Traffic Impact Analysis

Chehalis Powersports Northwest
Chehalis, Washington

Prepared For:
JRHH Properties, LLC

Prepared By:
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March 2023

SCJ ALLIANCE
CONSULTING SERVICES

Traffic Impact Analysis

Project Information

Project:	Chehalis Powersports Northwest
Prepared for:	JRHH Properties, LLC

Reviewing Agency

Jurisdiction:	City of Chehalis

Project Representative

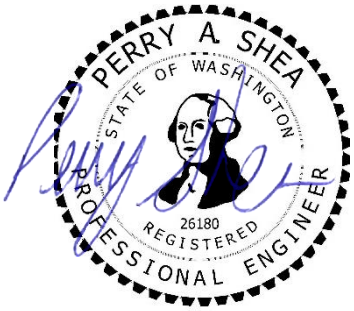
Prepared by:	SCJ Alliance 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465 scjalliance.com
Contact:	Ryan Shea, PTP, Senior Transportation Planner

Project Reference:	SCJ #22-000669 Path: N:\Projects\5921 JRHH Properties, LLC\22-000669 Chehalis Powersports Northwest\Phase 02 - Traffic Impact Analysis\03-Dels\TIA\2023-0315 Chehalis Powersport TIA.docx

Signature

The technical material and data contained in the Traffic Impact Analysis were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by Ryan Shea, PTP, Senior Transportation Planner



03/15/2023

Approved by Perry Shea, PE, Principal

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1 Introduction

1.1 Project Overview

JRHH Properties, LLC plans to construct a new dealership facility for Powersports Northwest at 197 N Hamilton Road in Lewis County. The project includes a powersports showroom and shop and a separate warehouse building.

Figure 1 illustrates the site vicinity and the transportation network serving the project area.

Figure 1. Site Vicinity Map

1.2 Study Context

This report has been prepared to provide the traffic analysis and project information to assist the City, County, and WSDOT in reviewing the development proposal. A Traffic Scoping Letter dated September 21, 2022 was prepared and submitted which documented the trip generation, distribution, and assignment of estimated project trips. The following intersections are included for analysis:

- Labree Road at Hamilton Road N
- I-5 southbound ramps at Labree Road
- I-5 northbound ramps at Labree Road
- Site Driveway at Hamilton Road

It was noted by the City and County that the Rush Road/Hamilton Road intersection is problematic and should also be studied. Given the pending intersection improvements being constructed as mitigation

for a different development and the minimal project traffic impacting that intersection, city staff has agreed that it does not need to be analysis as part of this study.

City of Chehalis code (12.64.060) requires that analysis be conducted for a future horizon year that is five years after a business has been in operation for 12 months. Given an expected opening year of 2024, operational analysis has been prepared for existing 2023 PM peak hour conditions and forecasted 2030 PM peak hour conditions with and without completion of the development.

2 Project Description

2.1 Development Proposal

The proposed Powersports Northwest project will be located at 197 N Hamilton Road in Lewis County. The existing site currently contains the Housing Mart, Inc, which will be removed as part of the proposed project. The project proposes to construct a 30,600-square foot powersports showroom and shop, and an 8,000-square foot warehouse that will be used to store inventory. The project anticipates having 26 full time employees. The completed project will provide 80 automobile parking stalls and 19 trailer parking stalls.

Access to the project will be provided by the site's existing driveway on N Hamilton Road, which will be used by passenger vehicles, and an existing driveway to the northwest that connects to an east/west local access road with a connection to N Hamilton Road, which will serve larger vehicles.

The project is anticipated to open in 2024. The preliminary site plan is provided on **Figure 2**.

Figure 2. Preliminary Site Plan

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3 Existing Conditions

3.1 Area Land Uses

The proposed project will be located on property currently occupied by the Housing Mart, Inc. which will be demolished. Surrounding land uses are largely industrial. The site is located within the City of Chehalis's Urban Growth Boundary but outside of the city limits. The adjacent land uses are largely industrial/commercial.

3.2 Roadway Inventory

3.2.1 Hamilton Road

Hamilton Road is designated in the Lewis County *Comprehensive Plan Transportation Element* as a local roadway that runs north/south along the eastern property frontage. This roadway has a single travel lane in each direction with paved shoulders and a posted speed limit of 50 mph.

3.2.2 Interstate 5

Interstate 5 (I-5) is a north/south divided highway with posted speed limit of 70 mph, north of the project site the speed limit drops to 60 mph. In the project area the roadway provides three lanes in each direction. Interstate 5 is classified an Urban Interstate and is a highway of statewide significance (HSS).

3.2.3 Labree Road

Within the project vicinity, Labree Road is an east/west minor arterial with a posted speed limit of 35 mph. Labree Road provides connections to and from I-5. This roadway provides 6 to 8 travel lanes through the I-5 interchange. East and west of the interchange, Labree Road provides one travel lane in each direction. The Lewis County *Comprehensive Plan Transportation Element* identifies Labree Road (within the project vicinity) as a T-3 freight route.

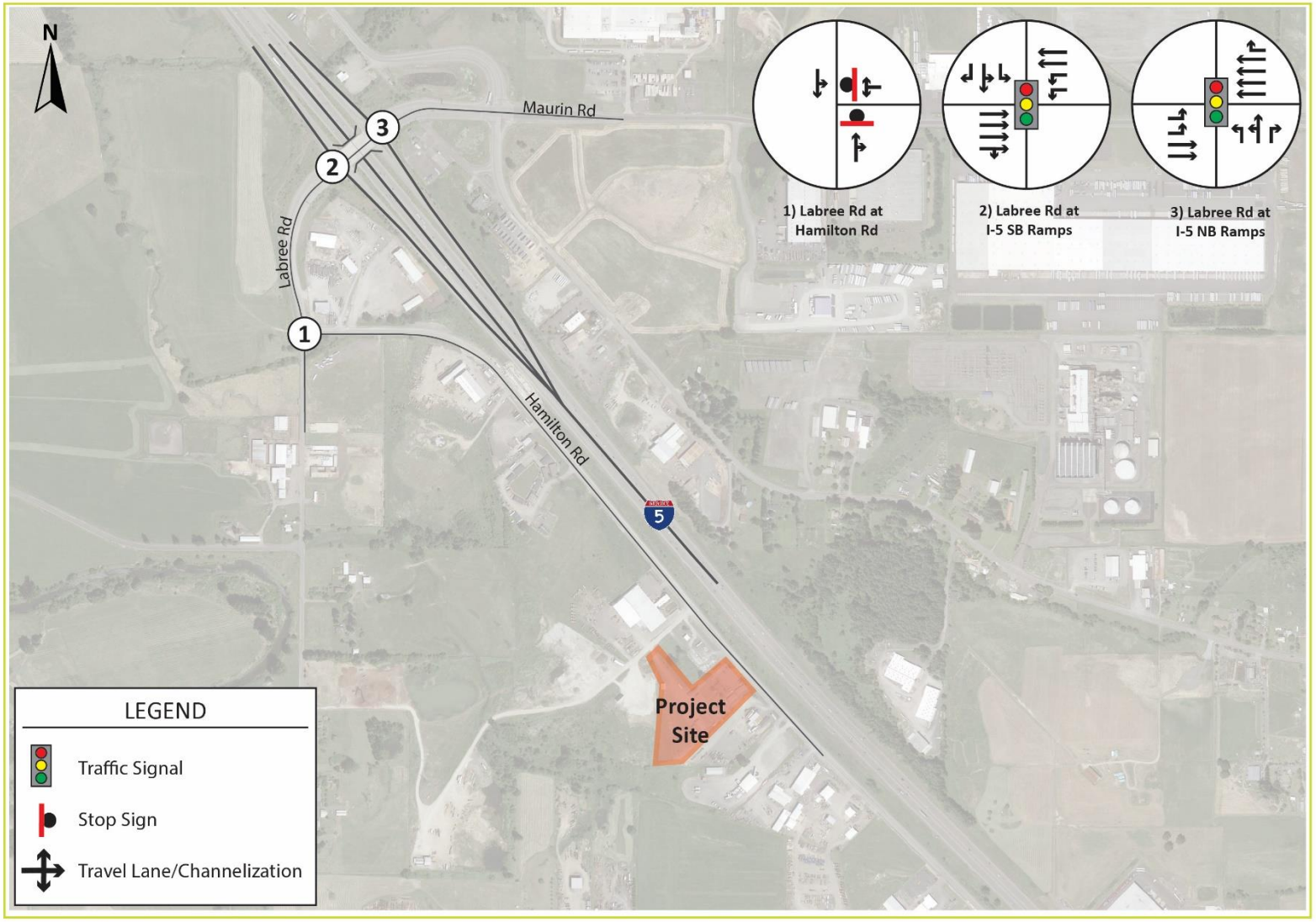
A summary of the existing intersection channelization and control type for each of the study intersections is provided in **Figure 3.**

3.3 Traffic Volumes

Traffic Count Consultants, TC2, a transportation data collection service, provided evening peak period turning movement counts for the study area intersections.

The counts were conducted on Tuesday, January 24,2023, between 4:00 and 6:00 PM for the PM peak hour. **Figure 4** shows the existing, 2023 PM peak hour traffic volumes for the study intersections. Daily traffic volumes for each of the study roadways has been estimated by multiplying the PM peak hour volumes by ten, which is a common adjustment factor to convert PM peak hour volumes to daily volumes.

The turning movement count diagrams are provided in **Appendix A.**



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Traffic Impact Analysis

Figure 3
Intersection Channelization and Control

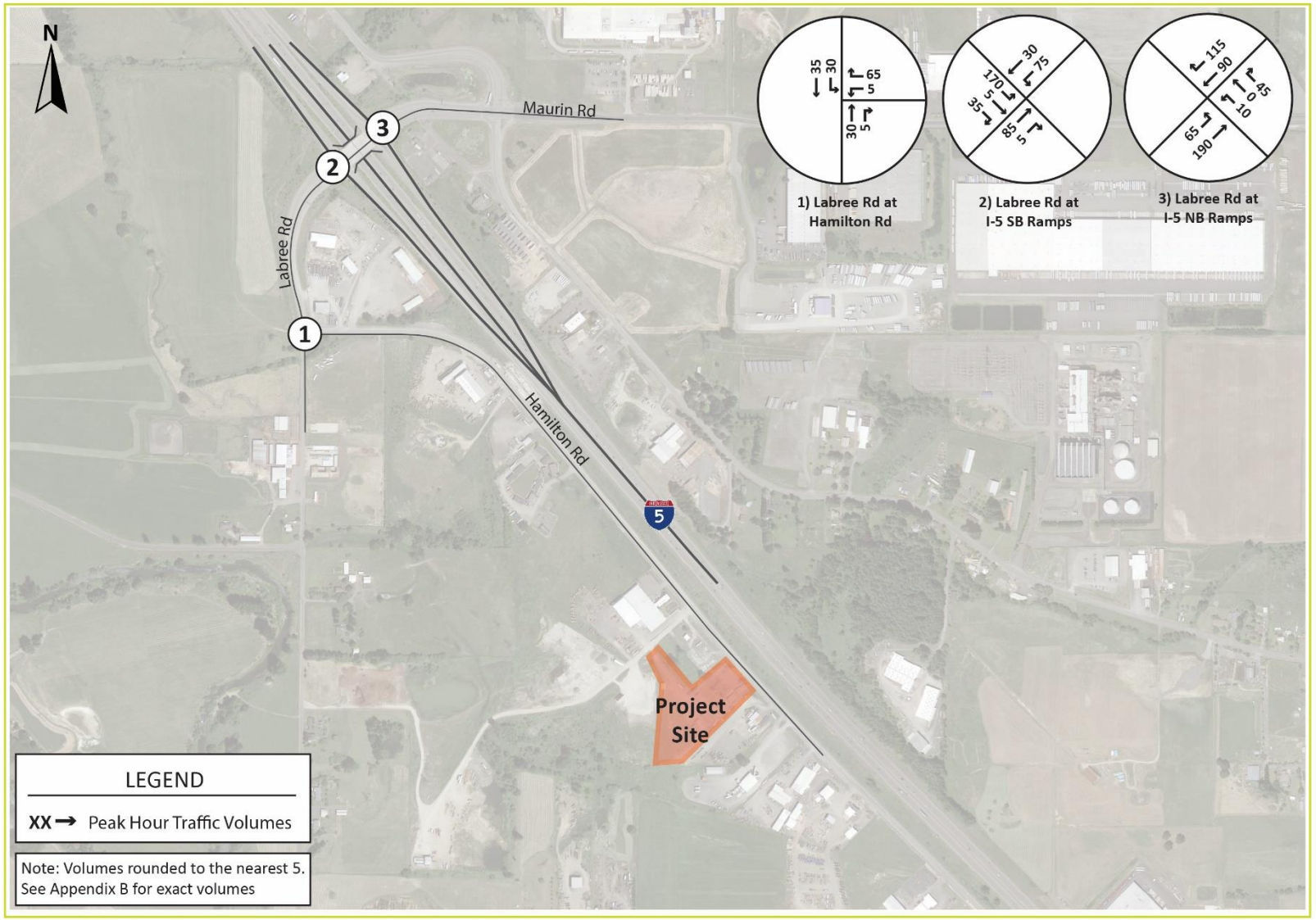

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Figure 4
Existing 2023 PM Peak Hour
Traffic Volumes

3.4 Crash History

The Washington Department of Transportation provides crash data for study area roadways. The data was collected over the five-year span between January 1, 2017 and December 31, 2021. Crash data has been summarized by severity and location in **Table 1**.

Table 1. Existing Crash Severity

Intersection	Fatal	Serious Injury	Minor Injury	Possible Injury	Property Damage Only	Total
Labree Road at Hamilton Road N	No reported crashes					
I-5 southbound ramps at Labree Road	0	0	0	1	1	2
I-5 northbound ramps at Labree Road	0	0	0	0	3	3

Overall, 60 percent of all the reported crashes at the three study area intersections were classified as property damage only (no apparent injury). There were no fatal or serious injury crashes reported.

3.5 Transit and Non-Motorized Facilities

Twin Transit currently serves Chehalis and Centralia with transit services and also provides express service to Grand Mound, Tumwater, Olympia, and Castle Rock. The closest transit stop is located on the other side of I-5 to the east of the project site along Maurin Road.

In the project vicinity, there are currently no sidewalks or bike lanes provided along any of the study area roadways.

4 Project Traffic Characteristics

The project-related characteristics having the most effect on area traffic conditions are peak hour trip generation and the directional distribution of traffic volumes on the surrounding roadway network. The PM peak hour was selected as the traffic analysis period as it represents the highest potential traffic condition on area roadways.

4.1 Site-Generated Traffic Volumes

Vehicle trip generation was estimated using the trip generation rates contained in the 11th edition of the *Trip Generation Manual* by the Institute of Transportation Engineers (ITE). There is no exact match for the proposed land use contained in the ITE manual. Of the available land use categories, the land use category Automobile Sales (New) (land use code 840) was determined to best match the proposed project. Based on the proposed size and employment levels of the project, square footage was determined as the most appropriate variable to use for this analysis. However, given that the Automobile Sales land use typically does not store inventory such as vehicles in buildings, the 8,000 square feet of warehouse space for the proposed project was not included in the trip generation calculation. We believe this allows for a more accurate use of the Automobile Sales land use code.

Table 2 shows the trip generation characteristics for the land use category Automobile Sales (New)**.**

Table 2. ITE Trip Generation Rate – Automobile Sales (New) (land use code 840)

Peak Period	Variable	Trip Rate	Enter %	Exit %
AM peak hour of Adjacent Street	1,000 sqft	1.86	73%	27%
PM peak hour of Adjacent Street	1,000 sqft	2.48	40%	60%

The total trip generation expected from this project is calculated by applying the unit measure for the land use category to the trip generation rate. The trip generation for the proposed Powersports Northwest project is shown in **Table 3** below and provided in **Appendix B**.

Table 3. Project Trip Generation

Peak Period	Size	Total Trips	Enter	Exit
AM peak hour of Adjacent Street	30.6	57	42	15
PM peak hour of Adjacent Street	30.6	76	30	46

4.2 Site Traffic Distribution and Assignment

For this study, the regional distribution of traffic to and from the proposed project was estimated based on locations and densities of the potential customer base, as well as the proximity of the nearby Labree Road interchange with I-5. The resultant traffic distribution percentages and traffic assignments are shown on **Figure 5** for the PM peak hour.

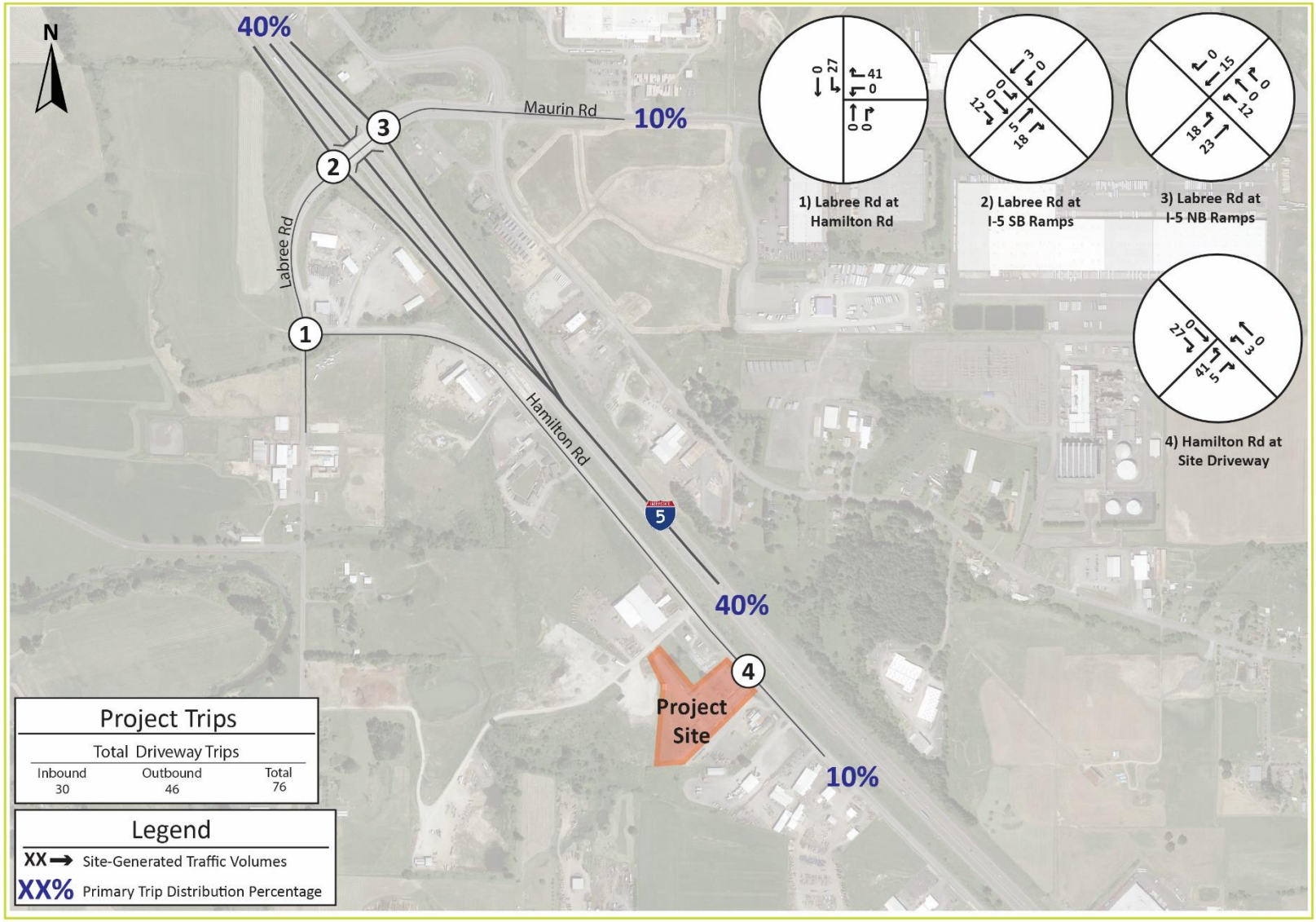

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Figure 5
PM Peak Hour Site Generated Traffic Volumes

5 Future Traffic Conditions

5.1 Roadway Network Improvements

The Lewis County *2021-2026 6-year Transportation Improvement Program* (TIP) does not include an identified project that could affect the study area. The Lewis County *Comprehensive Plan Transportation Element* and the City of Chehalis *Comprehensive Plan* were reviewed, and no projects were identified in the project area.

An additional source of roadway network improvements is mitigation requirements for development. A truck stop project is being proposed just north of the Rush Road/Hamilton Road intersection. As mitigation the project is being required to construct roundabout control at the Rush Road/Hamilton Road intersection and additional improvements to the Rush Road/I-5 interchange. These improvements do not affect the identified study area for this project but will provide additional capacity for the small amount of project traffic that is expected to travel through the Rush road interchange area.

5.2 Future Traffic Volumes

Traffic volume forecasts were prepared for PM peak hour conditions for the 2030 horizon year. The future traffic volume forecast includes non-specific background traffic growth and estimated traffic generated by the proposed project.

It is anticipated that background growth will occur within the study area and affect traffic volumes. To calculate a background growth rate historic traffic counts on the I-5/Labree Road interchange for 2010 and 2018 were identified. An annualized growth rate between the two data points was determined which equates to 9 percent per year. This is a high annual growth rate and likely achieved primarily due to the low existing volumes in the area. However, to provide a conservative analysis, this rate was applied to existing traffic volumes at the study area intersections to obtain future 2030 turning movement projections.

The projected 2030 traffic volumes without the project are shown on **Figure 6.** The projected 2030 traffic volumes with project are shown on **Figure 7.**

The traffic volume calculations for the study intersections are included in **Appendix B**.

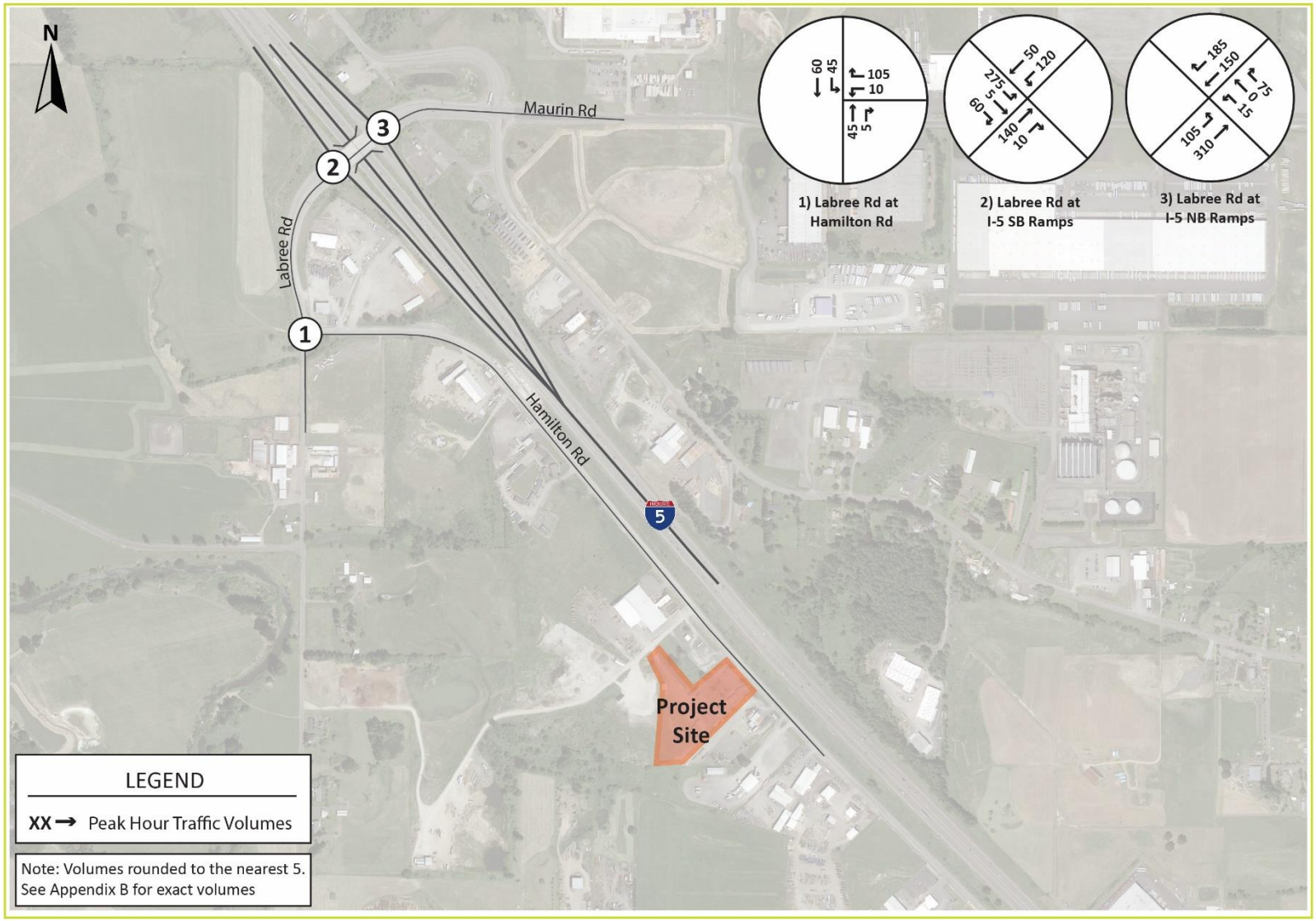

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Figure 6
Projected 2030 PM Peak Hour
Traffic Volumes Without Project

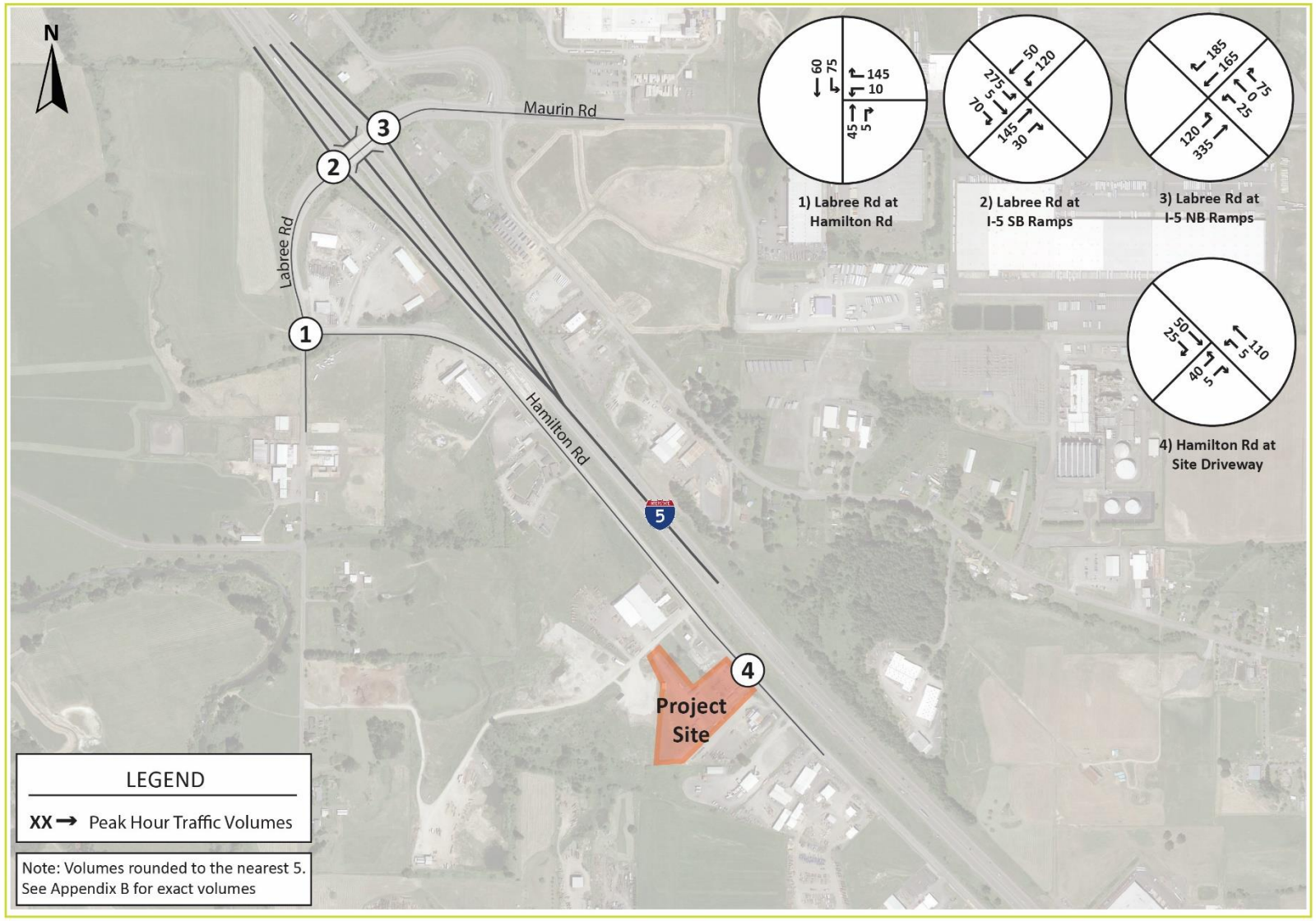

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Figure 7
Projected 2030 PM Peak Hour
Traffic Volumes With Project

Traffic analyses were conducted to identify any deficiencies within the study area for the PM peak hour in the 2023 base year and the 2030 horizon year. The PM peak hour was selected as the traffic analysis period as it represents the highest potential traffic condition on area roadways.

5.3 Level of Service

The acknowledged source for determining operational performance for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM). Intersection analysis was performed using the Synchro software package (version 11). This software implements the methods of the 6th edition HCM.

Operations analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion).

The City of Chehalis uses a mobility target of LOS D or better.

5.3.1 Intersection Operations

For signalized intersections, the overall LOS grade represents the weighted average of all movements at the intersection. For intersections under minor street stop-sign control, the LOS of the most difficult movement (typically the minor street left turn) represents the intersection level of service. The LOS/delay criteria for stop sign-controlled intersections are different than for signalized intersections because driver expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay.

Table 4 shows the Level of Service criteria for stop-controlled intersections and signalized intersections.

Table 4. Level of Service Criteria for Intersections

Level of Service	Signalized/Roundabout Intersection Average Control Delay (seconds/vehicle)	Stop-Controlled Intersection Average Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

5.4 Volume to Capacity Ratio

Another measure of the performance of an intersection is the “degree of saturation” which is typically presented as the “volume to capacity” (v/c) ratio. Many factors affect the volume of traffic that an intersection can accommodate during a specific time interval. These factors include the number of lanes, lane widths, the type of signal phasing, the number of parking maneuvers on the adjacent street, etc. Based on these factors, the intersection (or individual lane group) is determined to have a total theoretical vehicle carrying capacity “c” for the analysis period. The analysis period volume “v” is compared to the calculated carrying capacity and presented as a ratio. If the v/c ratio is below 1.0, the

demand volume is less than the maximum capacity. If the v/c ratio is over 1.0, the demand volume is exceeding the available capacity.

5.5 Intersection Analysis

The analysis was conducted for the following scenarios:

- Existing 2023 traffic volumes
- Projected 2030 traffic volumes without the Project
- Projected 2030 traffic volumes with the Project

The intersection control and channelization are documented earlier in this report in Figure 3. The LOS analysis worksheets are included in **Appendix C.** Following is a description of the Level of Service analysis results for the study intersections with the scenarios listed above.

5.5.1 Labree Road at Hamilton Road

This is a three-legged intersection under stop sign control for two of its three legs. In the PM peak hour, the intersection currently operates at a LOS A. In the projected 2030 horizon, this intersection is expected to operate at LOS A with and without project traffic.

5.5.2 Labree Road at I-5 Southbound Ramps

This is a four-legged intersection under signal control. In the PM peak hour, the intersection currently operates at a LOS A. In the projected 2030 horizon, this intersection is expected to operate at LOS B with and without project traffic.

5.5.3 Labree Road at I-5 Northbound Ramps

This is a four-legged intersection under signal control. In the PM peak hour, the intersection currently operates at a LOS A. In the projected 2030 horizon, this intersection is expected to operate at LOS A with and without project traffic.

5.5.4 Site Driveway at Hamilton Road

This will be a three-legged intersection under stop-sign control for the eastbound approach. In the PM peak hour, this intersection is projected to operate at LOS A in the 2030 horizon year with project traffic.

The intersection operational results for the PM peak hour are presented in **Table 7**.

Table 5. PM Peak Hour Intersection Operating Conditions

		Base Year 2023		Projected 2030 Without Project		Projected 2030 With Project	
Intersection	**Control**	**LOS (Delay)**	**Worst V/C Ratio**	**LOS (Delay)**	**Worst V/C Ratio**	**LOS (Delay)**	**Worst V/C Ratio**
Labree Road at Hamilton Road	TWSC[1]	A (8.8)	0.08	A (9.2)	0.13	A (9.5)	0.18
I-5 southbound ramps at Labree Road	Signal	A (9.8)	0.36	B (10.1)	0.49	B (10.2)	0.48
I-5 northbound ramps at Labree Road	Signal	A (6.4)	0.44	A (7.2)	0.53	A (7.3)	0.53
Site Driveway at Hamilton Road	TWSC[2]	-	-	-	-	A (9.7)	0.06

1. Two-Way Stop-Control

5.6 Site Driveway Analysis

The project proposes to construct a driveway on Hamilton Road that will serve as the primary access to the project. A left-turn warrant analysis and sight distance analysis have been performed for the proposed driveway and are discussed below.

5.6.1 Left-Turn Warrant Analysis

A left-turn warrant analysis has been performed for the proposed site driveway on Hamilton Road based on forecasted 2030 PM peak hour traffic volumes. Using the WSDOT guidelines for left turn lanes (exhibit 1310-7a) a left turn lane is not warranted at the driveway. The warrant graphic is included in **Appendix D**.

5.6.2 Sight Distance Analysis

The proposed site driveway is located on a long, straight, and flat stretch of Hamilton Road. With a posted speed of 50 MPH, the driveway would need to provide 555 feet of sight distance to meet full intersection entering sight distance. The proposed driveway location provides over 600 feet of visibility in each travel direction, more than meeting the recommended intersection sight distance for entering vehicles.

6 Summary and Conclusions

The proposed Powersports Northwest project will be located at 197 N Hamilton Road in Lewis County. The existing site currently contains the Housing Mart, Inc, which will be removed as part of the proposed project. The project proposes to construct a 30,600-square foot powersports showroom and shop, and an 8,000-square foot warehouse that will be used to store inventory. The project anticipates having 26 full time employees. The completed project will provide 80 automobile parking stalls and 19 trailer parking stalls.

Access to the project will be provided by the site's existing driveway on N Hamilton Road, which will be used by passenger vehicles, and an existing driveway to the northwest that connects to an east/west local access road with a connection to N Hamilton Road, which will serve larger vehicles.

At full occupancy and operation, the project is estimated to generate approximately 76 new-to network trip ends during the PM peak hour. An evaluation of the existing 2023 and projected 2030 horizon year with and without the project traffic was performed. All of the study area intersections are projected to operate at LOS B or better.

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Appendix A

Traffic Volume Counts

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

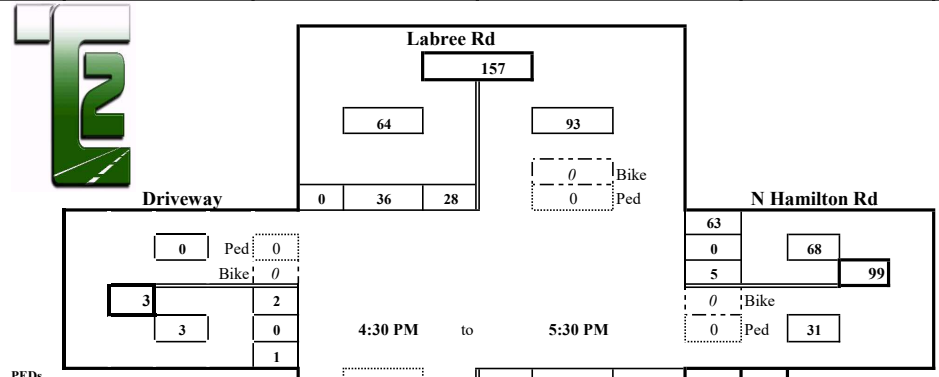
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Labree Rd & N Hamilton Rd **Date of Count:** Tue 01/24/2023

Location: Chehalis, Washington **Checked By:** Jen

Time Interval	From North on (SB) Labree Rd				From South on (NB) Labree Rd				From East on (WB) N Hamilton Rd				From West on (EB) Driveway				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	11	9	1	0	0	5	0	4	0	0	17	0	0	0	0	43
4:30 P	1	6	8	0	2	0	8	1	0	0	0	3	0	0	0	0	26
4:45 P	0	10	11	0	0	0	5	0	0	1	0	17	0	0	0	0	44
5:00 P	0	8	13	0	0	0	8	1	0	2	0	14	0	0	0	1	47
5:15 P	0	3	6	0	0	0	7	1	2	1	0	27	0	1	0	0	46
5:30 P	2	7	6	0	0	0	8	1	0	1	0	5	0	1	0	0	29
5:45 P	1	5	9	0	0	0	8	0	1	0	0	2	0	0	0	0	24
6:00 P	1	6	9	0	0	0	11	0	0	2	0	7	0	0	0	0	35
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	6	56	71	1	2	0	60	4	7	7	0	92	0	2	0	1	294
Peak Hour: 4:30 PM to 5:30 PM																	
Total	2	28	36	0	0	0	28	3	2	5	0	63	0	2	0	1	166
Approach	64				31				68				3				166
%HV	3.1%				n/a				2.9%				n/a				2.4%
PHF	0.76				0.86				0.61				0.75				0.88



188 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.75	n/a
WB	0.61	2.9%
NB	0.86	n/a
SB	0.76	3.1%
T Int.	0.88	2.4%

Check In: 166 Out: 166

Conditions:

PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

SCJ23008M_01P

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

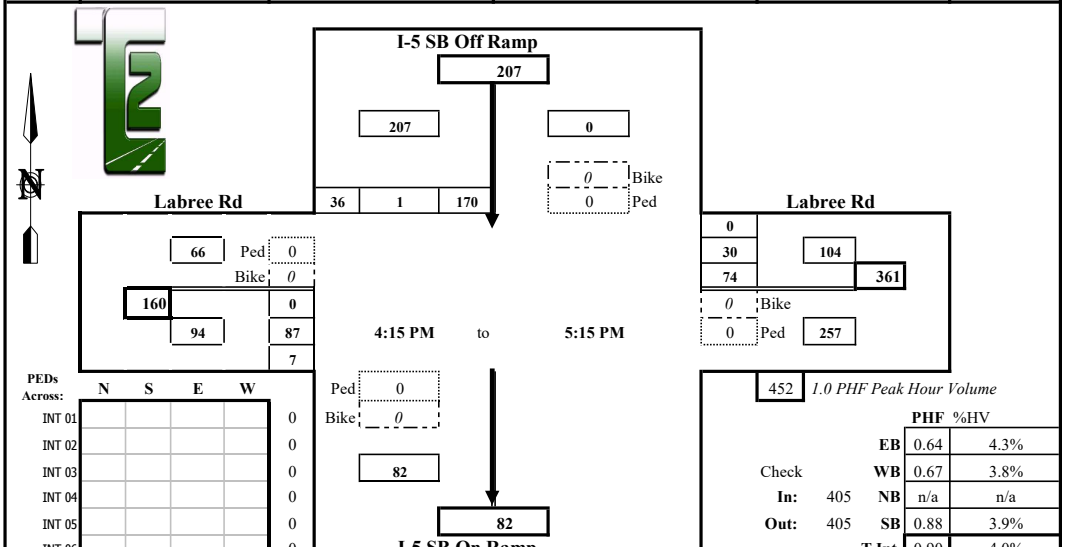
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: I-5 SB Ramps & Labree Rd **Date of Count:** Tue 01/24/2023

Location: Chehalis, Washington **Checked By:** Jen

Time Interval	From North on (SB) I-5 SB Off Ramp				From South on (NB) I-5 SB On Ramp				From East on (WB) Labree Rd				From West on (EB) Labree Rd				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	37	0	15	0	0	0	0	3	29	9	0	5	0	13	7	110
4:30 P	1	39	0	10	0	0	0	0	0	13	4	0	2	0	12	2	80
4:45 P	2	43	0	8	0	0	0	0	1	24	15	0	0	0	20	0	110
5:00 P	2	46	1	12	0	0	0	0	1	12	8	0	0	0	23	0	102
5:15 P	3	42	0	6	0	0	0	0	2	25	3	0	2	0	32	5	113
5:30 P	1	39	1	9	0	0	0	0	3	11	4	0	0	0	14	0	78
5:45 P	3	32	0	5	0	0	0	0	2	17	9	0	0	0	10	1	74
6:00 P	0	27	0	6	0	0	0	0	1	8	10	0	0	0	17	1	69
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	15	305	2	71	0	0	0	0	13	139	62	0	9	0	141	16	736
Peak Hour: 4:15 PM to 5:15 PM																	
Total	8	170	1	36	0	0	0	0	4	74	30	0	4	0	87	7	405
Approach	207				0				104				94				405
%HV	3.9%				n/a				3.8%				4.3%				4.0%
PHF	0.88				n/a				0.67				0.64				0.90



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

		PHF	%HV
	EB	0.64	4.3%
Check	WB	0.67	3.8%
In: 405	NB	n/a	n/a
Out: 405	SB	0.88	3.9%
	T Int.	0.90	4.0%

Conditions:

Special Notes

SCJ23008M_02P

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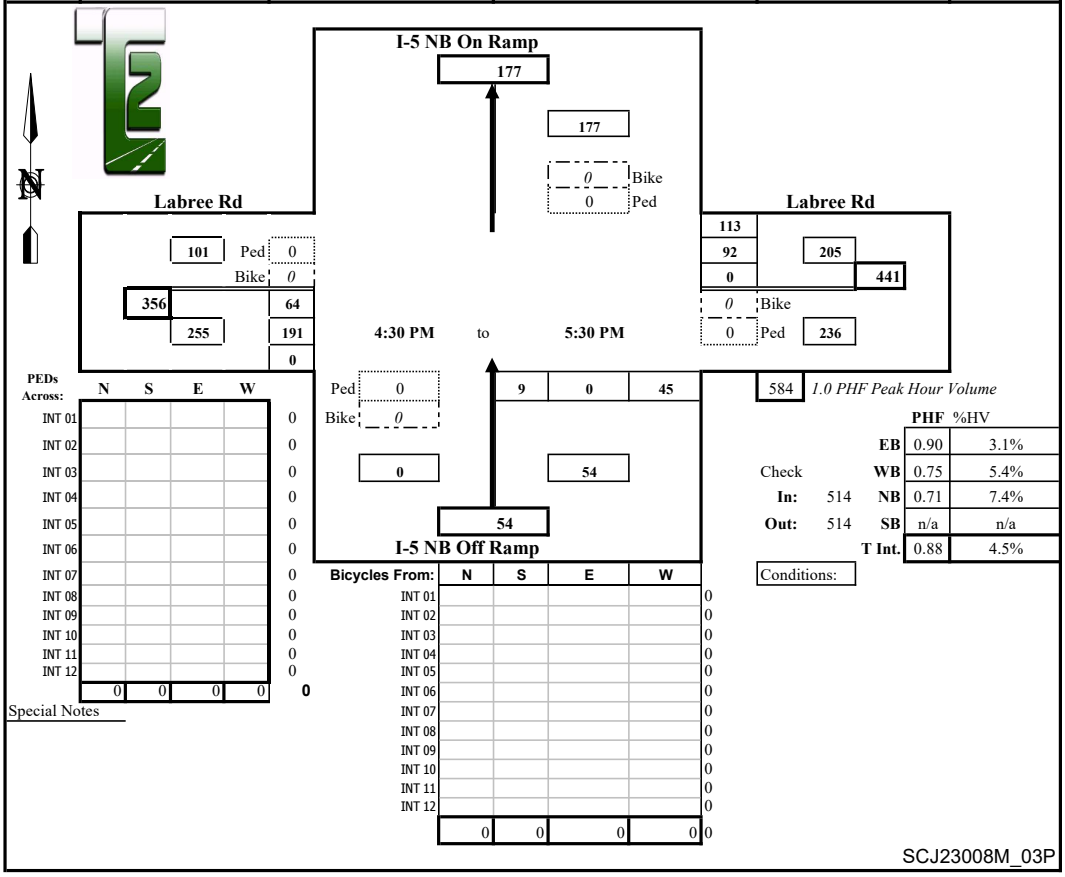
WBE/DBE

Intersection: I-5 NB Ramps & Labree Rd **Date of Count:** Tue 01/24/2023

Location: Chehalis, Washington **Checked By:** Jen

Time Interval	From North on (SB) I-5 NB On Ramp				From South on (NB) I-5 NB Off Ramp				From East on (WB) Labree Rd				From West on (EB) Labree Rd				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	1	2	1	8	3	0	35	34	4	10	40	0	130
4:30 P	0	0	0	0	0	0	0	8	2	0	18	30	2	14	37	0	107
4:45 P	0	0	0	0	1	6	0	13	1	0	32	36	1	17	42	0	146
5:00 P	0	0	0	0	3	1	0	7	4	0	19	20	2	15	55	0	117
5:15 P	0	0	0	0	0	1	0	9	3	0	26	30	5	22	49	0	137
5:30 P	0	0	0	0	0	1	0	16	3	0	15	27	0	10	45	0	114
5:45 P	0	0	0	0	1	1	2	8	3	0	27	47	1	5	38	0	128
6:00 P	0	0	0	0	1	2	0	5	1	0	11	24	0	12	33	0	87
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	7	14	3	74	20	0	183	248	15	105	339	0	966
	Peak Hour: 4:30 PM to 5:30 PM																
Total	0	0	0	0	4	9	0	45	11	0	92	113	8	64	191	0	514
Approach	0				54				205				255				514
%HV	n/a				7.4%				5.4%				3.1%				4.5%
PHF	n/a				0.71				0.75				0.90				0.88



		PHF	%HV
	EB	0.90	3.1%
Check	WB	0.75	5.4%
In: 514	NB	0.71	7.4%
Out: 514	SB	n/a	n/a
	T Int.	0.88	4.5%

Conditions:

Special Notes

SCJ23008M_03P

Appendix B

Traffic Volume Calculation Worksheets

SCJ ALLIANCE
CONSULTING SERVICES

Chehalis Powersports Northwest

PM Peak Hour Volumes

Growth Rate: 9%

Intersection	Movement		Existing 2023 Counts	Background 2030 Growth	Baseline 2030 Volumes	Site Generated Volumes	Projected 2030 Volumes
		L	0	0	0	0	0
	EB	T	0	0	0	0	0
		R	0	0	0	0	0
1		L	5	3	8	0	8
Labree Rd	WB	T	0	0	0	0	0
N Hamilton Rd		R	63	40	103	41	144
		L	0	0	0	0	0
TMC Date: 01/24/2023	NB	T	28	18	46	0	46
		R	3	2	5	0	5
4:30 - 5:30 PM		L	28	18	46	27	73
PHF: 0.88	SB	T	36	23	59	0	59
		R	0	0	0	0	0
			163			68	334
		L	0	0	0	0	0
	EB	T	87	55	142	5	147
		R	7	4	11	18	29
2		L	74	47	121	0	121
Labree Rd	WB	T	30	19	49	3	52
I-5 SB Ramps		R	0	0	0	0	0
		L	0	0	0	0	0
TMC Date: 01/24/2023	NB	T	0	0	0	0	0
		R	0	0	0	0	0
4:15 - 5:15 PM		L	170	107	277	0	277
PHF: 0.90	SB	T	1	1	2	0	2
		R	36	23	59	12	71
			405		660	38	698
		L	64	40	104	18	122
	EB	T	191	120	311	23	334
		R	0	0	0	0	0
3		L	0	0	0	0	0
Labree Rd	WB	T	92	58	150	15	165
I-5 NB Ramps		R	113	71	184	0	184
		L	9	6	15	12	27
TMC Date: 01/24/2023	NB	T	0	0	0	0	0
		R	45	28	73	0	73
4:30 - 5:30 PM		L	0	0	0	0	0
PHF: 0.88	SB	T	0	0	0	0	0
		R	0	0	0	0	0
			514		838	68	906
		L	0	0	0	41	41
	EB	T	0	0	0	0	0
		R	0	0	0	5	5
4		L	0	0	0	0	0
Site Driveway	WB	T	0	0	0	0	0
N Hamilton Rd		R	0	0	0	0	0
		L	0	0	0	3	3
	NB	T	68	43	111	0	111
		R	0	0	0	0	0
		L	0	0	0	0	0
	SB	T	31	20	51	0	51
		R	0	0	0	27	27
			99		161	76	237

Appendix C

Operations Analysis Worksheets

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	65	30	5	30	35
Future Vol, veh/h	5	65	30	5	30	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	74	34	6	34	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	145	37	0	0	40	0
Stage 1	37	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	847	1035	-	-	1570	-
Stage 1	985	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	1035	-	-	1570	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	896	-	-	-	-	-

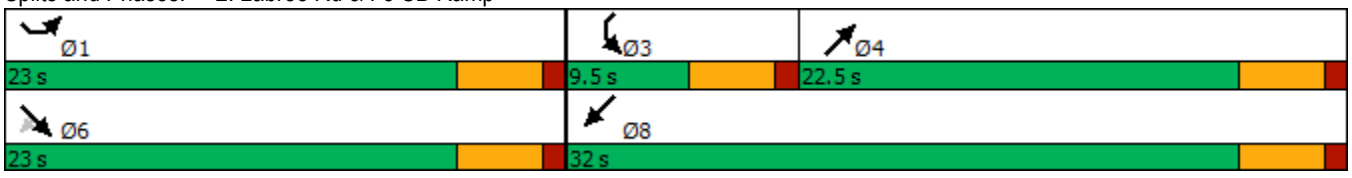
Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1017	1570	-
HCM Lane V/C Ratio	-	-	0.078	0.022	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	170	5	35	0	0	0	0	85	5	75	30	0
Future Volume (vph)	170	5	35	0	0	0	0	85	5	75	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		450	0		0
Storage Lanes	1		1	0		0	0		3	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		640			597			821			276	
Travel Time (s)		14.5			13.6			18.7			6.3	
Turn Type	Prot	NA	Perm					NA		Prot	NA	
Protected Phases	1	6						4		3	8	
Permitted Phases			6									
Detector Phase	1	6	6					4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5					22.5		9.5	9.5	
Total Split (s)	23.0	23.0	23.0					22.5		9.5	32.0	
Total Split (%)	41.8%	41.8%	41.8%					40.9%		17.3%	58.2%	
Maximum Green (s)	18.5	18.5	18.5					18.0		5.0	27.5	
Yellow Time (s)	3.5	3.5	3.5					3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5					4.5		4.5	4.5	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Recall Mode	None	None	None					Min		Min	Min	
Walk Time (s)		7.0	7.0					7.0				
Flash Dont Walk (s)		11.0	11.0					11.0				
Pedestrian Calls (#/hr)		0	0					0				

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 33.9	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: Labree Rd & I-5 SB Ramp



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	170	5	35	0	0	0	0	85	5	75	30	0
Future Volume (veh/h)	170	5	35	0	0	0	0	85	5	75	30	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	193	0	39				0	94	6	83	33	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	536	0	238				0	1128	70	625	1863	0
Arrive On Green	0.15	0.00	0.15				0.00	0.18	0.18	0.18	0.52	0.00
Sat Flow, veh/h	3563	0	1585				0	6500	388	3456	3647	0
Grp Volume(v), veh/h	193	0	39				0	72	28	83	33	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1801	1728	1777	0
Q Serve(g_s), s	1.3	0.0	0.6				0.0	0.3	0.4	0.6	0.1	0.0
Cycle Q Clear(g_c), s	1.3	0.0	0.6				0.0	0.3	0.4	0.6	0.1	0.0
Prop In Lane	1.00		1.00				0.00		0.22	1.00		0.00
Lane Grp Cap(c), veh/h	536	0	238				0	872	325	625	1863	0
V/C Ratio(X)	0.36	0.00	0.16				0.00	0.08	0.09	0.13	0.02	0.00
Avail Cap(c_a), veh/h	2383	0	1060				0	3140	1172	625	3533	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	10.2				0.0	9.4	9.4	9.5	3.2	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.3				0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.2				0.0	0.1	0.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	0.0	10.6				0.0	9.5	9.5	9.6	3.2	0.0
LnGrp LOS	B	A	B				A	A	A	A	A	A
Approach Vol, veh/h		232						100			116	
Approach Delay, s/veh		10.9						9.5			7.8	
Approach LOS		B						A			A	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			9.5	9.5		8.7		19.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			5.0	18.0		18.5		27.5				
Max Q Clear Time (g_c+I1), s			2.6	2.4		3.3		2.1				
Green Ext Time (p_c), s			0.0	0.4		0.7		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

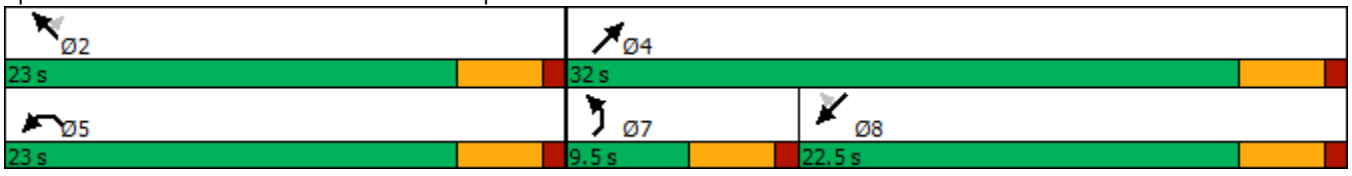
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	1	45	65	190	0	0	90	115
Future Volume (vph)	0	0	0	10	1	45	65	190	0	0	90	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		250	0		0	0		275
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		595			457			276			459	
Travel Time (s)		13.5			10.4			6.3			10.4	
Turn Type				Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases				5	2		7	4			8	
Permitted Phases						2						8
Detector Phase				5	2	2	7	4			8	8
Switch Phase												
Minimum Initial (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Minimum Split (s)				9.5	22.5	22.5	9.5	22.5			22.5	22.5
Total Split (s)				23.0	23.0	23.0	9.5	32.0			22.5	22.5
Total Split (%)				41.8%	41.8%	41.8%	17.3%	58.2%			40.9%	40.9%
Maximum Green (s)				18.5	18.5	18.5	5.0	27.5			18.0	18.0
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	None			Min	Min
Walk Time (s)					7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)					11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)					0	0		0			0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 32.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: Labree Rd & I-5 NB Ramp



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	1	45	65	190	0	0	90	115
Future Volume (veh/h)	0	0	0	10	1	45	65	190	0	0	90	115
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				12	0	51	74	216	0	0	102	131
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				259	0	115	286	1835	0	0	1469	362
Arrive On Green				0.07	0.00	0.07	0.08	0.52	0.00	0.00	0.23	0.23
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	6696	1585
Grp Volume(v), veh/h				12	0	51	74	216	0	0	102	131
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1609	1585
Q Serve(g_s), s				0.1	0.0	0.7	0.4	0.7	0.0	0.0	0.3	1.5
Cycle Q Clear(g_c), s				0.1	0.0	0.7	0.4	0.7	0.0	0.0	0.3	1.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				259	0	115	286	1835	0	0	1469	362
V/C Ratio(X)				0.05	0.00	0.44	0.26	0.12	0.00	0.00	0.07	0.36
Avail Cap(c_a), veh/h				3009	0	1339	789	4461	0	0	5287	1302
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				9.5	0.0	9.7	9.4	2.7	0.0	0.0	6.6	7.1
Incr Delay (d2), s/veh				0.1	0.0	2.7	0.5	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				9.5	0.0	12.4	9.9	2.8	0.0	0.0	6.6	7.7
LnGrp LOS				A	A	B	A	A	A	A	A	A
Approach Vol, veh/h					63			290			233	
Approach Delay, s/veh					11.8			4.6			7.3	
Approach LOS					B			A			A	

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		6.1		15.8			6.3	9.5				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		2.7		2.7			2.4	3.5				
Green Ext Time (p_c), s		0.1		1.3			0.0	0.9				

Intersection Summary		
HCM 6th Ctrl Delay		6.4
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	105	45	5	45	60
Future Vol, veh/h	10	105	45	5	45	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	119	51	6	51	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	224	54	0	0	57	0
Stage 1	54	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	764	1013	-	-	1547	-
Stage 1	969	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	738	1013	-	-	1547	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	831	-	-	-	-	-

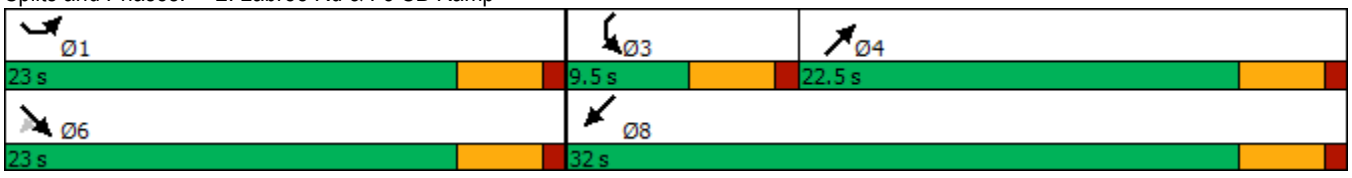
Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	3.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	981	1547	-
HCM Lane V/C Ratio	-	-	0.133	0.033	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	275	5	60	0	0	0	0	140	10	120	50	0
Future Volume (vph)	275	5	60	0	0	0	0	140	10	120	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		450	0		0
Storage Lanes	1		1	0		0	0		3	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		640			597			821			276	
Travel Time (s)		14.5			13.6			18.7			6.3	
Turn Type	Prot	NA	Perm					NA		Prot	NA	
Protected Phases	1	6						4		3	8	
Permitted Phases			6									
Detector Phase	1	6	6					4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5					22.5		9.5	9.5	
Total Split (s)	23.0	23.0	23.0					22.5		9.5	32.0	
Total Split (%)	41.8%	41.8%	41.8%					40.9%		17.3%	58.2%	
Maximum Green (s)	18.5	18.5	18.5					18.0		5.0	27.5	
Yellow Time (s)	3.5	3.5	3.5					3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5					4.5		4.5	4.5	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Recall Mode	None	None	None					Min		Min	Min	
Walk Time (s)		7.0	7.0					7.0				
Flash Dont Walk (s)		11.0	11.0					11.0				
Pedestrian Calls (#/hr)		0	0					0				

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 38.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: Labree Rd & I-5 SB Ramp



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	275	5	60	0	0	0	0	140	10	120	50	0
Future Volume (veh/h)	275	5	60	0	0	0	0	140	10	120	50	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	310	0	67				0	156	11	133	56	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	636	0	283				0	1083	74	604	1801	0
Arrive On Green	0.18	0.00	0.18				0.00	0.17	0.17	0.17	0.51	0.00
Sat Flow, veh/h	3563	0	1585				0	6456	425	3456	3647	0
Grp Volume(v), veh/h	310	0	67				0	121	46	133	56	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1794	1728	1777	0
Q Serve(g_s), s	2.2	0.0	1.0				0.0	0.6	0.6	0.9	0.2	0.0
Cycle Q Clear(g_c), s	2.2	0.0	1.0				0.0	0.6	0.6	0.9	0.2	0.0
Prop In Lane	1.00		1.00				0.00		0.24	1.00		0.00
Lane Grp Cap(c), veh/h	636	0	283				0	843	314	604	1801	0
V/C Ratio(X)	0.49	0.00	0.24				0.00	0.14	0.15	0.22	0.03	0.00
Avail Cap(c_a), veh/h	2304	0	1025				0	3037	1129	604	3416	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	10.1				0.0	10.0	10.0	10.1	3.5	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.4				0.0	0.1	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.3				0.0	0.2	0.2	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	10.5				0.0	10.1	10.2	10.3	3.5	0.0
LnGrp LOS	B	A	B				A	B	B	B	A	A
Approach Vol, veh/h		377						167			189	
Approach Delay, s/veh		11.0						10.1			8.3	
Approach LOS		B						B			A	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			9.5	9.5		9.6		19.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			5.0	18.0		18.5		27.5				
Max Q Clear Time (g_c+I1), s			2.9	2.6		4.2		2.2				
Green Ext Time (p_c), s			0.1	0.8		1.1		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

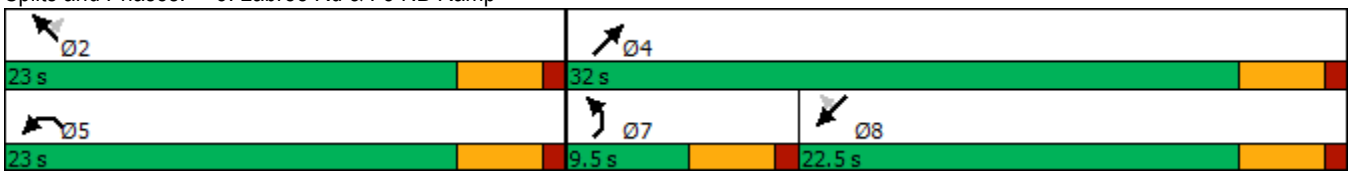
Notes

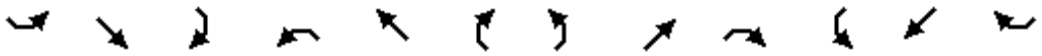
User approved volume balancing among the lanes for turning movement.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	1	75	105	310	0	0	150	185
Future Volume (vph)	0	0	0	15	1	75	105	310	0	0	150	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		250	0		0	0		275
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		595			457			276			459	
Travel Time (s)		13.5			10.4			6.3			10.4	
Turn Type				Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases				5	2		7	4			8	
Permitted Phases						2						8
Detector Phase				5	2	2	7	4			8	8
Switch Phase												
Minimum Initial (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Minimum Split (s)				9.5	22.5	22.5	9.5	22.5			22.5	22.5
Total Split (s)				23.0	23.0	23.0	9.5	32.0			22.5	22.5
Total Split (%)				41.8%	41.8%	41.8%	17.3%	58.2%			40.9%	40.9%
Maximum Green (s)				18.5	18.5	18.5	5.0	27.5			18.0	18.0
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	None			Min	Min
Walk Time (s)					7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)					11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)					0	0		0			0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 37.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: Labree Rd & I-5 NB Ramp





Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	15	1	75	105	310	0	0	150	185
Future Volume (veh/h)	0	0	0	15	1	75	105	310	0	0	150	185
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				18	0	85	119	352	0	0	170	210
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				363	0	161	387	1926	0	0	1621	399
Arrive On Green				0.10	0.00	0.10	0.11	0.54	0.00	0.00	0.25	0.25
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	6696	1585
Grp Volume(v), veh/h				18	0	85	119	352	0	0	170	210
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1609	1585
Q Serve(g_s), s				0.1	0.0	1.3	0.8	1.3	0.0	0.0	0.5	2.9
Cycle Q Clear(g_c), s				0.1	0.0	1.3	0.8	1.3	0.0	0.0	0.5	2.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				363	0	161	387	1926	0	0	1621	399
V/C Ratio(X)				0.05	0.00	0.53	0.31	0.18	0.00	0.00	0.10	0.53
Avail Cap(c_a), veh/h				2608	0	1160	684	3867	0	0	4583	1129
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.2	0.0	10.8	10.3	2.9	0.0	0.0	7.3	8.2
Incr Delay (d2), s/veh				0.1	0.0	2.6	0.4	0.0	0.0	0.0	0.0	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.4	0.2	0.1	0.0	0.0	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				10.3	0.0	13.4	10.8	3.0	0.0	0.0	7.3	9.2
LnGrp LOS				B	A	B	B	A	A	A	A	A
Approach Vol, veh/h					103			471			380	
Approach Delay, s/veh					12.9			5.0			8.4	
Approach LOS					B			A			A	

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		7.1		18.2			7.3	10.9				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		3.3		3.3			2.8	4.9				
Green Ext Time (p_c), s		0.2		2.3			0.1	1.5				

Intersection Summary												
HCM 6th Ctrl Delay			7.2									
HCM 6th LOS			A									

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	145	45	5	75	60
Future Vol, veh/h	10	145	45	5	75	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	165	51	6	85	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	292	54	0	0	57	0
Stage 1	54	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	699	1013	-	-	1547	-
Stage 1	969	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	659	1013	-	-	1547	-
Mov Cap-2 Maneuver	659	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	756	-	-	-	-	-

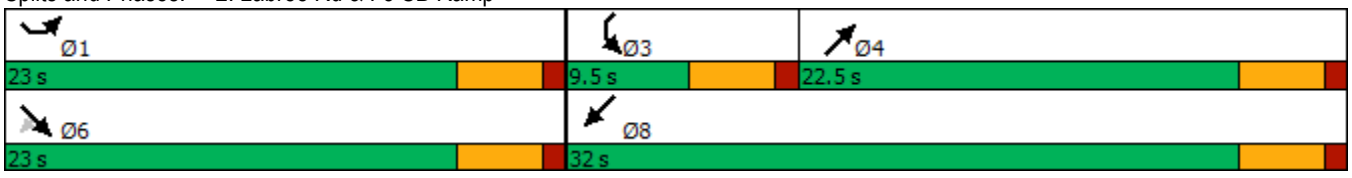
Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	4.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	979	1547	-
HCM Lane V/C Ratio	-	-	0.18	0.055	-
HCM Control Delay (s)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	275	5	70	0	0	0	0	145	30	120	50	0
Future Volume (vph)	275	5	70	0	0	0	0	145	30	120	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		450	0		0
Storage Lanes	1		1	0		0	0		3	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		640			597			821			276	
Travel Time (s)		14.5			13.6			18.7			6.3	
Turn Type	Prot	NA	Perm					NA		Prot	NA	
Protected Phases	1	6						4		3	8	
Permitted Phases			6									
Detector Phase	1	6	6					4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5					22.5		9.5	9.5	
Total Split (s)	23.0	23.0	23.0					22.5		9.5	32.0	
Total Split (%)	41.8%	41.8%	41.8%					40.9%		17.3%	58.2%	
Maximum Green (s)	18.5	18.5	18.5					18.0		5.0	27.5	
Yellow Time (s)	3.5	3.5	3.5					3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5					4.5		4.5	4.5	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Recall Mode	None	None	None					Min		Min	Min	
Walk Time (s)		7.0	7.0					7.0				
Flash Dont Walk (s)		11.0	11.0					11.0				
Pedestrian Calls (#/hr)		0	0					0				

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 38.9	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: Labree Rd & I-5 SB Ramp



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	275	5	70	0	0	0	0	145	30	120	50	0
Future Volume (veh/h)	275	5	70	0	0	0	0	145	30	120	50	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	310	0	78				0	161	33	133	56	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	642	0	286				0	954	182	603	1798	0
Arrive On Green	0.18	0.00	0.18				0.00	0.17	0.17	0.17	0.51	0.00
Sat Flow, veh/h	3563	0	1585				0	5730	1041	3456	3647	0
Grp Volume(v), veh/h	310	0	78				0	141	53	133	56	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1683	1728	1777	0
Q Serve(g_s), s	2.2	0.0	1.2				0.0	0.7	0.8	0.9	0.2	0.0
Cycle Q Clear(g_c), s	2.2	0.0	1.2				0.0	0.7	0.8	0.9	0.2	0.0
Prop In Lane	1.00		1.00				0.00		0.62	1.00		0.00
Lane Grp Cap(c), veh/h	642	0	286				0	842	294	603	1798	0
V/C Ratio(X)	0.48	0.00	0.27				0.00	0.17	0.18	0.22	0.03	0.00
Avail Cap(c_a), veh/h	2299	0	1023				0	3030	1057	603	3409	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	10.1				0.0	10.1	10.1	10.2	3.6	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.5				0.0	0.1	0.3	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.3				0.0	0.2	0.2	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	0.0	10.6				0.0	10.2	10.4	10.3	3.6	0.0
LnGrp LOS	B	A	B				A	B	B	B	A	A
Approach Vol, veh/h		388						194			189	
Approach Delay, s/veh		11.0						10.2			8.3	
Approach LOS		B						B			A	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			9.5	9.5		9.7		19.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			5.0	18.0		18.5		27.5				
Max Q Clear Time (g_c+I1), s			2.9	2.8		4.2		2.2				
Green Ext Time (p_c), s			0.1	1.0		1.2		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

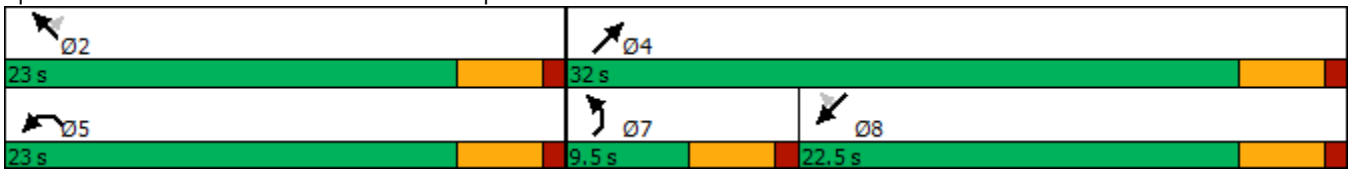
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	25	1	75	120	335	0	0	165	185
Future Volume (vph)	0	0	0	25	1	75	120	335	0	0	165	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		250	0		0	0		275
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		595			457			276			459	
Travel Time (s)		13.5			10.4			6.3			10.4	
Turn Type				Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases				5	2		7	4			8	
Permitted Phases						2						8
Detector Phase				5	2	2	7	4			8	8
Switch Phase												
Minimum Initial (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Minimum Split (s)				9.5	22.5	22.5	9.5	22.5			22.5	22.5
Total Split (s)				23.0	23.0	23.0	9.5	32.0			22.5	22.5
Total Split (%)				41.8%	41.8%	41.8%	17.3%	58.2%			40.9%	40.9%
Maximum Green (s)				18.5	18.5	18.5	5.0	27.5			18.0	18.0
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	None			Min	Min
Walk Time (s)					7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)					11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)					0	0		0			0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 37.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: Labree Rd & I-5 NB Ramp



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	25	1	75	120	335	0	0	165	185
Future Volume (veh/h)	0	0	0	25	1	75	120	335	0	0	165	185
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				29	0	85	136	381	0	0	188	210
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				384	0	171	416	1939	0	0	1622	400
Arrive On Green				0.11	0.00	0.11	0.12	0.55	0.00	0.00	0.25	0.25
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	6696	1585
Grp Volume(v), veh/h				29	0	85	136	381	0	0	188	210
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1609	1585
Q Serve(g_s), s				0.2	0.0	1.3	0.9	1.4	0.0	0.0	0.6	3.0
Cycle Q Clear(g_c), s				0.2	0.0	1.3	0.9	1.4	0.0	0.0	0.6	3.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				384	0	171	416	1939	0	0	1622	400
V/C Ratio(X)				0.08	0.00	0.50	0.33	0.20	0.00	0.00	0.12	0.53
Avail Cap(c_a), veh/h				2537	0	1129	665	3762	0	0	4458	1098
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.4	0.0	10.9	10.5	3.0	0.0	0.0	7.5	8.4
Incr Delay (d2), s/veh				0.1	0.0	2.2	0.5	0.0	0.0	0.0	0.0	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.1	0.0	0.4	0.3	0.1	0.0	0.0	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				10.5	0.0	13.1	10.9	3.1	0.0	0.0	7.5	9.4
LnGrp LOS				B	A	B	B	A	A	A	A	A
Approach Vol, veh/h					114			517			398	
Approach Delay, s/veh					12.5			5.1			8.5	
Approach LOS					B			A			A	

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		7.3		18.7			7.6	11.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		3.3		3.4			2.9	5.0				
Green Ext Time (p_c), s		0.3		2.5			0.1	1.6				

Intersection Summary		
HCM 6th Ctrl Delay	7.3	
HCM 6th LOS	A	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	50	25	5	110	40	5
Future Vol, veh/h	50	25	5	110	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	27	5	120	43	5

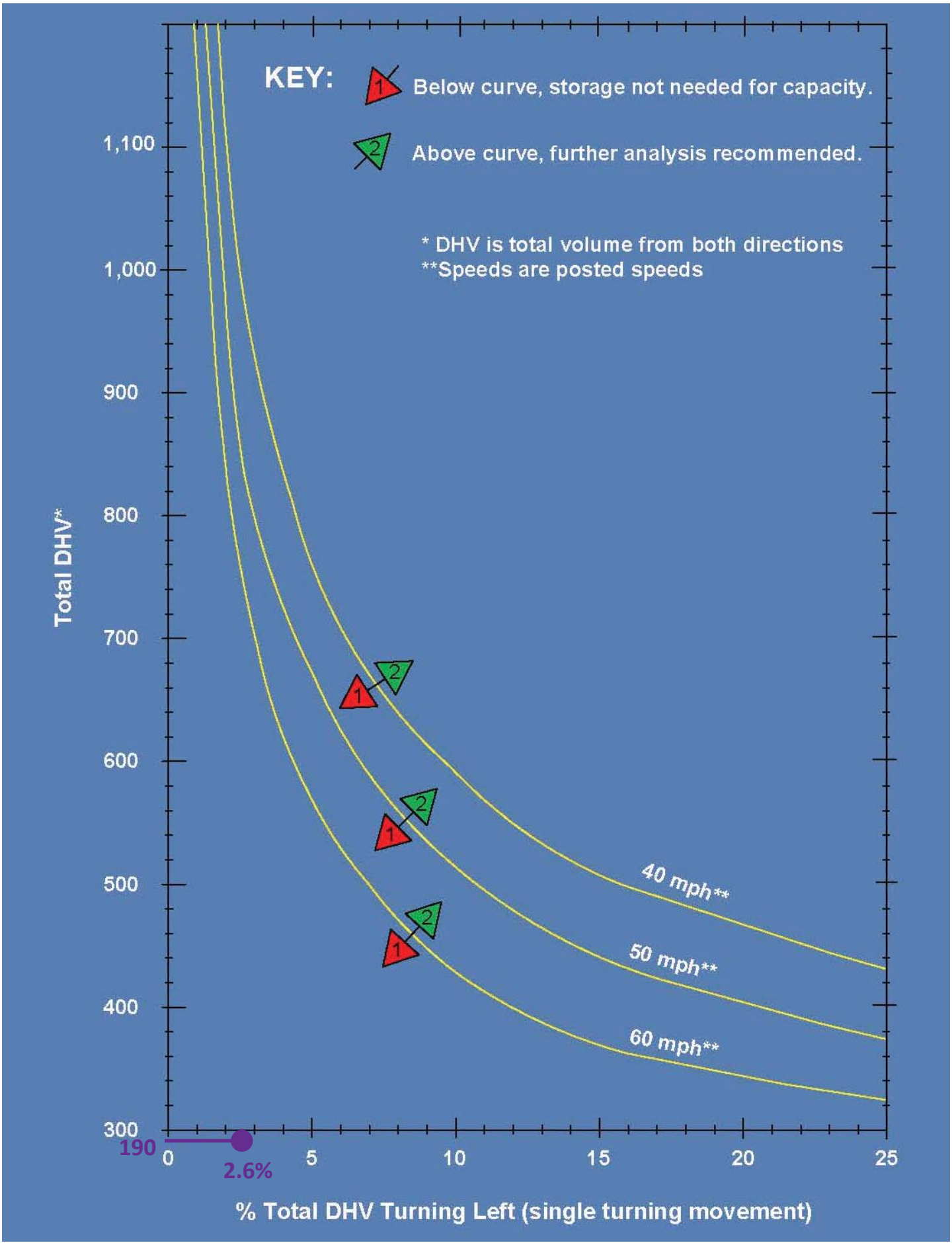
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	81	0	198	68
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1517	-	791	995
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1517	-	788	995
Mov Cap-2 Maneuver	-	-	-	-	788	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	892	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	807	1517	-	-	-
HCM Lane V/C Ratio	0.061	0.004	-	-	-
HCM Control Delay (s)	9.7	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-	-

Appendix D

Left-Turn Warrant


KEY:
1 Below curve, storage not needed for capacity.
2 Above curve, further analysis recommended.
* DHV is total volume from both directions
**Speeds are posted speeds
Total DHV*
1,100
1,000
900
800
700
600
500
400
300
40 mph**
50 mph**
60 mph**
190
2.6%
0
5
10
15
20
25
% Total DHV Turning Left (single turning movement)