272 655 11%	8	8		753	348.6	1459.6	707	49%	and 2028
AM 1769 28 3143 1374 2% 12 Old Redwood Hwy. & US 101 SB Ramps PM 2617 71 3272 655 11% 12 Old Redwood Hwy. & US 101 SB Ramps Saturday Midday 2207 66 3323 1116 6% 5.2%				2222	784	4064	1842	42.6%	Conditions
12 Old Redwood Hwy. & US 101 SB Ramps PM 2617 71 3272 655 11% Midday 2207 66 3323 1116 6% 5.2%									
12 Wid Redwood Hwy. Saturday 2207 66 3323 1116 6% 5.2% Midday		1)							
5	12		-	2207	66				5.2%
Total 0373 103 7730 3143 3.270			Total	6593	165	9738	3145	5.2%	

Table 33. Fair Share Analysis - Alternative A



13.0 GENERAL PLAN 2040 PLUS ALTERNATIVE B PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to General Plan 2040 No Project Conditions, but with the addition of traffic from the Alternative B project. The project trip generation, trip distribution, and trip assignment are identical to those of Existing plus Alternative B Project Conditions and Opening Year 2028 plus Alternative B Project Conditions.

13.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative B Project Conditions

The intersection LOS analysis results for General Plan 2040 plus Alternative B Project Conditions are summarized in Table 34.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM, and Saturday midday peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off-ramp (Weekday AM and PM, and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd & Conde Ln. (Weekday AM and PM peak hours)
- 7) Shiloh Rd. & Casino Entrance West/Gridley Dr. (Weekday PM and Saturday midday peak hours)
- 8) Old Redwood Hwy. & Casino Entrance (Weekday AM and PM, and Saturday midday peak hours)
- 12) Old Redwood Hwy & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Convert split phasing in EB/WB direction to protected phasing
 - Restripe NB approach to include two exclusive left turn lanes, two through lanes, and one exclusive right turn lane
 - Restripe SB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane



- Restripe EB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane
- Restripe WB approach to include one exclusive left turn lane, two through lanes, and one exclusive right turn lane
- 2) Shiloh Rd. & Hembree Ln.
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Convert split phasing in NB/SB direction to protected phasing
 - Restripe NB approach to include one exclusive left turn lane and one shared through-right turn lane
 - Restripe SB approach to include one exclusive left turn lane, one through lane, and two exclusive right turn lanes
 - Restripe EB approach to include two exclusive left turn lanes, one through lane, and one shared through-right turn lane
 - Restripe WB approach to include one exclusive left turn lane, one through lane, and one shared through-right turn lane
- 3) Shiloh Rd. & US 101 NB Off Ramp
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Restripe EB approach to include two through lanes
 - o Restripe WB approach to include two through lanes
- 5) Shiloh Rd. & Caletti Ave.
 - o Widen Shiloh Rd. between Caletti Ave. and Gridley Dr. from two lanes to four lanes
 - o Restripe WB approach to include one exclusive left turn lane and two through lanes
- 6) Shiloh Rd. & Conde Ln.
 - o Optimize signal timing parameters
- 7) Shiloh Rd. & Casino Entrance 1/Gridley Dr.
 - o Signalize intersection
- 8) Old Redwood Hwy. & Casino Entrance 1
 - o Signalize intersection
- 12) Old Redwood Hwy. & US 101 SB Ramps
 - o Optimize signal timing parameters



With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.

Figures 30 and 31 show lane geometries and projected peak hour turning movement volumes at the study intersections for General Plan 2040 plus Alternative B Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix L.



#	Study Intersections	Control	Peak	Genera 204 Condi	10	Gener Alterr	ral Plan : native B Conditio	2040 + Project	Alterr Co	ral Plan 2 native B onditions Aitigatio	Project s w/
			Hour	Delay ¹	LOS ²	Delay ¹	LOS ²	Change in Delay ⁶	Delay	LOS	Change in Delay
1	Shiloh Rd. & Old Redwood Hwy.	Signal	AM PM	93.8 229.3	F F	133.1 336.4	F F	39.3 107.1	33.0 53.5	C D	-60.8 -175.8
	Redwood Hwy.		Saturday Midday	26.7	С	125.3	F	98.6	25.8	С	-0.9
2	Shiloh Rd. & Hembree	Signal	AM PM	64.3 56.3	E E	82.2 91.9	F F	17.9 35.6	18.2 43.4	B D	-46.1 -12.9
	Ln.	5	Saturday Midday	94.6	F	166.7	F	72.1	50.0	D	-44.6
3	Shiloh Rd. & US-101	Signal	AM PM	120.3 37.9	F D	132.4 67.8	F E	12.1 29.9	43.7 18.5	D B	-76.6 -19.4
	NB Ramps		Saturday Midday	39.0	D	127.5	F	88.5	23.8	С	-15.2
4	Shiloh Rd. & US-101	Signal	AM PM	22.6 19.4	C B	29.6 36.2	C D	7.0 16.8	-	-	-
	SB Ramps	0	Saturday Midday	14.6	В	35.4	D	20.8	-	-	-
5	Shiloh Rd. & Caletti	OWSC ³	AM PM	79.9 98.6	F F	85.7 107.3	F F	5.8 8.7	29.4 30.1	D D	-50.5 -68.5
	Ave.		Saturday Midday	54.1	F	65.7	F	11.6	28.9	D	-25.2
6	Shiloh Rd. & Conde	Signal	AM PM	72.0 83.1	E F	71.4 82.1	E F	-0.6 -1.0	29.3 34.8	C C	-42.7 -48.3
	Ln.	-	Saturday Midday	29.9	С	30.6	С	0.7	-	-	-
	Shiloh Rd. & Casino		AM PM	9.0 9.9	A A	15.9 37.2	C E	6.9 27.3	-	-	-
7	Entrance 1/Gridley Dr.	TWSC ⁴	Saturday Midday	9.9	A	73.7	F	64.4	-	-	-
	Old Redwood Hwy. &		AM PM	55.7 359.3	F F	76.9 1047.1	F F	21.2 687.8	-	-	-
8	Casino Entrance	TWSC ⁴	Saturday Midday	15.8	Г С	42.4	E	26.6	-	-	-
9	Shiloh Rd. & Casino	OWSC ³	AM PM	0.0 0.0	A A	11.8 14.8	B B	11.8 14.8	-	-	-
	Entrance 2		Saturday Midday	0.0	А	18.6	С	18.6	-	-	-
	Old Redwood Hwy. &		AM PM	17.9 33.6	B C	18.0 35.5	B D	0.1 1.9	-	-	-
10	US 101 NB Off Ramp/Lakewood Dr.	Signal	Saturday Midday	31.6	C	32.5	C	0.9	-	-	-
11	Old Redwood Hwy. & US 101 NB On Ramp	Free	AM PM Saturday Midday	-	- -	- -	- -	- -	- -	- -	- -
			Midday AM	110.0	F	110.0	F	0.0	54.7	D	-55.3
12	Old Redwood Hwy. & US 101 SB Ramps	Signal	PM Saturday Midday	39.6 58.1	D	44.4 60.2	D	4.8 2.1	- 34.6	- D	- -23.5

Table 34: Intersection Level of Service Analysis – General Plan 2040 plus Alternative B Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.



3. OWSC - One Way Stop Control

4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).

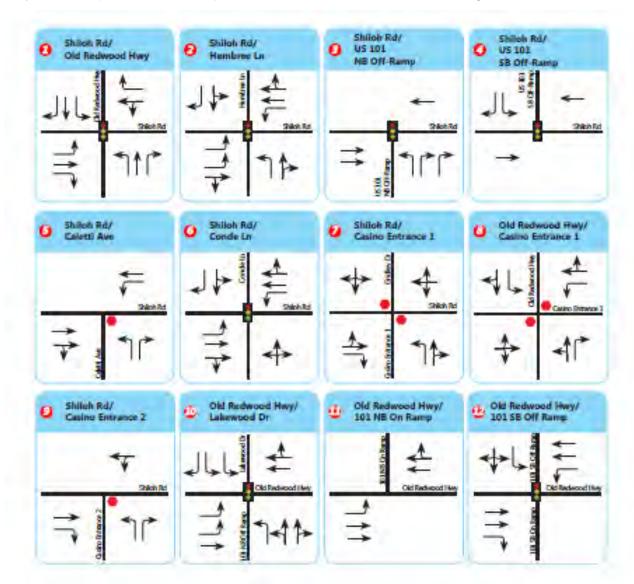


Figure 30: Project Lane Geometry General Plan 2040 Plus Alternative B Project Conditions





117-123 | 10/2022

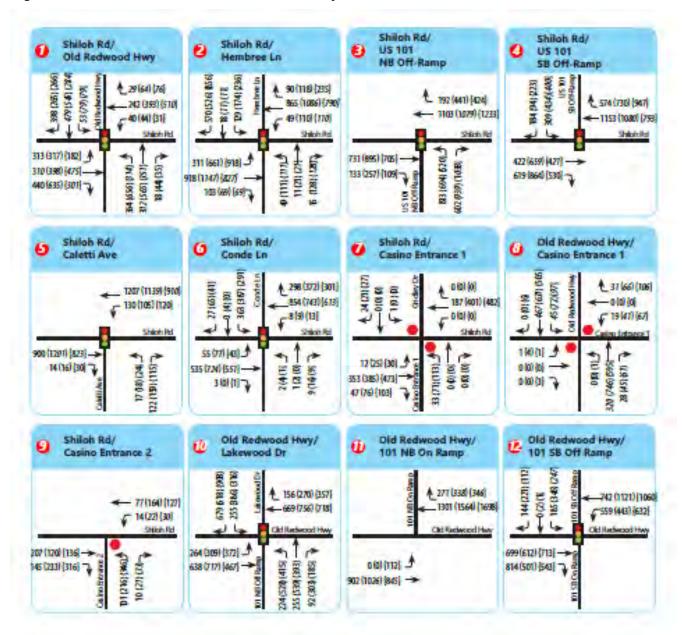


Figure 31: General Plan 2040 Plus Alternative B Project Conditions Peak Hour Traffic Volumes





13.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative B Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 35 details the results of the analysis. Under General Plan 2040 plus Alternative B Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBL during weekday AM and PM peak hours
 - o EBR during weekday AM and PM, and Saturday midday peak hours
 - o NBL during weekday AM and PM, and Saturday midday peak hours
 - o SBL during weekday PM and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 3) Shiloh Rd. & US 101 NB Off-ramp
 - o NBR during weekday PM and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday AM, PM, and Saturday midday peak hours

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 35. The mitigations for LOS described above also include restriping to provide two northbound left turn lanes. At intersection #3, restriping can mitigate the queue overflow. At intersection #10, the project would not create any new queuing impacts. Although intersection #6 would not experience queue overflows under General Plan 2040 plus Project Conditions, the signal retiming associated with LOS mitigations would create new overflows. This can be partially mitigated with restriping, and there is adequate upstream block length to accommodate the queue overflow from the eastbound left turn lane. The detailed required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

• 1) Restripe EBL to give 385 ft. storage length. Restripe SBL to 145 ft. Restripe SBR to 105 ft. Construct TIF project to add second NBL turn lane and WB receiving lane.



• 6) Restripe SBR to give 65 ft. storage length.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.

	•		J. 95° Perce		-	General		Plan 2040 +	_	Plan 2040 +	
						Plan 2040		ve B Project		ve B Project	
			Storage	Number of		Conditions		ditions		ditions	
#	Study Intersections	Lane Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Peak Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					AM	361	441	80	278	-83	
		EBL	375	1	PM	345	424	79	381	36	Re-Stripe EBL Storage Length to
		LDL	(385)	I	Saturday Midday	195	236	41	196	1	385 feet
					AM	42	280	238	68	26	
		EBR	140	1	PM	136	588	452	132	-4	
					Saturday Midday	60	274	214	51	-9	
									59	59	LOS mitigation requires
		WBL							75	75	providing 1 WBL lane at the
					AM	0	0	0	53 0	53 0	intersection.
					PM	0 0	14	0 14	16	16	
		WBR	50	1	Saturday						
	Shiloh Rd. & Old				Midday	0	20	20	20	20	
1	Redwood Hwy.				AM	602	730	128	182	-420	
	Realition and they.	NBL	200	1	PM	1105	1352	247	428	-677	Add second NBL turn lane and
			(430)	(2)	Saturday Midday	337	643	306	175	-162	WB receiving lane
					AM	0	0	0	0	0	
		NBR	100	1	PM	10	11	1	0	-10	
					Saturday Midday	2	0	-2	0	2	
					AM	60	126	66	76	16	
		SBL	130	1	PM	85	196	111	116	31	Re-Stripe SBL Storage Length to
			(145)		Saturday Midday	55	206	151	143	88	145 feet
					AM	378	442	64	75	-303	
		SBR	95	1	PM	209	238	29	102	-107	Re-stripe SBR Storage Length to
			(105)	' 5	Saturday Midday	155	197	42	73	-82	105 feet
2	Shiloh Rd. &	EBL	-	Trap Lane	AM	134	134	0	147	13	
	Hembree Ln.				PM	342	342	0	325	-17	

Table 35. 95th Percentile Queue Lengths– General Plan 2040 plus Alternative B Project Conditions



	-	Lane	Storage	Number of	Peak	General Plan 2040 Conditions	Alternati	Plan 2040 + ve B Project ditions	Alternati Cor	Plan 2040 + ve B Project iditions	
#	Study Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					Saturday Midday	504	522	18	455	-49	
		WBL	-	Trap Lane							
				- ·	AM PM	65 173	65 173	0 0	56 136	-9 -37	
		NBL	-	Trap Lane	Saturday Midday	168	171	3	132	-36	
				(350)					155 232 312	155 232 312	LOS mitigation requires providing 1 SBL lane at the intersection. Storage length
					AM	526	559	33	135	-391	required is 350 feet
		SBR	-	Trap Lane (2)	PM Saturday	516 747	535 1012	19 265	173 288	-343 -459	
					Midday	/4/	1012	265	288	-459	
		NBL	-	Trap Lane	PM	571	571	0	420	-151	
0	US 101 NB Off	1102			Saturday Midday	312	312	0	323	11	
3	Ramp & Shiloh Rd.		265		AM PM	75 180	125 294	50 114	122 207	47 27	LOS mitigation requires providing 2 NBR lanes at the
		NBR	(310)	2	Saturday Midday	132	314	182	306	174	intersection. Storage length required is 310 feet
					AM PM	262 381	367 545	105 164			
	4 Shiloh Rd. & US 101 SB Off Ramp	SBL	-	Trap Lane	Saturday Midday	168	545 366	164			
4					AM	112	113	1			
		SBR	275	1	PM Saturday Midday	41 38	41 46	0 8			



		Lane	Storage	Number of	Peak	General Plan 2040 Conditions	Alternati	Plan 2040 + ve B Project ditions	Alternati	Plan 2040 + ve B Project ditions	
#	Study Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					AM	67	67	0	87	20	Overflow due to railroad
		EBL	90	1	PM	91	91	0	161	70	crossing. EBL storage lane
					Saturday Midday	54	56	2	56	2	cannot be extended, but block length is adequate.
					AM	18	18	0	23	5	
6	Conde Ln. and	WBL	130	1	PM	19	19	0	26	7	
	Shiloh Rd.				Saturday Midday	25	26	1	26	1	
					AM	22	22	0	30	8	
		SBR	40	1	PM	44	44	0	64	20	Re-Stripe SBR Storage Length
		ODIC	(65)	·	Saturday Midday	31	31	0	31	0	to 65 feet
			155	1	AM	145	145	0			
		EBL			PM	189	189	0			
					Saturday Midday	244	244	0			
					AM	173	173	0			
		NBL	270	2	PM	523	523	0			
10	US 101 NB Off Ramp/Lakewood Dr.	1102	270	-	Saturday Midday	285	285	0			
10	& Old Redwood				AM	163	163	0			
	Hwy.	SBL	120	1	PM	163	163	0			
					Saturday Midday	163	163	0			
					AM	510	511	1			
		SBR	-	Trap Lane	PM	317	319	2			
					Saturday Midday	851	859	8			
					AM	624	624	0	697	73	
	US 101 SB On	EBR	-	Trap Lane	PM	98	98	0	75	-23	
12	Ramp/US 101 SB Off Ramp & Old				Saturday Midday	136	136	0	204	68	
	Redwood Hwy.	WBL	-	Trap Lane	AM	511	511	0	434	-77	
	Reawood Hwy.			nap zano	PM	412	412	0	460	48	



		Lane	Storage	Number of	Peak	General Plan 2040 Conditions	Alternati	Plan 2040 + ve B Project ditions	Alternat	Plan 2040 + ive B Project nditions	
#	Study Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					Saturday Midday	579	579	0	545	-34	
	S				AM	172	210	38	282	110	
		SBI	420	2	PM	313	348	35	329	16	
		SBL	_ 420		Saturday Midday	158	202	44	235	77	

Notes:

NBL – Northbound left
 NBR – Northbound right

3. SBL – Southbound left

4. SBR – Southbound right

5. EBL – Eastbound left

6. EBR – Eastbound right

7. WBL – Westbound left

8. WBR – Westbound right

9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.

10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet

11. *Average storage per lane, where dual turn lanes provide different storage lengths



13.3 FAIR SHARE ANALYSIS – GENERAL PLAN 2040 PLUS ALTERNATIVE B PROJECT CONDITIONS

Study intersections requiring mitigation under this scenario were evaluated to determine the Project's fair share contribution. For intersections that required mitigation through physical improvements under Existing plus Project Alternative B conditions or Opening Year 2028 plus Alternative B Project Conditions, it is assumed that the project would be fully responsible for the cost of mitigations. Table 36shows fair share percentages for each impacted intersection. It should be noted that intersections 2, 3, 4, and 5 would be separately affected by the planned reconstruction of the US-101/Shiloh Road interchange. For the overpass between northbound and southbound ramps on Shiloh Road, the project fair share is 26.7 percent.

#	Study	Peak	Existing	Project	Cumulative	Total	Project	Fair Share
#	Intersections	Hour	Volume	Trips	+ Project	Growth	Share	Contribution
		AM	992	402	2998	2006	20%	Mitigated
	Shiloh Rd. & Old	PM	1515	734	4005	2490	29%	under Existing
1	Redwood Hwy.	Saturday	1234	1081	2904	1670	65%	and 2028
	Reawood Hwy.	Midday						Conditions
		Total	3741	2217	9907	6166	36.0%	
		AM	1276	355	3129	1853	19%	
-	Shiloh Rd. &	PM	1998	648	4159	2161	30%	00.40/
2	Hembree Ln.	Saturday Midday	1975	953	3868	1893	50%	33.1%
		Total	5249	1956	11156	5907	33.1%	
		AM	1646	355	3574	1928	18%	
		PM	2395	648	4305	1910	34%	
3	Shiloh Rd. & US-	Saturday						33.8%
	101 NB Ramps	Midday	2083	953	4029	1946	49%	
		Total	6124	1956	11908	5784	33.8%	
		AM	1392	24	2390	998	2%	
	Shiloh Rd. & Caletti	PM	1773	43	2638	865	5%	
5	Ave.	Saturday	1326	63	2022	696	9%	5.1%
		Midday Total	4491	130	7050	2559	5.1%	
		AM	1174	24	2155	981	2%	
		PM	1654	43	2403	749	6%	
6	Shiloh Rd. & Conde	Saturday						5.5%
	Ln.	Midday	1221	63	1864	643	10%	
		Total	4049	130	6422	2373	5.5%	
		AM	224	326.4	657.4	433	75%	Mitigated
	Shiloh Rd. & Casino	PM	259	596	979	720	83%	under Existing
7	Entrance 1/Gridley	Saturday	236	877	1227.4	991	89%	and 2028
	Dr.	Midday						Conditions
		Total AM	719 534	1800 123	2864 910.6	2145 377	83. 9% 33%	
		PM	534 935	224	910.6 1605	377 670	33% 33%	
8	Old Redwood Hwy.	Saturday						39.1%
0	& Casino Entrance	Midday	753	332	1442.6	690	48%	07.170
		Total	2222	678	3958	1736	39.1%	
		AM	1769	28	3143	1374	2%	
	Old Redwood Hwy.	PM	2617	45	3246	629	7%	
12	& US 101 SB Ramps	Saturday	2207	61	3318	1111	5%	4.3%
		Midday						
		Total	6593	134	9707	3114	4.3%	

Table 36. Fair Share Analysis – Alternative B



14.0 GENERAL PLAN 2040 PLUS ALTERNATIVE C PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed project at the study intersections and surrounding roadway system. This scenario is identical to General Plan 2040 No Project Conditions, but with the addition of traffic from the Alternative C project. The project trip generation, trip distribution, and trip assignment are identical to those of Existing plus Alternative C Project Conditions and Opening Year 2028 plus Alternative C Project Conditions.

14.1 Intersection Level of Service Analysis – General Plan 2040 plus Alternative C Project Conditions

The intersection LOS analysis results for General Plan 2040 plus Alternative C Project Conditions are summarized in Table 37.

Under this scenario, the following intersections would not be consistent with level of service standards set by the Town of Windsor and Sonoma County:

- 1) Shiloh Rd. & Old Redwood Hwy. (Weekday AM and PM peak hours)
- 2) Shiloh Rd. & Hembree Ln. (Weekday AM and PM, and Saturday midday peak hours)
- 3) Shiloh Rd. & US 101 NB Off-ramp (Weekday AM and Saturday midday peak hours)
- 5) Shiloh Rd. & Caletti Ave. (Weekday AM and PM, and Saturday midday peak hours)
- 6) Shiloh Rd & Conde Ln. (Weekday AM and PM peak hours)
- 8) Old Redwood Hwy. & Project Entrance (Weekday AM and PM peak hours)
- 12) Old Redwood Hwy & US 101 SB Ramps (Weekday AM and Saturday midday peak hours)

Mitigation Measures

The required mitigation measures under this scenario are as follows. The numbers correspond to the intersections listed above:

- 1) Shiloh Rd. & Old Redwood Hwy
 - o Widen Shiloh Rd. between Caletti Ave. and Old Redwood Hwy. from two lanes to four lanes
 - o Convert split phasing in EB/WB direction to protected phasing
 - Restripe NB approach to include two exclusive left turn lanes, one through lane, and one exclusive right turn lane
 - Restripe SB approach to include one exclusive left turn lane, one through lane, and one exclusive right turn lane



- Restripe EB approach to include one exclusive left turn lane, one through lane, and one exclusive right turn lane with overlap phasing
- Restripe WB approach to include one exclusive left turn lane, one through lane, and one exclusive right turn lane
- 2) Shiloh Rd. & Hembree Ln.
 - o Widen Shiloh Rd. between Caletti Ave. and Old Redwood Hwy. from two lanes to four lanes
 - o Convert split phasing in NB/SB direction to protected phasing
 - Restripe NB approach to include one exclusive left turn lane and one shared through-right turn lane
 - Restripe SB approach to include one exclusive left turn lane, one through lane, and two exclusive right turn lanes
 - Restripe EB approach to include two exclusive left turn lanes, one through lane, and one shared through-right turn lane
 - Restripe WB approach to include one exclusive left turn lane, one through lane, and one shared through-right turn lane
- 3) Shiloh Rd. & US 101 NB Off Ramp
 - o Widen Shiloh Rd. between Caletti Ave. and Old Redwood Hwy. from two lanes to four lanes
 - o Restripe EB approach to include two through lanes
 - o Restripe WB approach to include two through lanes
- 5) Shiloh Rd. & Caletti Ave.
 - o Widen Shiloh Rd. between Caletti Ave. and Old Redwood Hwy. from two lanes to four lanes
 - Restripe WB approach to include one exclusive left turn lane and two through lanes
- 6) Shiloh Rd. & Conde Ln.
 - o Optimize signal timing parameters
- 8) Old Redwood Hwy. & Project Entrance 1
 - o Signalize intersection
- 12) Old Redwood Hwy. & US 101 SB Ramps
 - o Optimize signal timing parameters

With the addition of intersection improvements, all project-related impacts at the above intersections would be mitigated to a level that would be consistent with level of service standards set by the Town of Windsor and Sonoma County.



Figures 32 and 33 show lane geometries and projected peak hour turning movement volumes at the study intersections for General Plan 2040 plus Alternative C Project Conditions for weekday a.m. and p.m., and Saturday midday peak hours, respectively. LOS worksheets are provided in the Appendix M.

Hour Delay LOS Delay LOS Delay LOS Delay LOS In Delay LOS In 1 Shiloh Rd. & Old Redwood Hwy. Signal Signal PM 229.3 F 250.6 F 21.3 43.1 D -186.2 2 Shiloh Rd. & Old Hembree In. Signal PM 229.3 F 250.6 F 21.3 43.1 D -186.2 3 Shiloh Rd. & US-101 NB Ramps Signal PM 56.3 E 67.7 E 11.4 33.6 C 229.4 4 Shiloh Rd. & US-101 NB Ramps Signal PM 120.3 F 123.8 F 35.6 40.3 D -90.0 5B Ramps Signal MM 120.3 F 123.8 F 30.5 -0.1 2.0 -0.5 5 Shiloh Rd. & US-101 NB Ramps Signal MM 79.9 F 79.8 F 0.0 28.1 -	#	Study Intersections	Control	Peak	Genera 204 Condi	il Plan 40	Gener	ral Plan 2 native C I Conditior	2040 + Project	Gener Alterr	ral Plan 2 native C I	2040 + Project litigation_
1 Shioh Rd, & Oid Redwood Hwy. Signal Saturday Saturday PM Saturday (Add Saturday) 229.3 (C F 250.6 (C F 21.3 (C 43.1 (C 0 -182 (C 2 Shiloh Rd, & Hembree Ln AM 64.3 (Saturday) E 67.7 (C E 61.1 (C 3.6 (C 7.7 (C E 6.7 (C 7.8 (C 6.7 (C 7.8 (C 6.7 (C 7.8 (C 6.7 (C 7.8 (C 6.7 (C 7.8 (C 6.7 (C 7.8 (C 7.7 (C 7.8 (C 7.7 (C 7.8 (C 7.7 (C 7.8 (C 7.7 (C 7.8 (C 7.7 (C 7.8 (C 7.8 (C <td></td> <td></td> <td></td> <td>Hour</td> <td>Delay¹</td> <td>LOS²</td> <td>Delay¹</td> <td>LOS²</td> <td></td> <td>Delay¹</td> <td>LOS²</td> <td></td>				Hour	Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	
Redwood Hwy. Saturday Midday 267 C 385 D 118 - - - 2 Shiloh Rd. & Hembree Ln. AM 64.3 E 71.0 E 67.7 E 11.4 33.6 C 227 3 Shiloh Rd. & US-101 NB Ramps Signal AM 120.3 F 123.8 F 35.6 40.3 D -59.4 4 Shiloh Rd. & US-101 SB Ramps Signal AM 120.3 F 123.8 F 35.6 40.3 D -690.7 5 Shiloh Rd. & US-101 SB Ramps Signal AM 72.9 F 70.9 F 20.3 13.8 B -252.2 4 Shiloh Rd. & Caletti Ave. AM 79.9 F 79.9 F 0.0 28.3 D -695.4 5 Shiloh Rd. & Caletti Ln. AM 72.0 E 71.8 E -0.2 23.2 C -59.4 6 Shiloh Rd. & Caleti Ln. <td>1</td> <td></td> <td>Signal</td> <td>PM</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	1		Signal	PM								
2 Shiloh Rd. & Hembree Ln. Signal Signal PM Saturday AM 56.3 E 67.7 E 11.4 33.6 C -22.7 3 Shiloh Rd. & US-101 NB Ramps Signal AM 120.3 F 123.8 F 3.5 40.3 D -59.4 4 Shiloh Rd. & US-101 NB Ramps Signal AM 120.3 F 123.8 F 3.5 40.3 D -50.4 4 Shiloh Rd. & US-101 SB Ramps Signal AM 122.6 C 244.4 C 18.8 -		Redwood Hwy.	U	Midday								
Midday Widday Midday Widday Midday Widday Widday<	2		Signal	PM	56.3	E	67.7	E	11.4	33.6	С	-22.7
3 Shiloh Rd. & US-101 NB Ramps Signal PM Saturday Midday 37.9 D 4.3.5 D 5.6 4 Shiloh Rd. & US-101 SB Ramps Signal PM PM 37.9 D 5.9.3 E 20.3 13.8 B				Midday								
Middy 340 D 59.3 E 20.3 13.8 B -25.2 4 Shiloh Rd. & US-101 SB Ramps AM 22.6 C 24.4 C 1.8 - - - 5 Shiloh Rd. & US-101 SB Ramps AM 79.9 F 79.9 F 0.0 28.3 D -51.6 5 Shiloh Rd. & Caletti Ave. AM 79.9 F 98.7 F 0.1 29.1 D -695.5 6 Shiloh Rd. & Conde Ln. AM 72.0 E 71.8 E -0.2 21.6 C -50.4 6 Shiloh Rd. & Casino Entrance 1/Cridley Dr. TWSC ⁴ AM 9.0 A 12.4 B 3.4 - - - 7 Shiloh Rd. & Casino Entrance 1/Cridley Dr. TWSC ⁴ AM 9.0 A 12.4 B 3.4 - - - - - - - - - - - -	3		Signal	PM								-00.0
4 Shiloh Rd. & US-10 SB Ramps Signal Aliaday Midday PM Saturday Midday Saturday Midday 14.6 B 21.3 C 1.9 - - - 5 Shiloh Rd. & Caletti Ave. 0WSC ³ AM 79.9 F 79.9 F 0.00 28.3 D -51.6 6 Shiloh Rd. & Caletti Ave. 0WSC ³ AM 79.9 F 79.9 F 0.01 29.1 D -695 6 Shiloh Rd. & Conde Ln. MM 72.9 F 71.8 E -0.2 21.6 C -50.4 7 Shiloh Rd. & Casino Ln. NM 72.0 E 71.8 E -0.2 21.6 C -50.4 7 Shiloh Rd. & Casino Dr. MM 9.0 A 12.4 B 3.4 - - - 8 Old Redwood Hwy. & Casino Entrance TWSC ⁴ PM 55.7 F 62.1 F 64.4 5.0 A -50.7 9		NB Kamps		Midday								-25.2
SB Ramps Salurday 14.6 B 16.1 B 1.5 - - - 5 Shiloh Rd. & Caletti Ave. 0WSC ³ AM 79.9 F 79.9 F 0.0 28.3 D -51.6 6 Shiloh Rd. & Caletti Ln. 0WSC ³ AM 72.0 E 71.8 E -0.2 21.6 C -50.4 7 Shiloh Rd. & Conlo Ln. Signal F 82.9 F 0.2 21.6 C -50.4 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. TWSC ⁴ AM 9.0 A 12.4 B 3.4 - - - 8 Old Redwood Hwy. & Casino Entrance TWSC ⁴ AM 9.0 A 12.4 B 3.4 -<	4		Signal	PM						-	-	-
5 Shiloh Rd. & Caletti Ave. OWSC3 Education Saturday Saturday PM 54.1 98.7 F 0.1 29.1 D -69.5 6 Shiloh Rd. & Conde Ln. Signal AM PM Saturday Saturday Dr. 72.0 E 71.8 E -0.2 21.6 C -59.9 7 Shiloh Rd. & Cosino Ln. Signal PM PM Saturday Dr. 90.0 A 12.4 B 3.4 - - - 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. TWSC4 AM PM PM 9.9 A 15.0 C 0.2 0.2 - - - 8 Old Redwood Hwy. & Casino Entrance 2 TWSC4 AM PM PM 9.9 A 16.0 C 6.7 5.1 - - - 9 Old Redwood Hwy. & Casino Entrance 2 PM PM 359.3 F 62.1 F 6.4 5.0 A -50.7 9 Shiloh Rd. & Casino Entrance 2 PM PM 35.8 C 21.3 C 5.5 - </td <td></td> <td>SB Ramps</td> <td>Ū</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td>		SB Ramps	Ū	-						-	-	-
Ave. Salurday Midday 54.1 F 58.2 F 4.1 27.3 D -26.8 6 Shiloh Rd. & Conde Ln. Signal Am 72.0 E 71.8 E -0.2 21.6 C -50.4 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. Signal Am 9.0 A 12.4 B 3.4 - - - 8 Shiloh Rd. & Casino Entrance 1/Gridley Dr. TWSC4 Am 9.0 A 12.4 B 3.4 - - - 8 Shiloh Rd. & Casino Entrance 1/Gridley Dr. TWSC4 Am 9.0 A 16.0 C 6.7 7 - - 8 Old Redwood Hwy. & Casino Entrance 2 Am 55.7 F 62.1 F 6.4 5.0 A -50.7 9 Shiloh Rd. & Casino Entrance 2 Am 0.0 A - 62.1 F 6.4 5.0 A -50.7 - - <	F	Shiloh Rd. & Caletti	014/5.03									
6 Shiloh Rd, & Conde Ln. Signal AM Saturday Midday 72.0 E 71.8 E -0.2 21.6 C -50.4 7 Shiloh Rd, & Casino Entrance 1/Gridley Dr. TWSC4 PM AM 9.9 C 30.1 C 0.2 - - - 7 Shiloh Rd, & Casino Entrance 1/Gridley Dr. TWSC4 AM 9.0 A 12.4 B 3.4 - - - 8 Old Redwood Hwy. & Casino Entrance TWSC4 PM Saturday Midday 9.3 A 16.0 C 6.7 - - - 9 Shiloh Rd, & Casino Entrance 2 TWSC4 PM 359.3 F 461.3 F 102.0 10.0 B -349.3 9 Shiloh Rd, & Casino Entrance 2 OWSC3 PM Saturday Midday 0.0 A - - - - - - - - - - - - - - - - - - <	5	Ave.	OWSC	5	54.1	F	58.2	F	4.1	27.3	D	-26.8
$\frac{12}{12} \begin{bmatrix} Midday \\ Midday $	6		Signal	PM								
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		LII.		Midday						-	-	-
Dr. Saturday Midday 9.3 A 16.0 C 6.7 $ -$ 8 Old Redwood Hwy. & Casino Entrance MKC^4 55.7 F 62.1 F 6.4 5.0 A -50.7 9 Shiloh Rd. & Casino Entrance 2 $TWSC^4$ AM 55.7 F 461.3 F 102.0 10.0 B -349.3 9 Shiloh Rd. & Casino Entrance 2 AM 0.0 A $ -$ 9 Shiloh Rd. & Casino Entrance 2 $OWSC^3$ AM 0.0 A $ -$ 10 Redwood Hwy. & US-101 NB Ramps/Lakewood Dr. B AM 17.9 B 17.9 B 0.0 $ -$ <	7									-	-	-
	/	-	10030	5	9.3	А	16.0	С	6.7	-	-	-
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	8	2	TWSC ⁴	PM								
9 Shiloh Rd. & Casino Entrance 2 OWSC ³ PM Saturday Midday 0.0 A -	Ū	& Casino Entrance		Midday			21.3	С	5.5	-	-	-
Midday AM 17.9 B 17.9 B 0.0 - - - 10 & US-101 NB Ramps/Lakewood Dr. Signal AM 17.9 B 17.9 B 0.0 - - - - 10 Ramps/Lakewood Dr. Dr. PM 33.6 C 34.0 C 0.4 - - - 11 & US-101 NB Ramps Free AM - <	9		OWSC ³	PM Saturday	0.0	А	-	-	-	-	-	-
IU Ramps/Lakewood Signal Saturday 31.6 C 31.8 C 0.2 - - - Dr. Midday 31.6 C 31.8 C 0.2 - - - - Old Redwood Hwy. AM -				AM	17.9	В	17.9			-	-	-
DI. IMIdday Old Redwood Hwy. AM -	10	Ramps/Lakewood	Signal	Saturday						-	-	-
11 & US-101 NB Ramps Free Midday PM Saturday Midday Image: Constraint of the second se				,						-	-	-
Old Redwood Hwy. Signal PM 39.6 D 40.7 D 1.1 - <th< td=""><td>11</td><td>& US-101 NB</td><td>Free</td><td>Saturday</td><td>-</td><td></td><td>-</td><td></td><td></td><td>-</td><td>-</td><td>-</td></th<>	11	& US-101 NB	Free	Saturday	-		-			-	-	-
12 & US-101 SR Ramos Signal Saturday				AM		F		F	-0.1	53.6	D	-56.4
Midday 58.1 E 58.5 E 0.4 41.5 D -16.6	12		Signal	Saturday	39.6 58.1	D	40.7 58.5	D	1.1 0.4	- 41.5	- D	- -16.6

Table 37: Intersection Level of Service Analysis - General Plan 2040 plus Alternative C Conditions

Notes:

1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections. 2. LOS – Level of Service. Bold indicates unacceptable LOS and Delay.

3. OWSC - One Way Stop Control



4. TWSC - Two Way Stop Control

5. For Intersection 2, 4 & 6, LOS and Delay reported using HCM 2000 Methodology as HCM 6th edition does not support Non-NEMA phasing, but for Intersection 2 Cumulative conditions all scenarios are from HCM 6th Edition.

6. For Intersection 9, under Mitigations, LOS and Delay reported using HCM 2000 Methodology.

7. For Intersection 11, there is no delay or LOS as the control is free (there is no stop control or signal control).



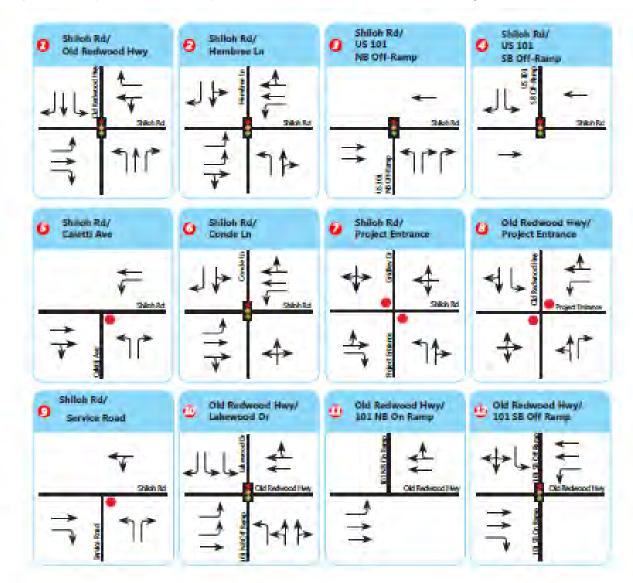


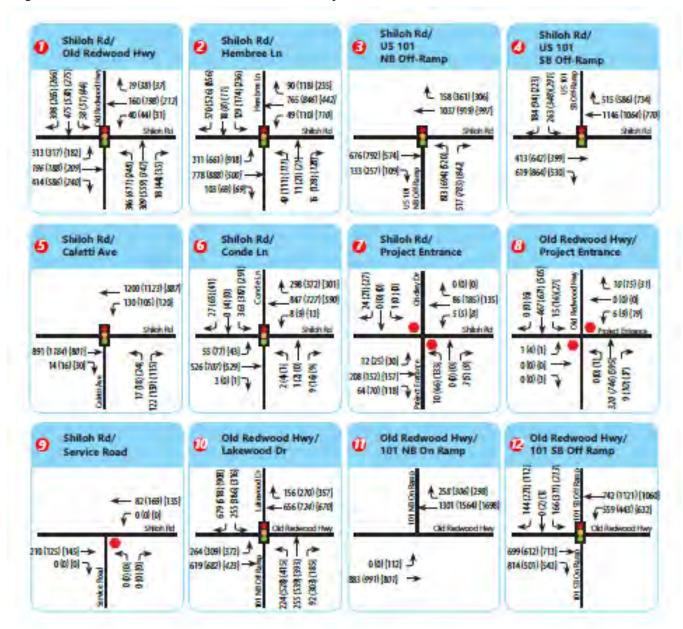
Figure 32: Project Lane Geometry General Plan 2040 Plus Alternative C Project Conditions



🦲 ТЈКМ



117-123 | 10/2022









14.2 Intersection Queuing Analysis – General Plan 2040 plus Alternative C Project Conditions

The 95th percentile queue lengths were calculated for each left-turn lane group and exclusive right-turn lane group on the approaches of each study intersection. Table 38 details the results of the analysis. Under General Plan 2040 plus Alternative C Project Conditions, the following lane groups would experience 95th percentile queue lengths exceeding the available storage length:

- 1) Shiloh Rd. & Old Redwood Hwy.
 - o EBL during weekday AM and PM peak hours
 - o EBR during weekday PM peak hours
 - o NBL during weekday AM and PM, and Saturday midday peak hours
 - o SBR during weekday AM and PM, and Saturday midday peak hours
- 10) Old Redwood Hwy. & US 101 NB Off-ramp/Lakewood Dr.
 - o EBL during weekday PM and Saturday midday peak hours
 - o NBL during weekday PM and Saturday midday peak hours
 - o SBL during weekday AM and PM, and Saturday midday peak hours

With mitigation, the project would be consistent with the Town of Windsor General Plan standards.

Mitigation Measures

At intersection #1, queue overflows can largely be mitigated by restriping to extend storage length as indicated in Table 38. The mitigations for LOS described above also include restriping to provide two northbound left turn lanes. At intersection #10, the project would not create any new queuing impacts. The detailed required mitigation measures under this scenario are as follows. Although intersection #6 would not experience queue overflows under General Plan 2040 plus Project Conditions, the signal retiming associated with LOS mitigations would create new overflows. The numbers correspond to the intersections listed above:

- 1) Restripe EBL to give 405 ft. storage length. Restripe EBR to 180 ft. Restripe SBL to 190 ft.
 Restripe SBR to 200 ft. Construct TIF project to add second NBL turn lane and WB receiving lane.
- 6) Restripe SBR to give 50 ft. storage length.

With the addition of the above listed improvements, all project-related impacts at the impacted intersections would be mitigated to a level that would be consistent with queuing standards set by the Town of Windsor and Sonoma County.





Chu		Lene	Storage	Number of	Deel	General Plan 2040 Conditions	+ Alter	Plan 2040 native C conditions	+ Alter Project C	Plan 2040 native C onditions gations	
# Stu # Interse		Lane Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Peak Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
					AM	361	392	31	382	21	
		EBL	375	1	PM	345	388	43	401	56	Re-Stripe EBL Storage Length to
		LDL	(405)	·	Saturday Midday	195	227	32	206	11	405 feet
					AM	42	63	21	179	137	
		EBR	140	1	PM	136	162	26	144	8	Re-Stripe EBR Storage Length to
		LDIX	(180)	·	Saturday Midday	60	77	17	51	9	180 feet
									57	-	
		WBL		(1)					82	-	
					0 N 4	0	0	0	55	-	
					AM PM	0 0	0 0	0 0	0 0	0 0	
		WBR	50	1	Saturday Midday	0	0	0	0	0	
1 Shiloh Ro					AM	602	641	39	186	-416	LOS Mitigation requires
Redwoo	od Hwy.		200		PM	1105	1190	85	359	-746	providing 2NBL lanes at the
		NBL	(430)	1	Saturday Midday	337	479	142	175	-162	intersection. Storage length required is 360 feet per lane.
					AM	0	0	0	0	0	
		NBR	100	1	PM	10	11	1	12	2	
		NBK	100	1	Saturday Midday	2	1	-1	0	2	
					AM	60	77	17	56	-4	
		SBL	130	1	PM	85	114	29	91	6	Re-Stripe SBL Storage Length to
		JDL	150	I	Saturday Midday	55	105	50	93	38	190 feet
					AM	378	397	19	80	-298	
	e e	SBR	95	1	PM	209	223	14	200	-9	Re-stripe SBR Storage Length to
		ODIX	(200)		Saturday Midday	155	185	30	64	-91	200 feet
2		EBL	-	Trap Lane	AM	134	134	0	147	13	

Table 38. 95th Percentile Queue Lengths- General Plan 2040 plus Alternative C Project Conditions



					-						
					PM Saturday	342 504	342 504	0 0	326 447	-16 -57	
					Midday						
	Shiloh Rd. & Hembree Ln.	NBL	-	Trap Lane	AM PM Saturday	65 173 168	65 173 168	0 0 0	56 123 121	-9 -50 -47	
					Midday	100	539 529 852		155 227 307		LOS mitigation requires providing 1 SBL lane at the intersection. Storage length required is 310 feet
		SBR	-	Trap Lane (2)	AM PM Saturday Midday	526 516 747	539 529 852	13 13 105	119 151 174	-407 -365 -573	
3	US 101 NB Off										
3	Ramp & Shiloh Rd.	NBR	265	2	AM PM Saturday Midday	75 180 132	90 203 175	15 23 43	94 126 136	19 -54 4	
4	Shiloh Rd. & US 101 SB Off Ramp			Trap Lane	AM PM Saturday Midday	262 381 168	297 419 227	35 38 59			



				-	-		-		-	-		
					AM PM	112	113	1				
		SBR	275	1	Saturday Midday	41 38	41 41	0 3				
					AM	18	18	0	19	1		
6	Conde Ln. and Shiloh Rd.	WBL	130	1	PM Saturday	19	19	0	21	2		
					Midday	25	25	0	29	4		
					AM PM	145 189	145 189	0 0				
		EBL	155	1	Saturday Midday	244	244	0				
					, in the second s							
10	US 101 NB Off Ramp/Lakewood Dr.											
10	& Old Redwood Hwy.	SBL	120	1	AM PM	163 163	163 163	0 0				
		JDL	120	I	Saturday Midday	163	163	0				
		0.0-		_	AM PM	510 317	510 317	0 0				
		SBR		Trap Lane	Saturday Midday	851	853	2				



	Study	Lane	Storage	Number of	Peak	General Plan 2040 Conditions	+ Alter	Plan 2040 native C onditions	+ Alter Project C	Plan 2040 native C onditions gations	
#	Intersections	Group	Length (ft.) (Mitigated)	Lanes (Mitigated)	Hour	Queue Length (ft.) [A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Queue Length (ft.) [B]	Change in Queue (ft.) [B-A]	Comments
		EBR	-	Trap Lane	AM PM	624 98	624 98	0 0	697 98	73 0	
		EBIX			Saturday Midday	136	136	0	203	67	
	US 101 SB On				AM	511	511	0	434	-77	
10	Ramp/US 101 SB	WBL		Trap Lane	PM	412	412	0	412	0	
12	12 Off Ramp & Old Redwood Hwy.	VVDL		nap Lane	Saturday Midday	579	579	0	602	23	
					AM	172	184	12	250	78	
		SBI	420	2	PM	313	325	12	325	12	
_		SBL	420	2	Saturday Midday	158	173	15	187	29	

Notes:

- 1. NBL Northbound left
- 2. NBR Northbound right
- 3. SBL Southbound left
- 4. SBR Southbound right
- 5. EBL Eastbound left
- 6. EBR Eastbound right
- 7. WBL Westbound left
- 8. WBR Westbound right
- 9. Bold indicates unacceptable 95th percentile queue length. Red indicates significant impact.
- 10. 95th percentile queue lengths expressed in feet, rounded to the nearest five feet
- 11. *Average storage per lane, where dual turn lanes provide different storage lengths



14.3 FAIR SHARE ANALYSIS – GENERAL PLAN 2040 PLUS ALTERNATIVE C PROJECT CONDITIONS

Study intersections requiring mitigation under this scenario were evaluated to determine the Project's fair share contribution. For intersections that required mitigation through physical improvements under Existing plus Project Alternative C conditions or Opening Year 2028 plus Alternative C Project Conditions, it is assumed that the project would be fully responsible for the cost of mitigations. Table 39 shows fair share percentages for each impacted intersection. It should be noted that intersections 2, 3, 4, and 5 would be separately affected by the planned reconstruction of the US-101/Shiloh Road interchange. For the overpass between northbound and southbound ramps on Shiloh Road, the project fair share is 9.1 percent.

Intersections Hour Volume Trips + Project Growth Share Contribution 1 Shiloh Rd. & Old PM 1515 168 3439 1924 9% under 2 Shiloh Rd. & Old Redwood Hwy. Saturday 1234 308 2131 897 34% Existing and 2028 2 Shiloh Rd. & PM 1276 115 2889 1613 7% Existing and 2028 4 1276 115 2889 1662 16% 22.7% 3 Shiloh Rd. & Barray PM 1975 272 3637 1662 16% 22.7% 4 Md 1246 115 3334 1688 7% 25.2% 25	#	Study	Peak	Existing	Project	Cumulative	Total	Project	Fair Share
1 Shiloh Rd. & Old Redwood Hwy. PM Saturday Midday Total 1515 168 3439 1924 9% Midds PM Listing and Existing and Conditions 2 Shiloh Rd. & Old Hembre Ln. AM 1276 115 2889 1613 7% 7% 22.7% 3 Shiloh Rd. & Disting and Midday 1975 272 3637 1662 16% 22.7% 3 Shiloh Rd. & US- 101 NB Ramps AM 1464 115 3334 1688 7% 5 Shiloh Rd. & US- 101 NB Ramps AM 1464 1292 11942 525 22.7% 5 Shiloh Rd. & Caletti Awe. AM 1464 1292 13334 1688 7% 5 Shiloh Rd. & Caletti Awe. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ln. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ln. AM 1174 8 1375 3.4% 7 Saturday Midday	#	Intersections	Hour		Trips	+ Project	Growth	Share	Contribution
1 Shiloh Rd. & Old Redwood Hwy, Midday 5aturday Midday 1234 308 2131 897 34% 34% Existing and 2028 2 Shiloh Rd. & Hembree Ln. 3741 606 8296 4555 13.3% Conditions 2 Shiloh Rd. & Hembree Ln. AM 1276 115 2889 1613 7% 3 Shiloh Rd. & Hembree Ln. AM 1276 1292 10942 5693 22.7% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 115 3334 1688 7% 5 Shiloh Rd. & US- 101 NB Ramps AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 7 Total 41491 86 7006 2515 3.4% 6 Shiloh Rd. & Caletti Ave. AM 1174 8 2139 965 1% 7 Total 4491 86 7006 2515 <td></td> <td></td> <td>AM</td> <td>992</td> <td>130</td> <td>2726</td> <td>1734</td> <td>7%</td> <td>Mitigated</td>			AM	992	130	2726	1734	7%	Mitigated
1 Redwood Hwy. Saturday Midday Total 1234 3741 308 2131 897 34% 34% Existing and 2028 2028 2 AM 1276 115 2889 1613 7% 7 2 Shiloh Rd. & Hembree Ln. AM 1276 115 2889 1613 7% 7 3 Shiloh Rd. & Saturday Midday 1975 272 3637 1662 16% 22.7% 3 Shiloh Rd. & US- 101 NB Ramps Total 6124 1292 10942 5693 22.7% 5 Shiloh Rd. & US- 101 NB Ramps Total 6124 1292 10942 5683 22.7% 5 Shiloh Rd. & US- 101 NB Ramps AM 1666 115 3334 1688 7% Midday 2083 272 3348 1265 22.8 25.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 18 1977 651 3.4% 6 Shiloh Rd. & Caletti Ln. AM 1174 8 2139 965 1% <td></td> <td>Shiloh Pd & Old</td> <td>PM</td> <td>1515</td> <td>168</td> <td>3439</td> <td>1924</td> <td>9%</td> <td>under</td>		Shiloh Pd & Old	PM	1515	168	3439	1924	9%	under
2 Shiloh Rd. & Hembree Ln. AM PM Saturday Midday 1975 272 3637 1613 7% 2416 24.18 37% 3 Shiloh Rd. & US- 101 NB Ramps Total 5249 1292 10042 5693 22.7% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 115 3334 1265 22.7% 5 Shiloh Rd. & US- 101 NB Ramps AM 1642 1292 11244 5120 25.2% 6 Shiloh Rd. & Caletti Ave. PM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ave. PM 1326 18 1977 651 3% 3.4% 6 Shiloh Rd. & Caletti Ave. PM 1654 60 2420 766 8% 3.7% 6 Shiloh Rd. & Conte Ln. PM 1654 60 2420 766 8% 3.7% 7 Entrance 1/Gridley Dr. PM 259 832 1215 956 87% 7.5% <	1		5	1234	308	2131	897	34%	0
2 Shiloh Rd. & Hembree L. PM Saturday Midday 1998 905 4416 2418 37% 3637 22.7% 3 Shiloh Rd. & US- 101 NB Ramps 5249 1292 10942 5693 22.7% 3 Shiloh Rd. & US- 101 NB Ramps AM PM 1046 115 3334 1688 7% 5 Shiloh Rd. & US- 101 NB Ramps AM PM 1292 11244 5120 25.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ave. M 1326 18 1977 651 3.4% 6 Shiloh Rd. & Conde Ln. AM 1174 8 2139 965 1% 7 Total 4049 86 6378 2329 3.7% 7 Shiloh Rd. & Canop Ln. PM 1554 600 2420 766 8% 7 Total 4049 86 6378 2329 3.7% 7			Total	3741	606	8296	4555	13.3%	Conditions
2 Shilon Kd. & Hembree Ln. Saturday Midday 1975 272 3637 1662 16% 22.7% 3 Shilon Rd. & US- 101 NB Ramps Total 5249 1292 10942 5693 22.7% 3 Shilon Rd. & US- 101 NB Ramps AM 1646 115 3334 1688 7% 5 Shilon Rd. & US- 101 NB Ramps Contact C			AM	1276	115	2889	1613	7%	
2 Hembree Ln. Midday Midday 1975 272 3637 1662 16% 22.7% 3 Am 5249 1292 10942 5693 22.7% 3 Shiloh Rd. & US- 101 NB Ramps AM 1646 115 3334 1688 7% 5 Shiloh Rd. & US- 101 NB Ramps AM 1646 115 3334 1688 7% 6 Shiloh Rd. & Caletti Ave. 6124 1292 11244 5120 25.2% 7 Total 6124 1292 11244 5120 25.2% 6 Shiloh Rd. & Caletti Ave. AM 1326 18 1977 651 3% 7 Total 4491 86 7006 2515 3.4% 6 Shiloh Rd. & Conde Ln. PM 1054 60 2420 766 8% 7 Total 4049 86 6378 2329 3.7% 7 Shiloh Rd. & Casino Ln. PM 259 <td></td> <td>Chiloh Dd 9</td> <td>PM</td> <td>1998</td> <td>905</td> <td>4416</td> <td>2418</td> <td>37%</td> <td></td>		Chiloh Dd 9	PM	1998	905	4416	2418	37%	
3 AM 101 NB Ramps AM PM saturday Midday 1646 2395 115 905 3334 4562 1688 2167 7% 42% 25.2% 3 101 NB Ramps 6124 1292 11244 5120 25.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 5 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Saturday Midday 1326 18 1977 661 3% 3.4% 6 Shiloh Rd. & Contel Ln. AM 1174 86 7006 2515 3.4% 7 Midday 1326 18 1977 661 3% 3.7% 6 Shiloh Rd. & Contel Ln. AM 1174 8 2139 965 1% 7 Midday 1221 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956	2		2	1975	272	3637	1662	16%	22.7%
3 Shiloh Rd. & US- 101 NB Ramps PM Saturday Midday 2395 905 4562 2167 42% 3 101 NB Ramps Midday Midday 2083 272 3348 1265 22% 25.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Midday 1326 18 1977 651 3.4% 6 Shiloh Rd. & Caletti Midday 1326 18 1977 651 3.4% 6 Shiloh Rd. & Canel Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Canel Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Canel Ln. AM 121 18 1819 598 3% 3.7% 7 Shiloh Rd. & Canel Dr. Total 719 1188 2252 1533 77.5% 8 Old Redwood Hwy. & Canel Dr. Saturday Midday 753 94 1			Total	5249	1292	10942	5693		
3 Shilon Rd. & US- 101 NB Ramps Saturday Midday 2083 272 3348 1265 22% 25.% 5 101 NB Ramps Total 6124 1292 11244 5120 25.2% 5 Shilon Rd. & Caletti Ave. M 1392 8 2374 982 1% 5 Shilon Rd. & Caletti Ave. M 1392 8 2374 982 1% 6 Shilon Rd. & Caletti Ave. M 1392 8 2374 982 1% 6 Shilon Rd. & Caletti Ave. M 1326 18 1977 651 3.% 6 Shilon Rd. & Conde Ln. AM 1174 8 2139 965 1% 7 Shilon Rd. & Conde Ln. PM 1654 600 2420 766 8% 3.7% 7 Shilon Rd. & Casino Entrance 1/Gridley Dr. PM 225 832 1215 956 87% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM					115	3334			
3 101 NB Ramps Salurday Midday Total 2083 272 3348 1265 22% 25.2% 5 Nidday Total 6124 1292 11244 5120 25.2% 5 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Caletti Ave. AM 1392 8 2374 982 1% 6 Shiloh Rd. & Conde Ln. AM 1326 18 1977 651 3.4% 7 Shiloh Rd. & Conde Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. Total 4049 86 6378 2329 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. FM 259 832 1215 956 87% 7 Total 719 1188 2252 1533 </td <td></td> <td>Shiloh Dd & US</td> <td>PM</td> <td>2395</td> <td>905</td> <td>4562</td> <td>2167</td> <td>42%</td> <td></td>		Shiloh Dd & US	PM	2395	905	4562	2167	42%	
5 AM PM 1392 PM 8 1773 2374 60 982 2655 1% 882 7% 882 34 5 Ave. Saturday Midday Midday 1326 18 1977 651 3% 3.4% 6 Constrained Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Conte Ln. AM 1174 8 2139 965 1% 6 AM 1174 8 2139 965 1% 7 Shiloh Rd. & Conte Ln. AM 121 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 106 436.6 213 50% 7 Shiloh Rd. & Casino Dr. PM 259 832 1215 956 87% 7 Midday 236 250 600 364 69% 77.5% 8 Old Redwood Hwy, & Casino Entrance AM 534 39 827.4 293	3		5	2083	272	3348	1265	22%	25.2%
5 Shiloh Rd. & Caletti Ave. PM Saturday Midday Total 1773 1326 60 2655 882 7% 3.4% 5 Midday Midday 1326 18 1977 651 3% 3.4% 6 For tal 4491 86 7006 2515 3.4% 6 Shiloh Rd. & Conde Ln. PM PM 1174 8 2139 965 1% 7 Shiloh Rd. & Conde Ln. PM PM 1654 600 2420 766 8% 7 Shiloh Rd. & Conde Ln. PM PM 1221 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 224 106 436.6 213 50% 9 Saturday Dr. 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9 1205 452 21% 29.7% 29.7% <td></td> <td></td> <td>Total</td> <td>6124</td> <td>1292</td> <td>11244</td> <td>5120</td> <td>25.2%</td> <td></td>			Total	6124	1292	11244	5120	25.2%	
5 Shilon Rd. & Caletti Ave. Saturday Midday 1326 18 1977 651 3% 3.4% 6 Total 4491 86 7006 2515 3.4% 6 Shiloh Rd. & Conde Ln. AM 1174 8 2139 965 1% 6 Shiloh Rd. & Conde Ln. PM 1654 60 2420 766 8% 7 Shiloh Rd. & Conde Ln. AM 1221 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino PM 224 106 436.6 213 50% 7 Entrance 1/Gridley Dr. PM 259 832 1215 956 87% 7 Entrance 1/Gridley Dr. Saturday Midday 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9 9 313 1694 759 41% 29.7% <			AM	1392	8	2374	982	1%	
5 Ave. Saturday Midday 1326 18 1977 651 3% 3.4% 6 Total 4491 86 7006 2515 3.4% 6 Shiloh Rd. & Conde Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Conde Ln. AM 1174 8 2139 965 1% 7 Shiloh Rd. & Conde Ln. AM 1221 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956 87% 7 Entrance 1/Gridley Dr. Saturday Total 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 8 Old Redwood Hwy. & Casino Entrance FM 935 313 1694 759 41% 9 2222 446 3726 1504 29.7%		Chilah Dal 9 Calatti	PM	1773	60	2655	882	7%	
6 Shiloh Rd. & Conde Ln. AM PM Saturday Midday 1174 1654 8 60 2139 2420 965 766 1% 8% 6 Shiloh Rd. & Conde Ln. PM Saturday Midday 1221 18 1819 598 3% 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. AM 259 220 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance Saturday Midday 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Lis 101 SB Parmes PM 2617 71 1205 452 21% 29.7% 12 Old Redwood Hwy. & Lis 101 SB Parmes AM 769 9 3124 1355 1% 12 Old Redwood Hwy. & Lis 101 SB Parmes Saturday 753 94 1205 452 21% 29.7%	5			1326	18	1977	651	3%	3.4%
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			Total	4491	86	7006	2515	3.4%	
6 Shilon Rd. & Conde Ln. Saturday Midday Total 121 18 1819 598 3% 3.7% 7 Total 4049 86 6378 2329 3.7% 7 Shilon Rd. & Casino Entrance 1/Gridley Dr. PM 229 832 1215 956 87% 7 Shilon Rd. & Casino Entrance 1/Gridley Dr. Saturday Midday Dr. 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9M 935 313 1694 759 41% 99.7% 8 Old Redwood Hwy. & Casino Entrance Final 722 446 3726 1504 29.7% 12 Old Redwood Hwy. & UIS 101 SB Parms AM 1769 9 3124 1355 1% 12 8 UIS 101 SB Parms Saturday Saturday 207 17 3274 1067 2% 3.2%			AM	1174	8	2139	965	1%	
6 Ln. Saturday Midday Total 121 18 1819 598 3% 3.7% 7 Total 4049 86 6378 2329 3.7% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 224 106 436.6 213 50% 8 Shiloh Rd. & Casino Dr. PM 259 832 1215 956 87% 9 Saturday Dr. 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9 Old Redwood Hwy. & Casino Entrance PM 935 313 1694 759 41% 9 Saturday Midday 753 94 1205 452 21% 29.7% 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 9 3124 1355 1% 12 VIS 101 SB Ramps Saturday Saturday 207 17 3274 1067<		Chiloh Dd. 8. Condo	PM	1654	60	2420	766	8%	
AM 224 106 436.6 213 50% 7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM 259 832 1215 956 87% 8 Dr. Midday Dr. 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance 709 1188 2252 1533 77.5% 8 Old Redwood Hwy. & Casino Entrance 753 94 1205 452 21% 29.7% 12 Old Redwood Hwy. & LIS 101 SB Ramps 2207 17 3274 1067 2% 3.2%	6		5	1221	18	1819	598	3%	3.7%
7 Shiloh Rd. & Casino Entrance 1/Gridley Dr. PM Saturday Midday 259 832 1215 956 87% 7 Entrance 1/Gridley Dr. Saturday Midday 236 250 600 364 69% 77.5% 8 Old Redwood Hwy. & Casino Entrance Total 719 1188 2252 1533 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9 PM 935 313 1694 759 41% 9 Midday 753 94 1205 452 21% 29.7% 10 2222 446 3726 1504 29.7% 29.7% 12 Old Redwood Hwy. & US 101 SB Ramps 2617 71 3274 1067 2% 3.2%			Total	4049	86	6378	2329	3.7%	
7 Entrance 1/Gridley Dr. Saturday Midday Total 236 250 600 364 69% 77.5% 8 Dr. Total 719 1188 2252 1533 77.5% 8 Old Redwood Hwy. & Casino Entrance AM 534 39 827.4 293 13% 9 PM 935 313 1694 759 41% 9 Midday 753 94 1205 452 21% 29.7% 10 Total 2222 446 3726 1504 29.7% 12 Old Redwood Hwy. & US 101 SB Ramps AM 1769 9 3124 1355 1% 12 Old Redwood Hwy. & US 101 SB Ramps 2007 17 3274 1067 2% 3.2%			AM	224	106	436.6	213	50%	
Dr. Midday 236 250 600 364 69% Dr. Total 719 1188 2252 1533 77.5% AM 534 39 827.4 293 13% PM 935 313 1694 759 41% Saturday 753 94 1205 452 21% 29.7% Total 2222 446 3726 1504 29.7% Total 2222 446 3726 1504 29.7% Midday 753 94 1205 452 21% 21% PM 2617 71 3272 655 11% 3.2% 12 61d Redwood Hwy. Saturday 207 17 3274 1067 2% 3.2%		Shiloh Rd. & Casino	PM	259	832	1215	956	87%	
8 AM 534 39 827.4 293 13% 9 PM 935 313 1694 759 41% 9 Casino Entrance AM 753 94 1205 452 21% 29.7% 12 Old Redwood Hwy. Total 2222 446 3726 1504 29.7% 12 Old Redwood Hwy. AM 1769 9 3124 1355 1% 12 Old Redwood Hwy. Saturday 207 17 3274 1067 2% 3.2%	7	,	2	236	250	600	364	69%	77.5%
B AM 534 39 827.4 293 13% PM 935 313 1694 759 41% Saturday Midday 753 94 1205 452 21% 29.7% Total 2222 446 3726 1504 29.7% Midday 763 9 3124 1355 1% PM 2617 71 3272 655 11% Saturday Midday 2007 17 3274 1067 2% 3.2%			Total	719	1188	2252	1533	77.5%	
8 Old Redwood Hwy. & Casino Entrance Saturday Midday 753 94 1205 452 21% 29.7% Total 2222 446 3726 1504 29.7% Midday Total 2222 446 3726 1504 29.7% Midday Total 2222 446 3726 1504 29.7% Midday PM 2617 71 3272 655 11% 12 & US 101 SB Ramps Saturday 2207 17 3274 1067 2% 3.2%			AM	534	39	827.4		13%	
8 Old Redwood Hwy. & Casino Entrance Saturday Midday 753 94 1205 452 21% 29.7% Total 2222 446 3726 1504 29.7% Midday Total 2222 446 3726 1504 29.7% Midday PM 2617 71 3272 655 11% Multiple Saturday 2207 17 3274 1067 2% 3.2%			PM			1694	759	41%	
Total 2222 446 3726 1504 29.7% AM 1769 9 3124 1355 1% PM 2617 71 3272 655 11% 12 Old Redwood Hwy. Saturday 2207 17 3274 1067 2% 3.2%	8	2	5	753	94	1205	452		29.7%
AM 1769 9 3124 1355 1% PM 2617 71 3272 655 11% 12 Old Redwood Hwy. Saturday 2207 17 3274 1067 2% 3.2%				2222	446	3726	1504	29.7%	
PM 2617 71 3272 655 11% 12 Old Redwood Hwy. Saturday 2207 17 3274 1067 2% 3.2%				1769	9	3124		1%	
12 8 US 101 SB Ramps Saturday 2207 17 3274 1067 2% 3.2%		Old Deduce dut	PM	2617	71	3272		11%	
' Midday	12	2 Old Redwood Hwy. & US 101 SB Ramps						2%	3.2%
Total 6593 97 9670 3077 3.2%			2	6593	97	9670	3077	3.2%	

Table 39. Fair Share Analysis - Alternative C



15.0 ADDITIONAL ANALYSIS

The following sections provide additional analyses of other transportation issues associated with the project site, including:

- Fair share analysis
- Roadway segment analysis
- Vehicle access and circulation
- Pedestrian and bicycle access and circulation
- Transit access
- Parking analysis
- Recommendations

The analyses in these sections are based on professional judgment in accordance with the standards and methods employed by traffic engineers.

15.1 Roadway Segment Analysis

All study segments were evaluated for changes in weekday average daily traffic (ADT) due to the project. Study segments, existing ADT counts, and segment volumes for each scenario are shown in Figures 1, 5, 7, 11, 14, 17, 19, 21, 23, 25, 27, 29, 31, and 33, respectively. For General Plan 2040 conditions, growth factors for each segment were derived by comparing the growth in adjacent intersection volumes between Existing and 2040 conditions.

The methodology used for estimating daily segment capacity is based on the generalized daily service **volumes for signalized highways, published by the Federal Highway Administration ("Simplified Highway** Capacity Calculation Method for the Highway Performan**ce Monitoring System", 2017). This simplified** methodology is based on the number of lanes, speed limit, percent green time, and daily traffic volumes. As LOS E is typically defined as a maximum volume-to-capacity ratio (V/C) of 1.0, the generalized maximum service volumes for LOS E were used to determine roadway capacity. The V/C criteria used in the analysis are shown in Table 40.

Table 40. V/	C Criteria
Level of Service	V/C Ratio
LOS A	0.0 -0.60
LOS B	0.61 - 0.70
LOS C	0.71 - 0.80
LOS D	0.81 - 0.90
LOS E	0.91 - 1.00
LOS F	Above 1.00

The results of the analysis, utilizing existing lane geometry, are shown in Tables 41, 42, and 43. Tables 44, 45, and 46 show the effects of proposed intersection mitigations under Existing and Opening Year



2028 Conditions, and widening of Shiloh Road to two lanes in each direction under General Plan 2040 Conditions.

Under Existing Conditions, the portion of Shiloh Road between the US 101 NB ramps and SB ramps operates at an unacceptable LOS E. All other study segments operate at an acceptable LOS. With the addition of project traffic under Alternative A, the portion of Shiloh Road between the US 101 NB ramps and SB ramps degrades to LOS F. Additionally, the section of Shiloh Road between Hembree Lane and Old Redwood Highway degrades from LOS A to unacceptable LOS E. Under Alternative B, the section of Shiloh Road between the US 101 NB ramps and SB ramps degrades to LOS F, while the section of Shiloh Road between Hembree Lane and Old Redwood Highway degrades from LOS A to unacceptable to LOS F, while the section of Shiloh Road between the US 101 NB ramps and SB ramps degrades to LOS F, while the section of Shiloh Road between the US 101 NB ramps and SB ramps and SB ramps and SB ramps is also an unacceptable LOS F, while the section of Shiloh Road between Hembree Lane and Old Redwood Highway drops to a still acceptable LOS D. For Alternative C, the section of Shiloh Road between the US 101 NB ramps and SB ramps and SB ramps is also an unacceptable LOS F, while the section of Shiloh Road between Hembree Lane and Old Redwood Highway drops to an acceptable LOS D.

Under Opening Year 2028 Conditions, all study segments operate at an acceptable LOS except the portion of Shiloh Road between the US 101 NB ramps and SB ramps which has an LOS of F. With the addition of Alternative A project traffic, all three Shiloh Road segments degrade to unacceptable levels of service. Under Alternative B, the segment of Shiloh Road between Hembree Lane and Old Redwood Highway operates at an acceptable LOS D while the remaining Shiloh Road segments operate an unacceptable LOS's. For Alternative C, one segment of Shiloh Road between the US 101 SB ramps and the US 101 NB ramps operates at an unacceptable LOS F while the segment of Shiloh Road between Hembree Lane and Old Redwood Highway operates at an acceptable LOS F while the segment of Shiloh Road between Hembree Lane and Old Redwood Highway operates at an acceptable LOS D. All other study segments operate at acceptable LOS's.

For General Plan 2040 Conditions, the segments of Shiloh Road between Conde Lane and the US 101 SB ramps, and between the US 101 SB ramps and the US 101 NB ramps operate at unacceptable LOS F with no project built. All other study segments operate at acceptable LOS's. An additional segment of Shiloh Road between Hembree Lane and Old Redwood Highway degrades to unacceptable LOS F with the addition of traffic from the Alternative A project. The same study segment has an unacceptable LOS E under Alternative B project conditions. The other study segments have the same LOS under Alternative B project conditions as under Alternative A project conditions. Finally, under Alternative C project conditions, the segment of Shiloh Road between Hembree Lane and Old Redwood Highway experiences an acceptable LOS D while the other segments of Shiloh Road experience unacceptable LOS F. The remaining study segments operate at acceptable LOS A.

In general, all study segments along Shiloh Road experience the greatest degradations in operating conditions. Although mitigation measures proposed along Shiloh Road would generally not widen the roadway, they would collectively increase the amount of green time allocated to through movements and thus increase lane capacities. Increased green time is taken into account for lane capacities under Existing Conditions with mitigations and Opening Year 2028 Conditions with mitigations, while General Plan 2040 capacity is increased via physical widening without additional changes to assumed capacity per lane. This widening is planned under the Town of Windsor General Plan and Traffic Impact Fee program and assumed to be implemented under mitigated General Plan 2040 Conditions. With these capacity



increasing measures taken into account, the project would consistently improve v/c ratios and segment LOS compared to No Project conditions for Existing, Opening Year 2028, and General Plan 2040 Conditions, consistent with the Town of Windsor and Sonoma County standards and plans.

			· · ·	Existin	ig Condit	ion	Exi	sting Plus	Alterna	tive A F	Project Cond	ditions	Exis	ting Plus /	Alternativ	/e B Pro	oject Conditi	ons	Exist	ing Plus A	lternativ	/e C Pro	oject Condit	ions
ID	Roadway Segment	HCM Capacity	Speed Limit	ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
1	Old Redwood Highay, Between Shiloh Road & Kendall Way	22,200	40	10,710	0.48	А	1,121	11,831	0.53	А	0.05	10%	876	11,586	0.52	A	0.04	8%	208	10,918	0.49	A	0.01	2%
2	Old Redwood Highay, Between Shiloh Road & Lafayette Drive	21,700	40	9,931	0.46	А	1,121	11,052	0.51	А	0.05	11%	876	10,807	0.50	А	0.04	9%	208	10,139	0.47	А	0.01	2%
3	Shiloh Road, Between Conde Lane & US- 101 SB Ramps	22,200	40	17,535	0.79	С	561	18,096	0.82	D	0.03	3%	438	17,973	0.81	D	0.02	2%	104	17,639	0.79	D	0.00	1%
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	22,200	40	21,207	0.96	Ε	3,364	24,571	1.11	F	0.15	16%	2,629	23,836	1.07	F	0.12	12%	623	21,830	0.98	F	0.03	3%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	22,200	40	10,569	0.48	А	8,410	18,979	0.85	E	0.38	80%	6,572	17,141	0.77	D	0.30	62%	1,559	12,128	0.55	D	0.07	15%

Table 41: Roadway Segment Analysis – Existing Conditions

Table 42: Roadway Segment Analysis – 2028 Opening Year Conditions

		HCM	Speed -	2028 Op Projec	ening Ye t Conditi		2028	3 Opening	Year Pl	us Alter	native A Co	nditions	2028 Ope	ening Year	Plus Alte	ernative	e B Project (Conditions	2028 Ope	ning Year	Plus Alte	ernative	e C Project C	onditions
ID	Roadway Segment	Capacity		ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
1	Old Redwood Highay, Between Shiloh Road & Kendall Way	22,200	40	12,061	0.54	A	1,121	13,182	0.59	В	0.05	9%	876	12,937	0.58	A	0.04	7%	208	12,269	0.55	A	0.01	2%
2	Old Redwood Highay, Between Shiloh Road & Lafayette Drive	21,700	40	11,184	0.52	А	1,121	12,305	0.57	А	0.05	10%	876	12,060	0.56	А	0.04	8%	208	11,392	0.52	А	0.01	2%
3	Shiloh Road, Between Conde Lane & US- 101 SB Ramps	22,200	40	19,747	0.89	D	561	20,308	0.91	E	0.03	3%	438	20,185	0.91	E	0.02	2%	104	19,851	0.89	D	0.00	1%
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	22,200	40	23,883	1.08	F	3,364	27,246	1.23	F	0.15	14%	2,629	26,511	1.19	F	0.12	11%	623	24,506	1.10	F	0.03	3%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	22,200	40	11,902	0.54	А	8,410	20,312	0.91	E	0.38	71%	6,572	18,475	0.83	D	0.30	55%	1,559	13,461	0.61	D	0.07	13%

Table 43: Roadway Segment Analysis - General Plan 2040 Conditions

		LICM	Casad	General Projec	l Plan 204 ct Condit		Gen	eral Plan 2	2040 Plu	ıs Alteri	native A Con	ditions	Genera	al Plan 20	40 Alterr	ative B	Project Con	ditions	Genera	l Plan 204	0 Alterna	ative C	Project Con	ditions
ID	Roadway Segment	HCM Capacity	Speed - Limit	ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
1	Old Redwood Highay, Between Shiloh Road & Kendall Way	24,700	40	15,297	0.62	В	1,121	16,418	0.66	В	0.05	7%	876	16,173	0.65	В	0.04	6%	208	15,504	0.63	А	0.01	1%
2	Old Redwood Highay, Between Shiloh Road & Lafayette Drive	24,700	40	14,184	0.57	А	1,121	15,305	0.62	В	0.05	8%	876	15,060	0.61	В	0.04	6%	208	14,392	0.58	А	0.01	1%
3	Shiloh Road, Between Conde Lane & US- 101 SB Ramps	22,200	40	25,044	1.13	F	561	25,605	1.15	F	0.03	2%	438	25,482	1.15	F	0.02	2%	104	25,148	1.13	F	0.00	0%
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	22,200	40	30,289	1.36	F	3,364	33,653	1.52	F	0.15	11%	2,629	32,918	1.48	F	0.12	9%	623	30,912	1.39	F	0.03	2%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	22,200	40	15,095	0.68	А	8,410	23,505	1.06	F	0.38	56%	6,572	21,667	0.98	E	0.30	44%	1,559	16,654	0.75	D	0.07	10%



												. 0												
		HCM Capacity		Exist	ing Condi	tion	Existing Plu	us Alternat	ive A Pr	oject (Conditions_	Mitigation	Existing Plu	is Alterna	ative B Pi	oject (Conditions	_Mitigation	Existing Plu	us Alterna	ative C P	roject Co	onditions_	Mitigation
ID	Roadway Segment	with Proposed Mitigations		ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips		ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	30,000	40	21,207	0.96	E	3,364	24,571	0.82	D	-0.14	16%	2,629	23,836	0.79	С	-0.16	12%	623	21,830	0.73	С	-0.23	3%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	30,000	40	10,569	0.48	А	8,410	18,979	0.63	В	0.16	80%	-	-	-	-	-	-	-	-	-	-	-	-

Table 44: Roadway Segment Analysis – Existing Conditions with Mitigations

Table 45: Roadway Segment Analysis – 2028 Opening Year Conditions with Mitigations

		HCM Capacity		2028 O	pening Ye	ear No	2028 Openin	ig Year Plu	us Altern	native A	Condition	ns_Mitigation	2028	Opening	Year Plus	s Alterr	native B P	roject	2028	Opening	Year Plu	us Altern	ative C Pr	oject
ID	Roadway Segment	with Proposed Mitigations	Speed Limit	ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
3	Shiloh Road, Between Conde Lane & US-101 SB Ramps	30,000	40	19,747	0.89	D	561	20,308	0.68	В	-0.21	3%	438	20,185	0.67	В	-0.22	2%	-	-	-	-	-	-
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	30,000	40	23,883	1.08	F	3,364	27,246	0.91	E	-0.17	14%	2,629	26,511	0.88	D	-0.19	11%	623	24,506	0.82	D	-0.26	3%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	30,000	40	11,902	0.54	А	8,410	20,312	0.68	В	0.14	71%	-	-	-	-	-	-	-	-	-	-	-	-

Table 46: Roadway Segment Analysis - General Plan 2040 Conditions with Mitigations

		HCM Capacity	Speed		al Plan 204 ct Conditi		General Plan	2040 Plu	Alterna	itive A	Conditions	s_Mitigation	Ge		n 2040 A nditions_		ive B Proj tion	ect	General Plan	2040 Alte	rnative	C Projec	t Conditio	ons_Mitigation
ID	Roadway Segment	with Proposed Mitigations	Limit	ADT	V/C	LOS	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips	Project Daily Trips	ADT	V/C	LOS	Change in V/C	Percentage Increase in Trips
3	Shiloh Road, Between Conde Lane & US-101 SB Ramps	49,800	40	25,044	1.13	F	561	25,605	0.51	А	-0.61	2%	438	25,482	0.51	А	-0.62	2%	104	25,148	0.50	A	-0.62	0%
4	Shiloh Road, Between US-101 SB Ramps & US-101 NB Ramps	49,800	40	30,289	1.36	F	3,364	33,653	0.68	В	-0.69	11%	2,629	32,918	0.66	В	-0.70	9%	623	30,912	0.62	В	-0.74	2%
5	Shiloh Road, Between Hembree Lane & Old Redwood Highway	49,800	40	15,095	0.68	A	8,410	23,505	0.47	А	-0.21	56%	6,572	21,667	0.44	A	-0.24	44%	1,559	-	-	-	-	-



15.2 SITE ACCESS, CIRCULATION, AND PARKING

This section analyzes site access and internal circulation based on the site plans presented in Figures 2, 3 and 4. Access and circulation are similar for all alternatives as they have a similar basic footprint within the overall site.

Vehicle Access and Circulation

As shown in the site plans, Alternatives A and B of the proposed project would construct full access driveways at three locations: one driveway on Old Redwood Highway approximately 650 feet (ft.) south of Shiloh Road, and two driveways on Shiloh Road, approximately 500 ft. and 2,600 ft. east of Old Redwood Highway. Alternative C would construct only two driveways by excluding the second driveway on Shiloh Road approximately 2,600 ft. east of Old Redwood Highway. The proposed driveway on Old Redwood Highway (Study intersection 8) would be aligned with an existing (entrance-only) driveway at Shiloh Neighborhood Church (5901 Old Redwood Highway). The western driveway on Shiloh Road (Study intersection 7) would be aligned with Gridley Drive. The eastern driveway on Shiloh Road (Study intersection 9) would expand an existing driveway into the project site, located at 222 E. Shiloh Road.

The Old Redwood Road entrance is expected to require signalization. This location would serve arrivals and departures from Old Redwood Road both south and north of the driveway and also could be used by visitors arriving from the Shiloh Road/US 101 interchange to the west. Once on-site, visitors could drive to the main entrance drop off area, or drive to the rear of the site to reach the main parking areas, including a garage. Those that choose to drive initially to the drop off area at the main entrance, will likely proceed to the parking area at the rear of the site by using the loop road, which connects the Old Redwood Highway access point, provides access to the parking area, and proceeds to the eastern access point. Some patrons will arrive by bus. Buses also have a drop off area at the main entrance where all passengers will be discharged. Parking for buses is located along the loop road.

The western access point on Shiloh Road is aligned with Gridley Drive located about 500 feet east of the Old Redwood Road intersection. That intersection is expected to be signalized. The portion of Shiloh Road between the two signalized intersections is expected to require two through lanes in each direction. The new signal would require two through lanes and one left turn lane on the westbound approach. The eastbound approach should have two through lanes, one left turn lane and one right turn lane. The northbound approach leaving the casino should have two left turn lanes and one combination through right lane. The existing single lane southbound approach will suffice.

The entrance to the site from this entrance leads directly to a large traffic circle. The traffic circle provides a direct connection to the main casino entrance where motorists may drop off their passengers before proceeding to the parking areas behind the main casino. The hotel lobby and event center are also served by the passenger drop off area.

The third access point is located at the far eastern edge of the site. It provides direct access to the loop road which serves the surface and garage parking located to the east of the casino. There is a direct bridged pedestrian connection to the casino floor and to the hotel rooms from the parking areas. It is expected that many of the patrons will use the bridge access to the parking areas to exit the site, either by using the east access to Shiloh Road or to exit via the loop road to the west, using the Old Redwood Highway exit. The loop road intersection with Shiloh Road will be controlled by a single stop sign stopping the northbound loop road traffic. The exit lane should have one left turn lane and one right turn lane. The eastbound approach should be equipped with one right turn lane in addition to the existing single lanes in each direction on Shiloh Road.

Pedestrian and Bicycle Access and Circulation

With some exceptions, the areas near the proposed casino are generally lacking sidewalks. The exceptions are the residential area on the north side of Shiloh Road opposite the proposed site, sections of the east side of Old Redwood Highway north of Shiloh Road, and areas on the north side of Shiloh Road near Hembree Lane. Generally the area is semi-rural with no sidewalks and in some cases very poor pedestrian conditions. The site is not proposing sidewalks along its frontages. However, pedestrian facilities should be provided at the two new traffic signals to provide a connection with the sidewalks on the north side of Shiloh and the urban features on the west side of Old Redwood Highway near the future signals at the church. TJKM also recommends constructing continuous, accessible pedestrian paths between the nearest bus stops, the project access points closest to Shiloh Road & Old Redwood Highway, and the nearest project entrances. The Town of Windsor Traffic Impact Fee proposes sidewalks, curbs and gutters and bicycle lanes on both sides of Shiloh Road and Old Redwood Highway near the project. Both streets already have long sections of existing Class II Bicycle Lanes west and north of the project.

Transit Access

Sonoma County Transit (SCT) serves the project area. Route 60 mostly travels along Old Redwood Highway between Cloverdale and Santa Rosa on headways varying between one to two hours. There is an existing pair of stops adjacent to the corner of Shiloh Road and Old Redwood Highway. With the addition of accessible pedestrian pathways between the stops and the project entrances, this route has the potential to serve employees and patrons in the Old Redwood Highway corridor. The bus line has adequate capacity to accommodate the additional traffic from the proposed project.

15.3 PARKING

The project proposes to supply significant parking for customers and employees. Parking calculations are based on combining the requirements for hotel, dining, event center and casino uses. The proposed breakdowns of parking requirements for Alternative A are as follows:

- Hotel One space per room and one space per manager. Total = 400 + 40 or 440 stalls.
- Dining One space/ 60 feet of dining area. 51,440 square feet requires 857 stalls

- Event Center One space/ 4 seats or one per 75 square feet, whichever is greater. 53,380 square feet/75 requires 712 stalls.
- Casino One space per table game. 3,110 games require 3,110 stalls.

Total stalls required are 440+857+712+3,110 = 5,119. This is the number proposed to be provided. This would seem to be a generous supply considering the overlap of users and the low likelihood of simultaneous capacity utilization of all four components.

The Alternative B site has fewer hotel rooms and no event center. Its total parking requirement is 4,461 parking stalls.

15.4 Recommendations

TJKM recommends the following:

- Implement the recommended intersection and segment improvements to mitigate projectrelated impacts on the surrounding transportation network.
- Provide concrete sidewalks, marked crosswalks at the proposed project driveways to connect with existing and planned pedestrian facilities along Shiloh Road and Old Redwood Highway.
- Provide continuous, accessible pedestrian pathways between the nearby transit stops and project entrances.
- Provide pedestrian and bicycle facilities between the proposed project's driveways and the project's main facilities to improve on-site pedestrian and bicycle circulation.