Goldstream Venture Partners Development

Arlington, WA

Updated Traffic Impact Analysis

March 19, 2021

Prepared for:

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Table of Contents

Appendices

List of Figures and Tables

FINDINGS/CONCLUSIONS

This Updated Traffic Impact Analysis (TIA) has been prepared for the proposed Goldstream Venture Partners development located on the northeast corner of Smokey Point Blvd and 183rd Place NE in Arlington, WA. This is an update to the previous TIA (dated December 10, 2020) to address the City's comments dated February 3, 2021.

Project Description. Full buildout of the proposed project will include the development of 96 multifamily residential units and 6,300 square foot (SF) of commercial/retail space on a site currently occupied by six (6) single-family homes which would be removed as part of the proposed project. Vehicular access to the proposed residential component of Goldstream Venture Partners development would be provided via two (2) proposed driveways on 183rd Place NE. The proposed driveways would provide access to 131 parking spaces for residential use. Vehicular access to the proposed commercial/retail component of the development would be provided via 35th Ave NE which would provide access to ten (10) on-street parking spaces and nine (9) on-site retail parking spaces. The project would be developed in two phases. Phase I would include the development of the residential component of the project and Phase II would include the commercial component of the project. For this analysis, a horizon year of 2022 was used with traffic generated by the full buildout of the project.

Trip Generation. The proposed development is anticipated to generate 621 net new weekday trips per day, with 35 net new trips occurring during the weekday AM peak hour (11 entering, 24 exiting) and 53 net new trips occurring during the weekday PM peak hour (30 entering, 23 exiting). The trip generation estimates include reductions to account for retail pass-by trips and for trips generated by the six (6) existing single-family homes to be removed. These trip reductions were made based on methodologies described in the ITE *Trip Generation Handbook,* 3rd Edition, and the ITE *Trip Generation Manual,* 10th Edition.

Intersection Level of Service (LOS). Weekday PM peak hour LOS analyses were conducted at five (5) study intersections in the vicinity of the proposed project. Four of the study intersections are anticipated to operate at LOS D or better during the weekday PM peak hour in 2022 with or without the proposed project. The Smokey Point Blvd/172nd Street NE (SR 531) intersection is anticipated to operate at LOS E during the weekday PM peak hour in 2022 with or without the proposed project. It should be noted that this intersection is already operating at LOS E during the weekday PM peak hour in 2020. Further, the City's 6-Year TIP includes a study to evaluate the operations of this intersection to improve traffic flow.

Mitigation.

Off-Site Improvements. Based on the results of the LOS analysis shown in this report, all study intersections are expected to operate at acceptable levels (LOS D or better) with the full buildout of the proposed Goldstream Venture Partners development, with the exception of the Smokey Point Blvd/172nd Street NE (SR 531) intersection. This intersection is currently operating at LOS E during the weekday PM peak hour in year 2020 and is anticipated to remain LOS E in year 2022 with the Goldstream Venture Partners development. Therefore, no off-site traffic mitigation is proposed.

Traffic Impact Fees. The proposed project is required to pay traffic impact fees to the City of Arlington, Snohomish County, and WSDOT based on the following:

- City of Arlington: The current adopted traffic impact fee rate is $3,355 per new PM peak hour trip. The applicant would request that the final traffic impact fee calculation assessed include credit for the existing uses to be removed with this project.

- Snohomish County: The City of Arlington and Snohomish County have adopted an interlocal agreement whereby developments in Arlington must assess potential mitigation for impacts on Snohomish County roadway facilities. The Goldstream Venture Partners Development project is located in TSA A and is not expected to impact any TSA A projects included in the Snohomish County's *Transportation Needs Report*. Therefore, the Goldstream Venture Partners development would not be required to pay traffic mitigation fees to Snohomish County.

- WSDOT: The current adopted traffic impact fee rate is $36 per new daily trip (ADT). The applicant would request that the final traffic impact fee calculation assessed include credit for the existing uses to be removed with this project.

INTRODUCTION

The information provided in this Traffic Impact Analysis (TIA) is being submitted to the City of Arlington for the proposed Goldstream Venture Partners development. The information provided herein includes the applicable elements included in the City of Arlington's *Traffic Analysis Procedures & Checklist*. Information in this report is provided for each of the following:

I. Project Description
II. Trip Generation
III. Trip Distribution
IV. Traffic Volumes
V. Level of Service
VI. Mitigation Recommendations

I. PROJECT DESCRIPTION

The proposed Goldstream Venture Partners development is located on the northeast corner of Smokey Point Blvd and 183rd Place NE in Arlington, WA. A project vicinity map is provided in Figure 1. Full buildout of the proposed project would develop up to 96 multifamily residential units and up to 6,300 square foot (SF) of commercial/retail space on a site currently occupied by six (6) single-family homes which would be removed as part of the proposed project.

The primary roadways serving the proposed site include Smokey Point Boulevard, 183rd Place NE, 35th Ave NE, and 172nd Street NE (SR 531). Vehicular access to the proposed residential component of the project would be provided via two (2) proposed driveways on 183rd Place NE. The proposed driveways would provide access to 131 parking stalls for residential use. Vehicular access to the proposed commercial/retail component of the development would be provided via 35th Ave NE which would be converted into a one-way northbound street along the project frontage and provide access to ten (10) on-street parking stalls and nine (9) on-site retail parking stalls. The project would be developed in two phases. Phase I would include the development of the residential component of the project and Phase II would include the commercial component of the project. For this analysis, a horizon year of 2022 was used with traffic generated by the full buildout of the project. A preliminary site plan is shown in Figure 2.

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NOT TO SCALE

Figure 1: Project Site Vicinity

Figure 2: Preliminary Site Plan

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II. TRIP GENERATION

The trip generation estimates for the proposed project were based on methodology documented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual,* 10th Edition for Land Use Codes (LUC) 221 (Multifamily Residential (Mid-Rise)) and 820 (Shopping Center).

Reductions to the retail trip generation estimates were made to account for pass-by trips. Pass-by trips are trips that are already on the adjacent roadways and stop at the proposed use on the way to their primary destination (i.e. on the way from work to home). These trips are not new to the road network but are accounted for at the project site driveways. The pass-by trip reductions were based on studies in the ITE *Trip Generation Handbook,* 3rd Edition. In addition, reductions to the trip generation estimates were made to account for trips generated by the six (6) existing single-family homes to be removed. This trip reduction was estimated using the average trip rate for LUC 210 (Single-Family Homes) from the ITE *Trip Generation Manual,* 10th Edition.

The resulting net new weekday daily, AM peak hour, and PM peak hour trip generation estimates for the proposed project are shown below in Table 1. The detailed trip generation calculations are included in Appendix A.

Table 1
Trip Generation Summary

	Net New Trips Generated		
Time Period	In	Out	Total
Weekday Daily	311	310	621
Weekday AM Peak Hour	11	24	35
Weekday PM Peak Hour	30	23	53

As shown in Table 1, the proposed Goldstream Venture Partners development is estimated to generate 621 net new weekday daily trips, with 35 net new trips occurring during the weekday AM peak hour (11 entering, 24 exiting), and 53 net new trips occurring during the weekday PM peak hour (30 entering, 23 exiting).

III. TRIP DISTRIBUTION

The distribution of project-generated vehicle trips to/from the site was estimated based on existing and anticipated travel patterns in the vicinity of the site and the location of retail and employment centers in the vicinity. The peak hour project-generated trips were distributed to the adjacent street system as summarized in Table 2 which was approved by the City of Arlington in scoping discussions and correspondence.

Based on this distribution, intersections that were generally impacted by 10 or more peak hour project trips were selected as study intersections. Per discussions with City of Arlington staff, the following five (5) locations were determined as study intersections:

1. Smokey Point Blvd / 188th Street NE
2. Smokey Point Blvd / 183rd Place NE
3. Smokey Point Blvd / 172nd Street NE (SR 531)
4. I-5 NB Ramps / 172nd Street NE (SR 531)
5. I-5 SB Ramps / 172nd Street NE (SR 531)

Table 2
Peak Hour Project Trip Distribution

Route (Direction)	Trip Distribution (%)
I-5 (north)	15%
I-5 (south)	30%
SR 531 (west)	15%
SR 531 (east)	15%
Smokey Point Blvd (south)	15%
Smokey Point Blvd (north)	10%
TOTAL	**100%**

Figure 3 illustrates the resulting distribution and assignment of weekday PM peak hour project trips through the study intersections. *It should be noted that no Snohomish key intersections would be impacted by 3 or more directional project trips during the weekday AM or PM peak hours.*

IV. TRAFFIC VOLUMES

Existing Traffic Volumes

Existing PM peak hour traffic volumes at the five (5) study intersections were collected by All Traffic Data in September and October 2020. The PM peak hour represents the highest one-hour time period between 4:00 and 6:00 PM.

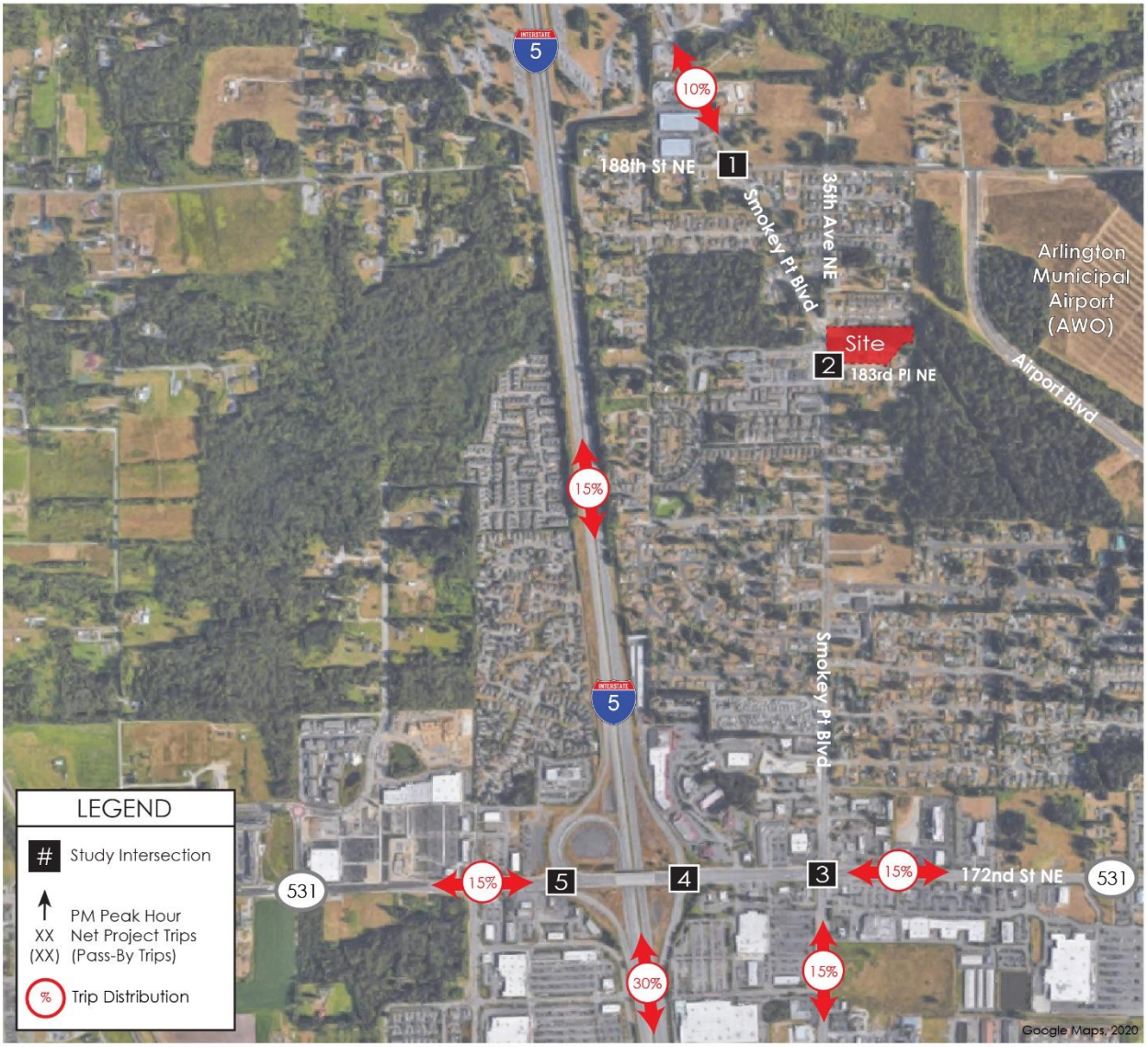
To assess the impact of the ongoing COVID-19 pandemic on traffic in the area, the 2020 PM peak hour traffic volumes were compared against historic counts provided by the City and WSDOT. Based on our review, the PM peak hour traffic volumes collected in October 2020 do not require any adjustments for COVID-19. However, PM peak hour traffic volumes collected in September 2020 at the I-5 Northbound Ramps/SR 531 were found to be lower than normal conditions which may be attributed to the poor air quality from wildfires in the region occurring in September 2020 which could have impacted travel patterns. To account for this, the PM peak hour traffic volumes collected in September 2020 at the I-5 Northbound Ramps/SR 531 were increased to balance with the October 2020 counts at adjacent intersections.

Figure 4 illustrates the resulting 2020 weekday PM peak hour traffic volumes at the study intersections. The peak hour traffic count sheets are included in Appendix B.

Future Traffic Volumes

A horizon year of 2022 was used for this traffic analysis. The future year 2022 No Action (without project) PM peak hour traffic volumes at the study intersections were estimated by applying a five (5) percent annual growth rate to the existing year 2020 peak hour traffic volumes. The five (5) percent annual growth rate was confirmed by the City of Arlington as part of the project scoping and is also intended to account for additional traffic from future pipeline developments in the project vicinity. The future 2022 No Action PM peak hour traffic volumes at the study intersections are shown in Figure 5.

Adding the trip assignment from the proposed project to the future 2020 No Action PM peak hour volumes results in the 2022 With-Project PM peak hour traffic volumes at the study intersections. The 2022 With-Project weekday PM peak hour traffic volumes at the study intersections are illustrated in Figure 6.



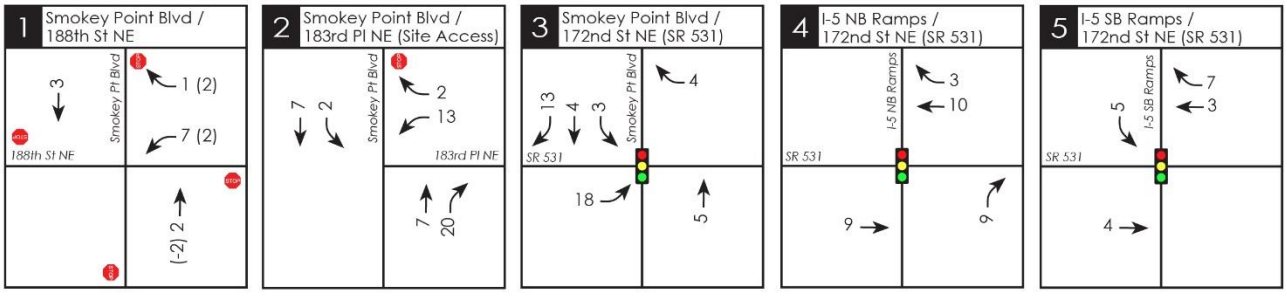


Figure 3: Weekday PM Peak Hour Project Trip Distribution and Assignment

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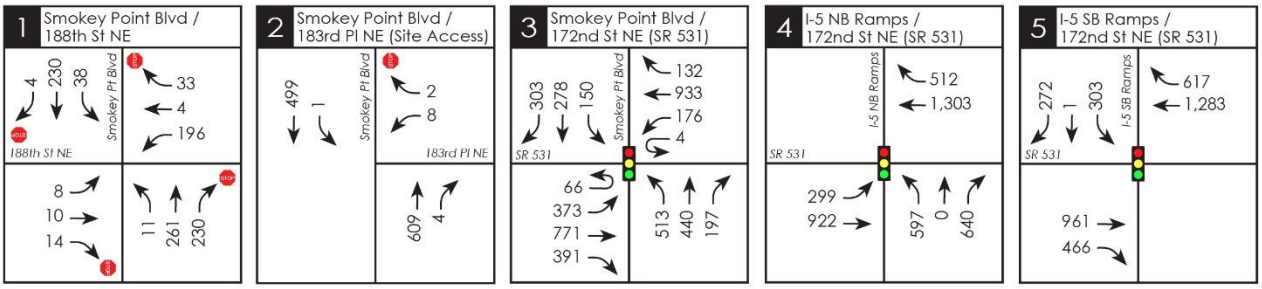

Figure 4: 2020 Existing Weekday PM Peak Hour Traffic Volumes

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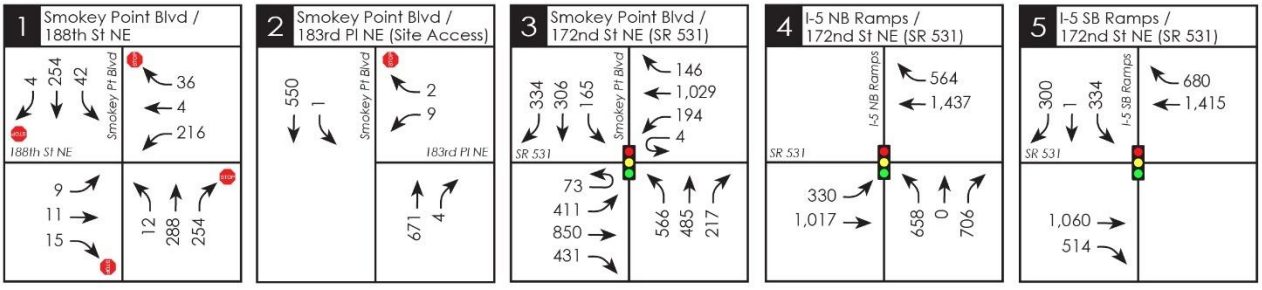

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Figure 5: 2022 No Action Weekday PM Peak Hour Traffic Volumes

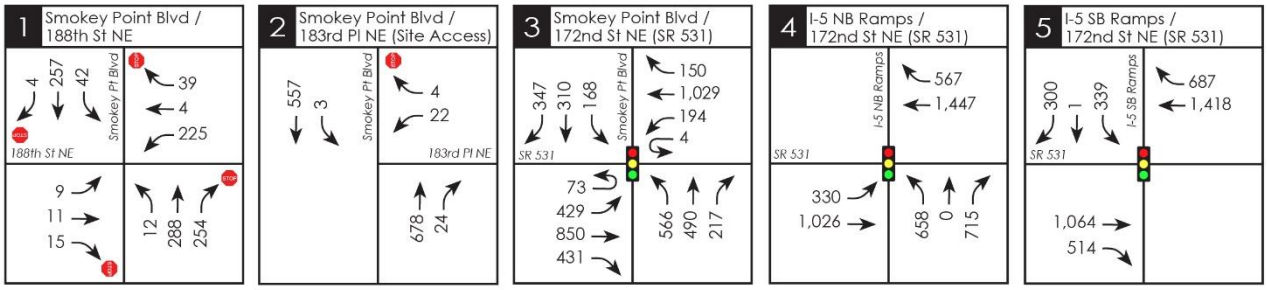

Figure 6: 2022 With Project Weekday PM Peak Hour Traffic Volumes

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V. LEVEL OF SERVICE

Existing Level of Service

Based on scoping discussions with the City of Arlington, existing weekday PM peak hour level of service (LOS) analyses were conducted at the following five (5) study intersections (i.e. intersections impacted by 10 or more peak hour project trips):

1. Smokey Point Blvd / 188th Street NE
2. Smokey Point Blvd / 183rd Place NE
3. Smokey Point Blvd / 172nd Street NE (SR 531)
4. I-5 NB Ramps / 172nd Street NE (SR 531)
5. I-5 SB Ramps / 172nd Street NE (SR 531)

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table 3 outlines the current HCM 6th Edition LOS criteria for signalized and unsignalized intersections based on these methodologies.

Table 3
LOS Criteria for Signalized and Stop Controlled Intersections

SIGNALIZED INTERSECTIONS			UNSIGNALIZED INTERSECTIONS		
	LOS by Volume-to Capacity (V/C) Ratio[1]			LOS by Volume-to Capacity (V/C) Ratio[2]	
Control Delay (sec/veh)	≤ 1.0	> 1.0	Control Delay (sec/veh)	≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

Source: Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.

[1] For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.
[2] For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections and roundabouts, LOS is solely defined by control delay.

LOS calculations were based on methodology and procedures outlined in the 6th Edition of the *Highway Capacity Manual* using *Synchro 10.3* traffic analysis software. The 2020 existing weekday PM peak hour LOS analysis results for the study intersections are summarized in Table 4. The 2020 existing LOS worksheets are included in Appendix C.

Table 4
Year 2020 Existing Peak Hour LOS Summary at Study Intersections

	2020 Existing PM Peak Hour	
Study Intersection	LOS[1]	Delay (sec/veh)
Stop-Controlled Intersections:		
1. Smokey Point Blvd / 188th Street NE	C	17.9
2. Smokey Point Blvd / 183rd Place NE		
Westbound Shared Left-Right	C	20.6
Southbound Left Turn	A	8.8
Signalized Intersections:		
3. Smokey Point Blvd / 172nd Street NE (SR 531)	E	58.5
4. I-5 NB Ramps / 172nd Street NE (SR 531)	C	22.3
5. I-5 SB Ramps / 172nd Street NE (SR 531)	A	9.0

1. Based on HCM 6th Edition methodologies

As shown in Table 4, all signalized intersections as well as turn movements at the stop-controlled intersections operate at LOS C or better during the weekday PM peak hour under existing conditions with one exception: the Smokey Point Blvd/172nd Street NE (SR 531) intersection currently operates at LOS E during the weekday PM peak hour.

The currently adopted level of service standards from the City of Arlington's *2017 Comprehensive Plan* (Chapter 8: Transportation Element) is LOS D for all city arterials and highways of statewide significance.

Future Level of Service

Future year weekday PM peak hour Level of Service (LOS) analyses were conducted at the study intersections for year 2022 No Action (without project) and With-Project conditions. While there are planned improvements on Smokey Point Blvd and 183rd Pl NE as described in the City's *2020-2040 Transportation Improvement Program*, the completion of these improvements is not expected in year 2022. Thus, as confirmed by City staff, the roadway network assumed in the year 2022 LOS analyses was based on existing intersection geometry with one exception: 35th Avenue NE along the project frontage was analyzed as a one-way northbound street in order to accommodate future on-street parking for the proposed commercial component of the project. The signalized intersections along SR 531 were analyzed based on existing signal timing plans provided by WSDOT and the WSDOT Synchro & SimTraffic Protocol – August 2018.

The weekday PM peak hour LOS results at the study intersections for 2022 No Action and With-Project conditions are summarized in Table 5. Detailed LOS worksheets are included in Appendix C.

Table 5
Year 2022 PM Peak Hour LOS Summary at Study Intersections

Study Intersection	2022 No Action LOS[1]	2022 No Action Delay (sec/veh)	2022 With-Project LOS[1]	2022 With-Project Delay (sec/veh)
PM PEAK HOUR				
Stop-Controlled Intersections:				
1. Smokey Point Blvd / 188th Street NE	C	24.8	D	27.5
2. Smokey Point Blvd / 183rd Pl NE (Site Access)				
Westbound Shared Left-Right	C	23.8	D	26.8
Southbound Left Turn	A	9.0	A	9.1
Signalized Intersections:				
3. Smokey Point Blvd / 172nd Street NE (SR 531)	E	68.4	E	71.7
4. I-5 NB Ramps / 172nd Street NE (SR 531)	C	25.9	C	26.0
5. I-5 SB Ramps / 172nd Street NE (SR 531)	A	9.1	A	9.2

1. Based on HCM 6th Edition methodologies

As shown in Table 5, four of the study intersections are anticipated to operate at LOS D or better during the weekday PM peak hour in 2022 with or without the proposed project. The Smokey Point Blvd/172nd Street NE (SR 531) intersection is anticipated to operate at LOS E during the weekday PM peak hour in 2022 with or without the proposed project. It should be noted this intersection is already operating at LOS E during the weekday PM peak hour in 2020 (see Table 4). Further, the City's 6-Year TIP includes a study to evaluate the operations of this intersection to improve traffic flow.

VI. MITIGATION RECOMMENDATIONS

The following measures have been identified to mitigate the transportation impacts of the proposed Goldstream Venture Partners development.

Off-Site Improvements

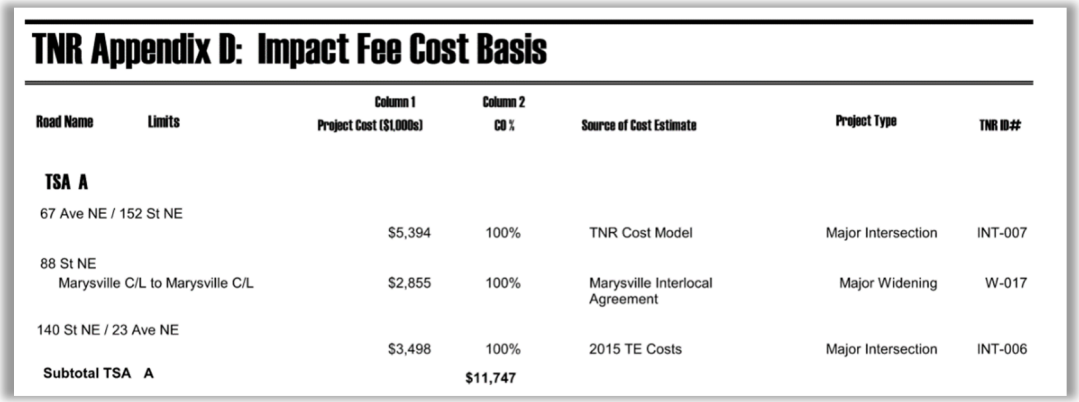
Based on the results of the LOS analysis shown in this report, all study intersections are expected to operate at acceptable levels (LOS D or better) with the proposed Goldstream Venture Partners development, with the exception of the Smokey Point Blvd/172nd Street NE (SR 531) intersection. This intersection is currently operating at LOS E during the weekday PM peak hour in the year 2020 and is anticipated to remain LOS E in year 2022 with the Goldstream Venture Partners development. Therefore, no off-site traffic mitigation is proposed. *It should be noted that the City's 2020-2040 TIP includes a study to evaluate the operations of the Smokey Point Blvd/172nd Street NE (SR 531).*

City of Arlington Mitigation

The City of Arlington requires payment of transportation impact fees to help fund planned roadway improvements throughout the City. The City's currently adopted traffic impact fee rate is $3,355 per new PM peak hour trip. The applicant requests that the final traffic impact fee calculation assessed will include credit for the existing uses to be removed with this project.

Snohomish County

The City of Arlington and Snohomish County have adopted an interlocal agreement whereby developments in Arlington must assess potential mitigation for impacts on Snohomish County roadway facilities. The Goldstream Venture Partners Development project is located in TSA A and is not expected to impact any TSA A projects included in the Snohomish County's *Transportation Needs Report* (see snip below).



TNR Appendix D: Impact Fee Cost Basis

Road Name	Limits	Column 1 Project Cost ($1,000s)	Column 2 C0 %	Source of Cost Estimate	Project Type	TNR ID##
TSA A						
67 Ave NE / 152 St NE		$5,394	100%	TNR Cost Model	Major Intersection	INT-007
88 St NE	Marysville C/L to Marysville C/L	$2,855	100%	Marysville Interlocal Agreement	Major Widening	W-017
140 St NE / 23 Ave NE		$3,498	100%	2015 TE Costs	Major Intersection	INT-006
Subtotal TSA A			**$11,747**			

Therefore, the Goldstream Venture Partners development would not be required to pay traffic mitigation fees to Snohomish County.

WSDOT

A traffic impact fee payment is required to WSDOT based on the interlocal agreement between WSDOT and Snohomish County. The current standard payment rate based on the *Short Version Traffic Mitigation Offer to WSDOT*, is $36 per new ADT for the proposed project. The applicant requests that the final traffic impact fee calculation assessed will include credit for the existing uses to be removed with this project.

Appendix A

Trip Generation Calculations

Goldstream Venture Partners Development
Trip Generation Summary

Land Use	Units [1]	ITE LUC [2]	Directional Distribution [2] In	Directional Distribution [2] Out	Trip Rate [2]	Trips Generated In	Trips Generated Out	Trips Generated Total
Daily								
Proposed Use:								
Multifamily Residential	96 DU	221	50%	50%	EQN	261	260	521
Retail	6,300 SF	820	50%	50%	37.75	119	119	238
Pass-By Trips [3]					*34%*	*-40*	*-41*	*-81*
Primary New Trips						79	78	157
					Subtotal =	340	338	678
Less Existing Use:								
Single-Family Homes	6 DU	210	50%	50%	9.44	-29	-28	-57
					Subtotal =	-29	-28	-57
					Net New Daily Trips Generated =	**311**	**310**	**621**
AM Peak Hour								
Proposed Use:								
Multifamily Residential	96 DU	221	26%	74%	0.36	9	26	35
Retail	6,300 SF	820	62%	38%	0.94	4	2	6
Pass-By Trips [3]					*34%*	*-1*	*-1*	*-2*
Primary New Trips						3	1	4
					Subtotal =	12	27	39
Less Existing Use:								
Single-Family Homes	6 DU	210	25%	75%	0.74	-1	-3	-4
					Subtotal =	-1	-3	-4
					Net New AM Peak Hour Trips Generated =	**11**	**24**	**35**
PM Peak Hour								
Proposed Use:								
Multifamily Residential	96 DU	221	61%	39%	EQN	26	17	43
Retail	6,300 SF	820	48%	52%	3.81	12	12	24
Pass-By Trips [3]					*34%*	*-4*	*-4*	*-8*
Primary New Trips						8	8	16
					Subtotal =	34	25	59
Less Existing Use:								
Single-Family Homes	6 DU	210	63%	37%	0.99	-4	-2	-6
					Subtotal =	-4	-2	-6
					Net New PM Peak Hour Trips Generated =	**30**	**23**	**53**

Notes:

[1] DU = Dwelling Units; SF = Square Feet.

[2] Land Use Code, trip rates, and directional splits from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* , 10th Edition, 2017.

[3] Pass-By Rates for Retail (LUC 820) from ITE *Trip Generation Handbook* , 3rd Edition, 2017.

Appendix B

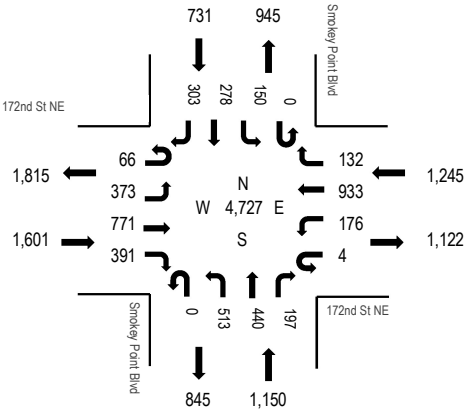
2020 Existing Peak Hour Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 Smokey Point Blvd & 172nd St NE PM
Date: Wednesday, October 7, 2020
Peak Hour: 04:15 PM - 05:15 PM

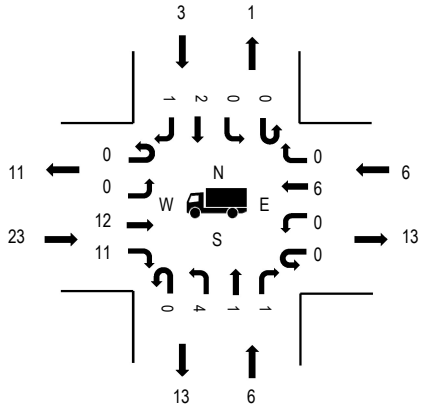
Peak Hour

Motorized Vehicles

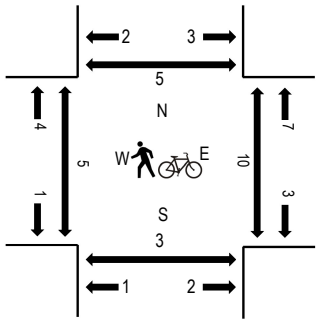


	HV%	PHF
EB	1.4%	0.94
WB	0.5%	0.87
NB	0.5%	0.87
SB	0.4%	0.84
All	0.8%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	172nd St NE Eastbound				172nd St NE Westbound				Smokey Point Blvd Northbound				Smokey Point Blvd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	21	92	187	92	1	41	186	29	0	115	111	55	0	38	58	73	1,099	4,689
4:15 PM	15	97	206	95	0	45	265	49	0	105	85	35	0	41	59	77	1,174	4,727
4:30 PM	14	84	189	103	1	46	203	31	0	143	133	55	0	33	92	93	1,220	4,682
4:45 PM	12	104	205	105	3	39	248	25	0	130	91	56	0	37	66	75	1,196	4,448
5:00 PM	25	88	171	88	0	46	217	27	0	135	131	51	0	39	61	58	1,137	4,154
5:15 PM	11	96	199	80	0	42	211	24	0	151	116	54	0	37	49	59	1,129	
5:30 PM	17	80	215	60	0	35	166	34	0	112	68	45	0	33	47	74	986	
5:45 PM	10	88	168	68	0	29	132	30	0	124	83	33	0	34	48	55	902	
Count Total	125	729	1,540	691	5	323	1,628	249	0	1,015	818	384	0	292	480	564	8,843	
Peak Hour	66	373	771	391	4	176	933	132	0	513	440	197	0	150	278	303	4,727	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	2	3	0	10	4:00 PM	4	4	5	1	14
4:15 PM	4	0	1	1	6	4:15 PM	4	1	3	0	8
4:30 PM	7	3	3	1	14	4:30 PM	1	0	3	2	6
4:45 PM	7	1	2	0	10	4:45 PM	0	0	1	1	2
5:00 PM	5	2	0	1	8	5:00 PM	0	2	3	2	7
5:15 PM	3	0	2	0	5	5:15 PM	0	2	3	0	5
5:30 PM	2	0	0	0	2	5:30 PM	1	2	1	0	4
5:45 PM	0	1	1	0	2	5:45 PM	1	2	1	0	4
Count Total	33	9	12	3	57	Count Total	11	13	20	6	50
Peak Hour	23	6	6	3	38	Peak Hour	5	3	10	5	23

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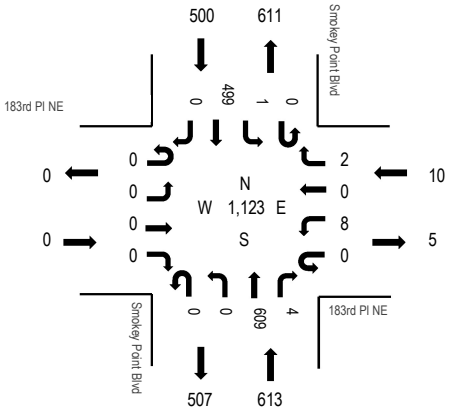
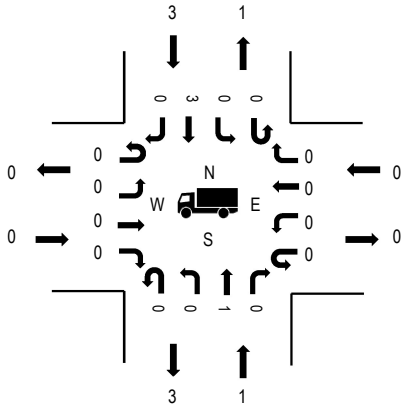
Location: 2 Smokey Point Blvd & 183rd Pl NE PM
Date: Wednesday, October 7, 2020
Peak Hour: 04:00 PM - 05:00 PM

Peak Hour

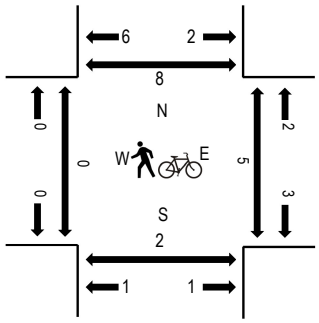
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.83
NB	0.2%	0.96
SB	0.6%	0.87
All	0.4%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	183rd Pl NE Eastbound				183rd Pl NE Westbound				Smokey Point Blvd Northbound				Smokey Point Blvd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	3	0	0	0	0	159	0	0	0	118	0	280	1,123
4:15 PM	0	0	0	0	0	2	0	1	0	0	159	1	0	1	121	0	285	1,069
4:30 PM	0	0	0	0	0	1	0	0	0	0	146	2	0	0	143	0	292	1,049
4:45 PM	0	0	0	0	0	2	0	1	0	0	145	1	0	0	117	0	266	972
5:00 PM	0	0	0	0	0	0	0	1	0	0	138	0	0	2	85	0	226	936
5:15 PM	0	0	0	0	0	1	0	1	0	0	159	1	0	0	103	0	265	
5:30 PM	0	0	0	0	0	2	0	0	0	0	125	2	0	1	85	0	215	
5:45 PM	0	0	0	0	0	0	0	1	0	0	133	4	0	0	92	0	230	
Count Total	0	0	0	0	0	11	0	5	0	0	1,164	11	0	4	864	0	2,059	
Peak Hour	0	0	0	0	0	8	0	2	0	0	609	4	0	1	499	0	1,123	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	2	0	2
4:15 PM	0	1	0	1	2	4:15 PM	0	1	1	5	7
4:30 PM	0	0	0	1	1	4:30 PM	0	1	2	3	6
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	2	2
5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	1	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	1	0	3	4	Count Total	0	2	7	11	20
Peak Hour	0	1	0	3	4	Peak Hour	0	2	5	8	15

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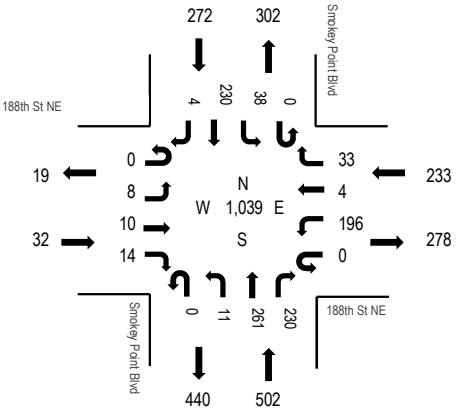
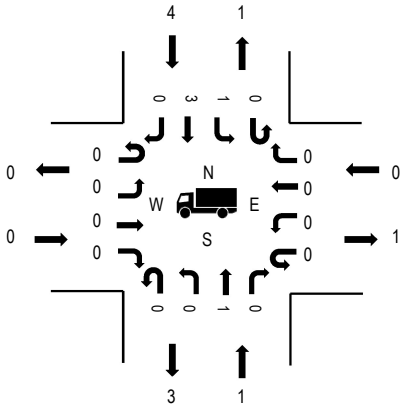
Location: 3 Smokey Point Blvd & 188th St NE PM
Date: Wednesday, October 7, 2020
Peak Hour: 04:00 PM - 05:00 PM

Peak Hour

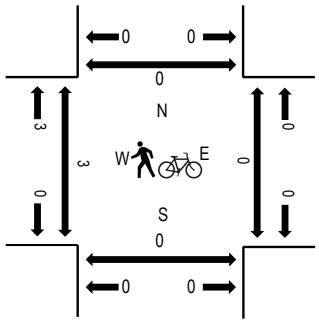
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.67
WB	0.0%	0.84
NB	0.2%	0.97
SB	1.5%	0.84
All	0.5%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	188th St NE Eastbound				188th St NE Westbound				Smokey Point Blvd Northbound				Smokey Point Blvd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	4	7	0	40	1	8	0	5	57	58	0	8	51	1	241	1,039
4:15 PM	0	3	3	1	0	51	0	12	0	2	68	60	0	5	63	2	270	1,020
4:30 PM	0	1	1	2	0	63	0	6	0	3	70	56	0	14	66	1	283	992
4:45 PM	0	3	2	4	0	42	3	7	0	1	66	56	0	11	50	0	245	922
5:00 PM	0	3	1	5	0	33	1	8	0	2	61	48	0	17	41	2	222	898
5:15 PM	0	1	0	1	0	43	0	13	0	4	60	58	0	6	55	1	242	
5:30 PM	0	2	0	4	0	39	0	12	0	0	52	50	0	19	34	1	213	
5:45 PM	0	2	1	1	0	31	1	8	0	1	58	53	0	15	49	1	221	
Count Total	0	16	12	25	0	342	6	74	0	18	492	439	0	95	409	9	1,937	
Peak Hour	0	8	10	14	0	196	4	33	0	11	261	230	0	38	230	4	1,039	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	1	0	0	0	1
4:15 PM	0	1	0	1	2	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	2	2	4:30 PM	2	0	0	0	2
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	2	0	2	4
5:15 PM	0	0	0	0	0	5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	1	0	4	5	Count Total	3	3	0	2	8
Peak Hour	0	1	0	4	5	Peak Hour	3	0	0	0	3

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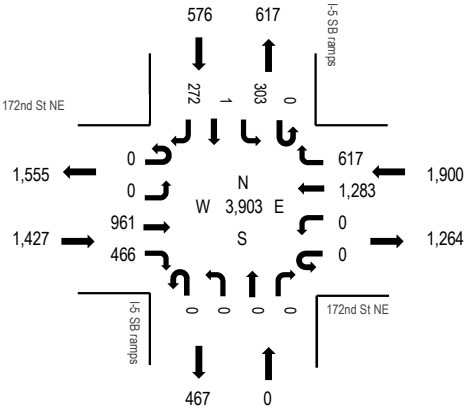
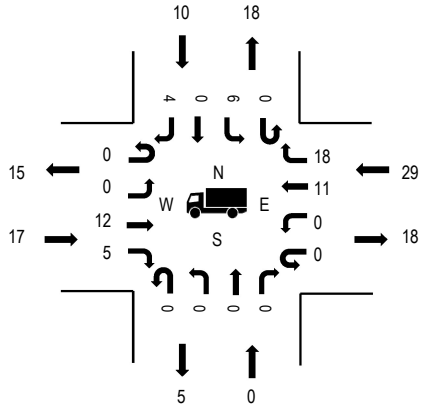
Location: 4 I-5 SB ramps & 172nd St NE PM
Date: Wednesday, October 7, 2020
Peak Hour: 04:00 PM - 05:00 PM

Peak Hour

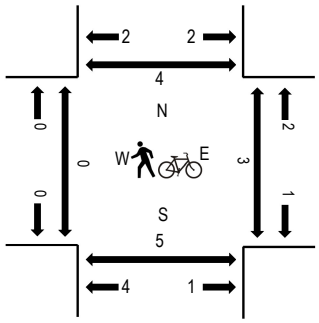
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	1.2%	0.88
WB	1.5%	0.92
NB	0.0%	0.00
SB	1.7%	0.88
All	1.4%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	172nd St NE Eastbound				172nd St NE Westbound				I-5 SB ramps Northbound				I-5 SB ramps Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	278	126	0	0	291	148	0	0	0	0	0	65	0	57	965	3,903
4:15 PM	0	0	224	106	0	0	308	156	0	0	0	0	0	74	0	64	932	3,852
4:30 PM	0	0	239	118	0	0	352	165	0	0	0	0	0	81	1	71	1,027	3,885
4:45 PM	0	0	220	116	0	0	332	148	0	0	0	0	0	83	0	80	979	3,788
5:00 PM	0	0	233	118	0	0	283	143	0	0	0	0	0	76	0	61	914	3,607
5:15 PM	0	0	225	115	0	0	357	126	0	0	0	0	0	81	0	61	965	
5:30 PM	0	0	222	113	0	0	323	125	0	0	0	0	0	59	0	88	930	
5:45 PM	0	0	205	95	0	0	268	95	0	0	0	0	0	65	0	70	798	
Count Total	0	0	1,846	907	0	0	2,514	1,106	0	0	0	0	0	584	1	552	7,510	
Peak Hour	0	0	961	466	0	0	1,283	617	0	0	0	0	0	303	1	272	3,903	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	0	14	2	22	4:00 PM	0	2	0	0	2
4:15 PM	6	0	3	3	12	4:15 PM	0	1	0	1	2
4:30 PM	2	0	4	2	8	4:30 PM	0	0	1	2	3
4:45 PM	3	0	8	3	14	4:45 PM	0	2	2	1	5
5:00 PM	4	0	2	1	7	5:00 PM	0	1	0	0	1
5:15 PM	6	0	5	3	14	5:15 PM	1	3	0	1	5
5:30 PM	3	0	7	1	11	5:30 PM	0	3	0	0	3
5:45 PM	0	0	2	2	4	5:45 PM	0	3	0	0	3
Count Total	30	0	45	17	92	Count Total	1	15	3	5	24
Peak Hour	17	0	29	10	56	Peak Hour	0	5	3	4	12

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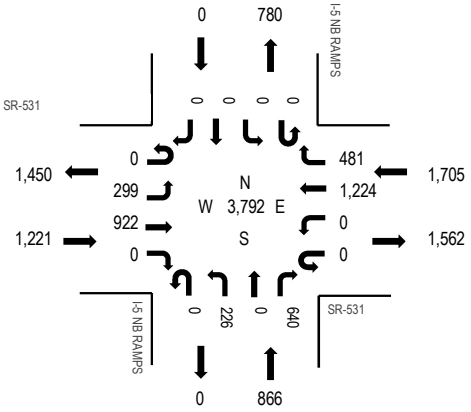
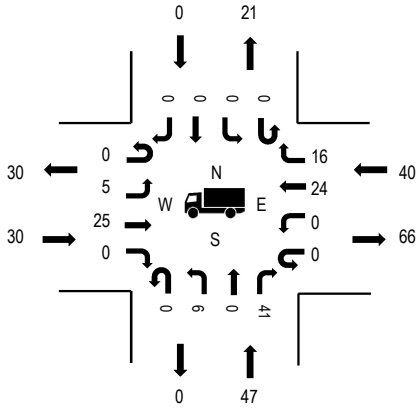
Location: 1 I-5 NB RAMPS & SR-531 PM
Date: Tuesday, September 15, 2020
Peak Hour: 04:00 PM - 05:00 PM

Peak Hour

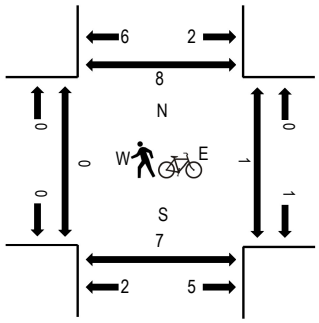
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	2.5%	0.95
WB	2.3%	0.92
NB	5.4%	0.95
SB	0.0%	0.00
All	3.1%	0.99

Traffic Counts - Motorized Vehicles

Interval Start Time	SR-531 Eastbound				SR-531 Westbound				I-5 NB RAMPS Northbound				I-5 NB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	67	252	0	0	0	291	122	0	58	0	152	0	0	0	0	942	3,792
4:15 PM	0	82	241	0	0	0	300	114	0	61	0	157	0	0	0	0	955	3,689
4:30 PM	0	77	199	0	0	0	331	134	0	42	0	167	0	0	0	0	950	3,691
4:45 PM	0	73	230	0	0	0	302	111	0	65	0	164	0	0	0	0	945	3,626
5:00 PM	0	58	219	0	0	0	244	111	0	62	2	143	0	0	0	0	839	3,517
5:15 PM	0	86	189	0	0	0	303	107	0	73	0	199	0	0	0	0	957	
5:30 PM	0	67	195	0	0	0	292	104	0	77	0	150	0	0	0	0	885	
5:45 PM	0	61	178	0	0	0	292	91	0	64	0	150	0	0	0	0	836	
Count Total	0	571	1,703	0	0	0	2,355	894	0	502	2	1,282	0	0	0	0	7,309	
Peak Hour	0	299	922	0	0	0	1,224	481	0	226	0	640	0	0	0	0	3,792	

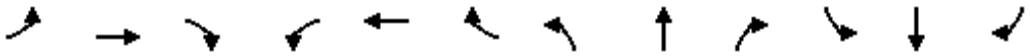
Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	13	7	10	0	30	4:00 PM	0	1	1	3	5
4:15 PM	3	13	12	0	28	4:15 PM	0	4	0	2	6
4:30 PM	5	9	8	0	22	4:30 PM	0	1	0	0	1
4:45 PM	9	18	10	0	37	4:45 PM	0	1	0	3	4
5:00 PM	6	17	6	0	29	5:00 PM	0	1	0	1	2
5:15 PM	6	11	5	0	22	5:15 PM	0	1	1	0	2
5:30 PM	5	7	7	0	19	5:30 PM	0	1	0	0	1
5:45 PM	3	8	7	0	18	5:45 PM	0	1	0	0	1
Count Total	50	90	65	0	205	Count Total	0	11	2	9	22
Peak Hour	30	47	40	0	117	Peak Hour	0	7	1	8	16

Appendix C

Level of Service (LOS) Calculations

2020 Existing PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	10	14	196	4	33	11	261	230	38	230	4
Future Volume (vph)	8	10	14	196	4	33	11	261	230	38	230	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		333			324			1539			380	
Travel Time (s)		9.1			6.3			30.0			7.4	
Confl. Peds. (#/hr)							3					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	10	14	196	4	33	11	261	230	38	230	4
Future Vol, veh/h	8	10	14	196	4	33	11	261	230	38	230	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	3	1	0
Mvmt Flow	9	11	15	213	4	36	12	284	250	41	250	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	14	22.5	13.7
HCM LOS	A	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	84%	14%
Vol Thru, %	52%	31%	2%	85%
Vol Right, %	46%	44%	14%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	502	32	233	272
LT Vol	11	8	196	38
Through Vol	261	10	4	230
RT Vol	230	14	33	4
Lane Flow Rate	546	35	253	296
Geometry Grp	1	1	1	1
Degree of Util (X)	0.762	0.064	0.435	0.467
Departure Headway (Hd)	5.03	6.589	6.189	5.684
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	715	547	580	630
Service Time	3.088	4.589	4.258	3.751
HCM Lane V/C Ratio	0.764	0.064	0.436	0.47
HCM Control Delay	22.5	10	14	13.7
HCM Lane LOS	C	A	B	B
HCM 95th-tile Q	7.2	0.2	2.2	2.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	2	609	4	1	499
Future Volume (vph)	8	2	609	4	1	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		35			35
Link Distance (ft)	329		2789			122
Travel Time (s)	9.0		54.3			2.4
Confl. Peds. (#/hr)	2	8		5	5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	2	609	4	1	499
Future Vol, veh/h	8	2	609	4	1	499
Conflicting Peds, #/hr	2	8	0	5	5	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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	8	2	634	4	1	520

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1165	649	0	0	643	0
Stage 1	641	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	217	473	-	-	951	-
Stage 1	528	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	467	-	-	946	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	596	-	-	-	-	-

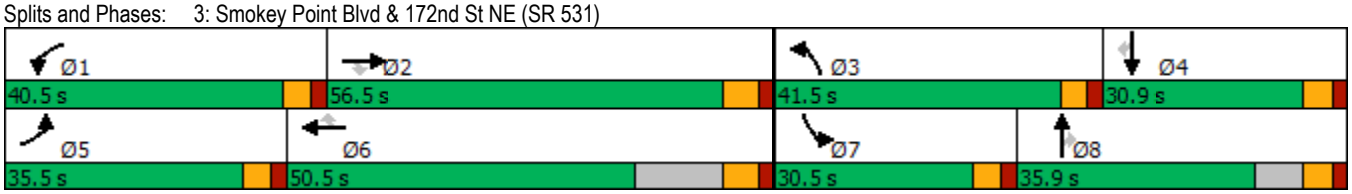
Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0
HCM LOS	C		

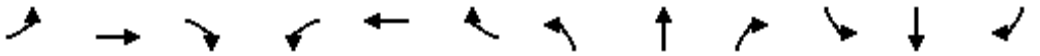
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	241	946	-
HCM Lane V/C Ratio	-	-	0.043	0.001	-
HCM Control Delay (s)	-	-	20.6	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	771	391	180	933	132	513	440	197	150	278	303
Future Volume (vph)	439	771	391	180	933	132	513	440	197	150	278	303
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	900		0	400		350	450		380	250		250
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1080			1325			734			367	
Travel Time (s)		21.0			25.8			14.3			7.1	
Confl. Peds. (#/hr)	5		3	3		5	5		10	10		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	3%	0%	1%	0%	1%	1%	1%	0%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.5	42.5	42.5	10.5	46.5	46.5	10.5	45.9	45.9	10.5	44.9	44.9
Total Split (s)	35.5	56.5	56.5	40.5	50.5	50.5	41.5	35.9	35.9	30.5	30.9	30.9
Total Split (%)	21.0%	33.4%	33.4%	23.9%	29.8%	29.8%	24.5%	21.2%	21.2%	18.0%	18.2%	18.2%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 169.4	
Actuated Cycle Length: 145.4	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Description: PM Peak (Free)	

Splits and Phases: 3: Smokey Point Blvd & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	439	771	391	180	933	132	513	440	197	150	278	303
Future Volume (veh/h)	439	771	391	180	933	132	513	440	197	150	278	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1709	1750	1736	1750	1736	1736	1736	1750	1736	1736
Adj Flow Rate, veh/h	453	795	130	186	962	0	529	454	11	155	287	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	3	0	1	0	1	1	1	0	1	1
Cap, veh/h	391	1194	526	214	1226	384	606	709	312	181	445	199
Arrive On Green	0.23	0.36	0.36	0.13	0.26	0.00	0.19	0.21	0.21	0.11	0.13	0.00
Sat Flow, veh/h	1667	3273	1442	1667	4740	1483	3208	3299	1451	1667	3299	1471
Grp Volume(v), veh/h	453	795	130	186	962	0	529	454	11	155	287	0
Grp Sat Flow(s),veh/h/ln	1667	1637	1442	1667	1580	1483	1604	1650	1451	1667	1650	1471
Q Serve(g_s), s	30.0	26.1	8.0	14.0	24.1	0.0	20.5	16.0	0.8	11.7	10.5	0.0
Cycle Q Clear(g_c), s	30.0	26.1	8.0	14.0	24.1	0.0	20.5	16.0	0.8	11.7	10.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1194	526	214	1226	384	606	709	312	181	445	199
V/C Ratio(X)	1.16	0.67	0.25	0.87	0.78	0.00	0.87	0.64	0.04	0.85	0.64	0.00
Avail Cap(c_a), veh/h	391	1280	564	456	1631	510	903	774	340	326	645	288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.9	34.1	28.4	54.7	44.1	0.0	50.4	45.7	39.7	56.0	52.4	0.0
Incr Delay (d2), s/veh	96.2	1.2	0.2	10.2	1.9	0.0	6.5	1.6	0.0	10.8	1.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.7	10.4	2.8	6.4	9.5	0.0	8.7	6.7	0.3	5.4	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.2	35.3	28.6	64.9	46.0	0.0	56.8	47.3	39.8	66.8	54.0	0.0
LnGrp LOS	F	D	C	E	D	A	E	D	D	E	D	A
Approach Vol, veh/h		1378			1148			994			442	
Approach Delay, s/veh		70.8			49.0			52.3			58.5	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	53.1	29.6	23.2	35.5	39.6	19.4	33.4
Change Period (Y+Rc), s	5.5	6.5	5.5	5.9	5.5	6.5	5.5	5.9
Max Green Setting (Gmax), s	35.0	50.0	36.0	25.0	30.0	44.0	25.0	30.0
Max Q Clear Time (g_c+I1), s	16.0	28.1	22.5	12.5	32.0	26.1	13.7	18.0
Green Ext Time (p_c), s	0.5	6.0	1.7	1.3	0.0	6.3	0.3	2.3

Intersection Summary	
HCM 6th Ctrl Delay	58.5
HCM 6th LOS	E

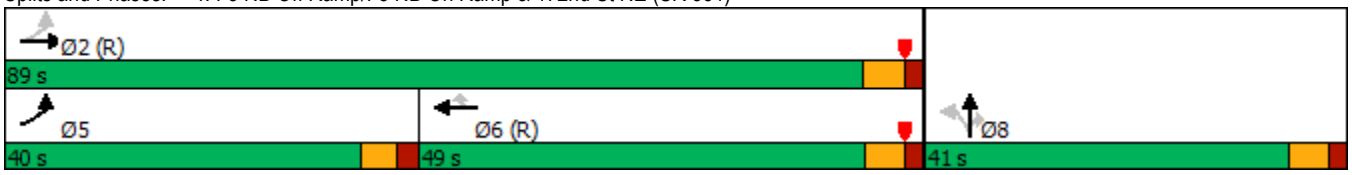
Notes

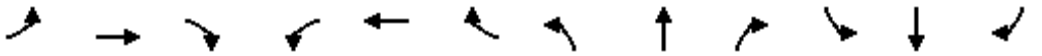
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	922	0	0	1303	512	597	0	640	0	0	0
Future Volume (vph)	299	922	0	0	1303	512	597	0	640	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		4%			5%			4%			0%	
Storage Length (ft)	650		0	0		300	0		0	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		928			1080			356			277	
Travel Time (s)		18.1			21.0			8.1			6.3	
Confl. Peds. (#/hr)	8		7	7		8			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	3%	0%	0%	2%	3%	3%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0	7.0			7.0	7.0	5.0	5.0	5.0			
Minimum Split (s)	10.6	23.1			20.8	20.8	40.8	40.8	40.8			
Total Split (s)	40.0	89.0			49.0	49.0	41.0	41.0	41.0			
Total Split (%)	30.8%	68.5%			37.7%	37.7%	31.5%	31.5%	31.5%			
Yellow Time (s)	3.6	4.1			3.8	3.8	3.8	3.8	3.8			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	5.6	6.1			5.8	5.8	5.8	5.8	5.8			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Min			C-Min	C-Min	None	None	None			

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Red	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 4: I-5 NB Off Ramp/I-5 NB On Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	922	0	0	1303	512	597	0	640	0	0	0
Future Volume (veh/h)	299	922	0	0	1303	512	597	0	640	0	0	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	1636	1622	0	0	1587	1573	1622	1663	1581			
Adj Flow Rate, veh/h	302	931	0	0	1316	0	603	0	0			
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99			
Percent Heavy Veh, %	2	3	0	0	2	3	3	0	6			
Cap, veh/h	364	2128	0	0	2306		674	0				
Arrive On Green	0.23	1.00	0.00	0.00	0.53	0.00	0.22	0.00	0.00			
Sat Flow, veh/h	1558	3163	0	0	4476	1333	3090	0	1340			
Grp Volume(v), veh/h	302	931	0	0	1316	0	603	0	0			
Grp Sat Flow(s),veh/h/ln	1558	1541	0	0	1444	1333	1545	0	1340			
Q Serve(g_s), s	12.1	0.0	0.0	0.0	26.5	0.0	24.6	0.0	0.0			
Cycle Q Clear(g_c), s	12.1	0.0	0.0	0.0	26.5	0.0	24.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	364	2128	0	0	2306		674	0				
V/C Ratio(X)	0.83	0.44	0.00	0.00	0.57		0.89	0.00				
Avail Cap(c_a), veh/h	598	2128	0	0	2306		837	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.89	0.00	0.00	0.57	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	16.0	0.0	0.0	0.0	20.4	0.0	49.4	0.0	0.0			
Incr Delay (d2), s/veh	4.5	0.6	0.0	0.0	0.6	0.0	10.4	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	4.2	0.2	0.0	0.0	8.8	0.0	10.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	0.6	0.0	0.0	21.0	0.0	59.8	0.0	0.0			
LnGrp LOS	C	A	A	A	C		E	A				
Approach Vol, veh/h		1233			1316	A		603	A			
Approach Delay, s/veh		5.5			21.0			59.8				
Approach LOS		A			C			E				

Timer - Assigned Phs	2			5	6		8					
Phs Duration (G+Y+Rc), s	95.8			20.5	75.3		34.2					
Change Period (Y+Rc), s	6.1			5.6	* 6.1		5.8					
Max Green Setting (Gmax), s	82.9			34.4	* 43		35.2					
Max Q Clear Time (g_c+I1), s	2.0			14.1	28.5		26.6					
Green Ext Time (p_c), s	8.2			0.8	7.8		1.6					

Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

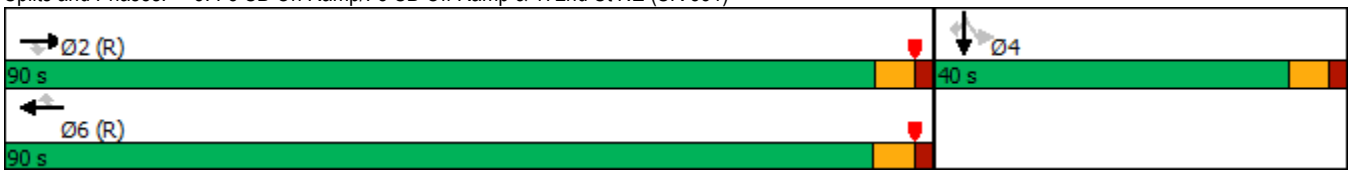
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

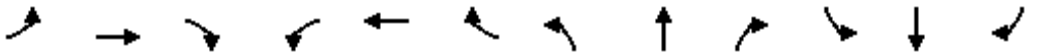
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	961	466	0	1283	617	0	0	0	303	1	272
Future Volume (vph)	0	961	466	0	1283	617	0	0	0	303	1	272
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	0		250	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		640			928			283			330	
Travel Time (s)		12.5			18.1			6.4			7.5	
Confl. Peds. (#/hr)	4		5	5		4			3	3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	1%	0%	1%	3%	0%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)										50%		
Turn Type		NA	Perm		NA	Perm				Perm	NA	Perm
Protected Phases		2			6						4	
Permitted Phases			2			6				4		4
Detector Phase		2	2		6	6				4	4	4
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0	7.0				5.0	5.0	5.0
Minimum Split (s)		24.8	24.8		34.1	34.1				33.8	33.8	33.8
Total Split (s)		90.0	90.0		90.0	90.0				40.0	40.0	40.0
Total Split (%)		69.2%	69.2%		69.2%	69.2%				30.8%	30.8%	30.8%
Yellow Time (s)		3.8	3.8		4.1	4.1				3.8	3.8	3.8
All-Red Time (s)		2.0	2.0		2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)		5.8	5.8		6.1	6.1				5.8	5.8	5.8
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min		C-Min	C-Min				None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 5: I-5 SB On Ramp/I-5 SB Off Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	961	466	0	1283	617	0	0	0	303	1	272
Future Volume (veh/h)	0	961	466	0	1283	617	0	0	0	303	1	272
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	0	1688	1688	0	1845	1817				1723	1750	1723
Adj Flow Rate, veh/h	0	1012	0	0	1351	0				320	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	1	3				2	0	2
Cap, veh/h	0	2517		0	2751					405	0	
Arrive On Green	0.00	0.78	0.00	0.00	1.00	0.00				0.12	0.00	0.00
Sat Flow, veh/h	0	3291	1430	0	3597	1540				3281	0	1460
Grp Volume(v), veh/h	0	1012	0	0	1351	0				320	0	0
Grp Sat Flow(s),veh/h/ln	0	1603	1430	0	1753	1540				1641	0	1460
Q Serve(g_s), s	0.0	12.9	0.0	0.0	0.0	0.0				12.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	12.9	0.0	0.0	0.0	0.0				12.3	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2517		0	2751					405	0	
V/C Ratio(X)	0.00	0.40		0.00	0.49					0.79	0.00	
Avail Cap(c_a), veh/h	0	2517		0	2751					863	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.62	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.4	0.0	0.0	0.0	0.0				55.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.4	0.0				3.5	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	0.0	3.6	0.0	0.0	0.1	0.0				5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.9	0.0	0.0	0.4	0.0				58.8	0.0	0.0
LnGrp LOS	A	A		A	A					E	A	
Approach Vol, veh/h		1012	A		1351	A					320	A
Approach Delay, s/veh		4.9			0.4						58.8	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		108.1		21.9		108.1						
Change Period (Y+Rc), s		* 6.1		* 5.8		6.1						
Max Green Setting (Gmax), s		* 84		* 34		83.9						
Max Q Clear Time (g_c+I1), s		14.9		14.3		2.0						
Green Ext Time (p_c), s		9.2		1.1		15.2						

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

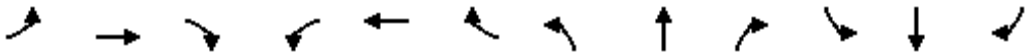
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

2022 No Action PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	11	15	216	4	36	12	288	254	42	254	4
Future Volume (vph)	9	11	15	216	4	36	12	288	254	42	254	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		333			324			1539			380	
Travel Time (s)		9.1			6.3			30.0			7.4	
Confl. Peds. (#/hr)							3					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	24.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	11	15	216	4	36	12	288	254	42	254	4
Future Vol, veh/h	9	11	15	216	4	36	12	288	254	42	254	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	3	1	0
Mvmt Flow	10	12	16	235	4	39	13	313	276	46	276	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.7	16	34.4	16.2
HCM LOS	B	C	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	26%	84%	14%
Vol Thru, %	52%	31%	2%	85%
Vol Right, %	46%	43%	14%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	554	35	256	300
LT Vol	12	9	216	42
Through Vol	288	11	4	254
RT Vol	254	15	36	4
Lane Flow Rate	602	38	278	326
Geometry Grp	1	1	1	1
Degree of Util (X)	0.878	0.075	0.501	0.549
Departure Headway (Hd)	5.247	7.093	6.595	6.059
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	680	507	551	600
Service Time	3.343	5.112	4.595	4.059
HCM Lane V/C Ratio	0.885	0.075	0.505	0.543
HCM Control Delay	34.4	10.7	16	16.2
HCM Lane LOS	D	B	C	C
HCM 95th-tile Q	10.6	0.2	2.8	3.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	2	671	4	1	550
Future Volume (vph)	9	2	671	4	1	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		35			35
Link Distance (ft)	329		2789			122
Travel Time (s)	9.0		54.3			2.4
Confl. Peds. (#/hr)	2	8		5	5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	2	671	4	1	550
Future Vol, veh/h	9	2	671	4	1	550
Conflicting Peds, #/hr	2	8	0	5	5	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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	9	2	699	4	1	573

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1283	714	0	0	708	0
Stage 1	706	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	184	435	-	-	900	-
Stage 1	493	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	430	-	-	896	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	564	-	-	-	-	-

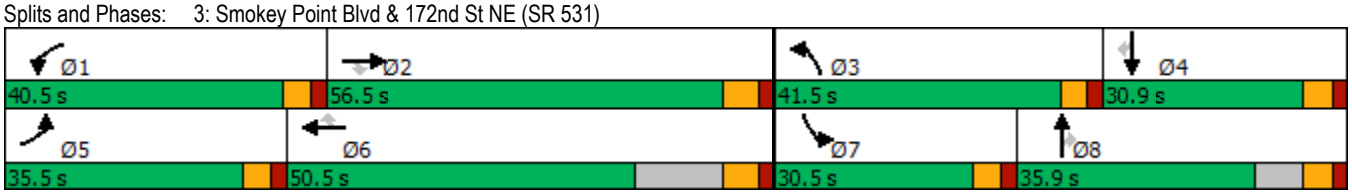
Approach	WB	NB	SB
HCM Control Delay, s	23.8	0	0
HCM LOS	C		

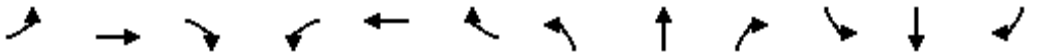
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	203	896	-
HCM Lane V/C Ratio	-	-	0.056	0.001	-
HCM Control Delay (s)	-	-	23.8	9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	850	431	198	1029	146	566	485	217	165	306	334
Future Volume (vph)	484	850	431	198	1029	146	566	485	217	165	306	334
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	900		0	400		350	450		380	250		250
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1080			1325			734			367	
Travel Time (s)		21.0			25.8			14.3			7.1	
Confl. Peds. (#/hr)	5		3	3		5	5		10	10		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	3%	0%	1%	0%	1%	1%	1%	0%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.5	42.5	42.5	10.5	46.5	46.5	10.5	45.9	45.9	10.5	44.9	44.9
Total Split (s)	35.5	56.5	56.5	40.5	50.5	50.5	41.5	35.9	35.9	30.5	30.9	30.9
Total Split (%)	21.0%	33.4%	33.4%	23.9%	29.8%	29.8%	24.5%	21.2%	21.2%	18.0%	18.2%	18.2%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 169.4	
Actuated Cycle Length: 150.6	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Description: PM Peak (Free)	

Splits and Phases: 3: Smokey Point Blvd & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	484	850	431	198	1029	146	566	485	217	165	306	334
Future Volume (veh/h)	484	850	431	198	1029	146	566	485	217	165	306	334
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1709	1750	1736	1750	1736	1736	1736	1750	1736	1736
Adj Flow Rate, veh/h	484	850	139	198	1029	0	566	485	13	165	306	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	3	0	1	0	1	1	1	0	1	1
Cap, veh/h	373	1163	513	225	1265	396	638	729	321	190	450	201
Arrive On Green	0.22	0.36	0.36	0.14	0.27	0.00	0.20	0.22	0.22	0.11	0.14	0.00
Sat Flow, veh/h	1667	3273	1442	1667	4740	1483	3208	3299	1452	1667	3299	1471
Grp Volume(v), veh/h	484	850	139	198	1029	0	566	485	13	165	306	0
Grp Sat Flow(s),veh/h/ln	1667	1637	1442	1667	1580	1483	1604	1650	1452	1667	1650	1471
Q Serve(g_s), s	30.0	30.3	9.2	15.6	27.3	0.0	23.0	18.0	0.9	13.1	11.8	0.0
Cycle Q Clear(g_c), s	30.0	30.3	9.2	15.6	27.3	0.0	23.0	18.0	0.9	13.1	11.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	373	1163	513	225	1265	396	638	729	321	190	450	201
V/C Ratio(X)	1.30	0.73	0.27	0.88	0.81	0.00	0.89	0.67	0.04	0.87	0.68	0.00
Avail Cap(c_a), veh/h	373	1220	537	435	1554	486	861	738	325	311	615	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.1	37.7	30.9	57.0	46.1	0.0	52.3	47.7	41.1	58.4	55.2	0.0
Incr Delay (d2), s/veh	153.0	2.2	0.3	10.6	2.8	0.0	8.8	2.2	0.1	13.4	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.2	12.4	3.3	7.2	10.9	0.0	10.0	7.6	0.3	6.2	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	205.1	39.8	31.1	67.6	48.9	0.0	61.1	50.0	41.1	71.8	57.0	0.0
LnGrp LOS	F	D	C	E	D	A	E	D	D	E	E	A
Approach Vol, veh/h		1473			1227			1064			471	
Approach Delay, s/veh		93.3			51.9			55.8			62.2	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	54.2	32.2	24.2	35.5	42.3	20.8	35.6
Change Period (Y+Rc), s	5.5	6.5	5.5	5.9	5.5	6.5	5.5	5.9
Max Green Setting (Gmax), s	35.0	50.0	36.0	25.0	30.0	44.0	25.0	30.0
Max Q Clear Time (g_c+I1), s	17.6	32.3	25.0	13.8	32.0	29.3	15.1	20.0
Green Ext Time (p_c), s	0.5	6.0	1.6	1.4	0.0	6.1	0.3	2.2

Intersection Summary	
HCM 6th Ctrl Delay	68.4
HCM 6th LOS	E

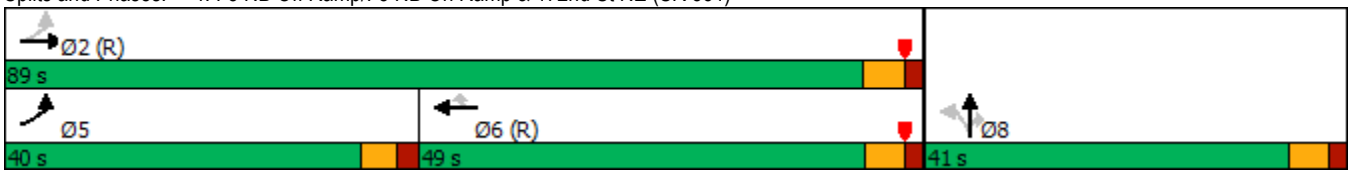
Notes

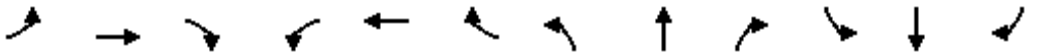
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	1017	0	0	1437	564	658	0	706	0	0	0
Future Volume (vph)	330	1017	0	0	1437	564	658	0	706	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		4%			5%			4%			0%	
Storage Length (ft)	650		0	0		300	0		0	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		928			1080			356			277	
Travel Time (s)		18.1			21.0			8.1			6.3	
Confl. Peds. (#/hr)	8		7	7		8			1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	0%	0%	2%	3%	3%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0	7.0			7.0	7.0	5.0	5.0	5.0			
Minimum Split (s)	10.6	23.1			20.8	20.8	40.8	40.8	40.8			
Total Split (s)	40.0	89.0			49.0	49.0	41.0	41.0	41.0			
Total Split (%)	30.8%	68.5%			37.7%	37.7%	31.5%	31.5%	31.5%			
Yellow Time (s)	3.6	4.1			3.8	3.8	3.8	3.8	3.8			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	5.6	6.1			5.8	5.8	5.8	5.8	5.8			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Min			C-Min	C-Min	None	None	None			

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Red	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 4: I-5 NB Off Ramp/I-5 NB On Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	1017	0	0	1437	564	658	0	706	0	0	0
Future Volume (veh/h)	330	1017	0	0	1437	564	658	0	706	0	0	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	1636	1622	0	0	1587	1573	1622	1663	1581			
Adj Flow Rate, veh/h	330	1017	0	0	1437	0	658	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	3	0	0	2	3	3	0	6			
Cap, veh/h	350	2077	0	0	2159		725	0				
Arrive On Green	0.27	1.00	0.00	0.00	0.50	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1558	3163	0	0	4476	1333	3090	0	1340			
Grp Volume(v), veh/h	330	1017	0	0	1437	0	658	0	0			
Grp Sat Flow(s),veh/h/ln	1558	1541	0	0	1444	1333	1545	0	1340			
Q Serve(g_s), s	14.3	0.0	0.0	0.0	32.4	0.0	26.9	0.0	0.0			
Cycle Q Clear(g_c), s	14.3	0.0	0.0	0.0	32.4	0.0	26.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	350	2077	0	0	2159		725	0				
V/C Ratio(X)	0.94	0.49	0.00	0.00	0.67		0.91	0.00				
Avail Cap(c_a), veh/h	556	2077	0	0	2159		837	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	0.52	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	19.3	0.0	0.0	0.0	24.5	0.0	48.4	0.0	0.0			
Incr Delay (d2), s/veh	16.5	0.7	0.0	0.0	0.9	0.0	12.5	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	5.9	0.2	0.0	0.0	10.9	0.0	11.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	0.7	0.0	0.0	25.3	0.0	60.9	0.0	0.0			
LnGrp LOS	D	A	A	A	C		E	A				
Approach Vol, veh/h		1347			1437	A		658	A			
Approach Delay, s/veh		9.3			25.3			60.9				
Approach LOS		A			C			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.7			22.9	70.9		36.3				
Change Period (Y+Rc), s		6.1			5.6	* 6.1		5.8				
Max Green Setting (Gmax), s		82.9			34.4	* 43		35.2				
Max Q Clear Time (g_c+I1), s		2.0			16.3	34.4		28.9				
Green Ext Time (p_c), s		9.3			0.9	5.9		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

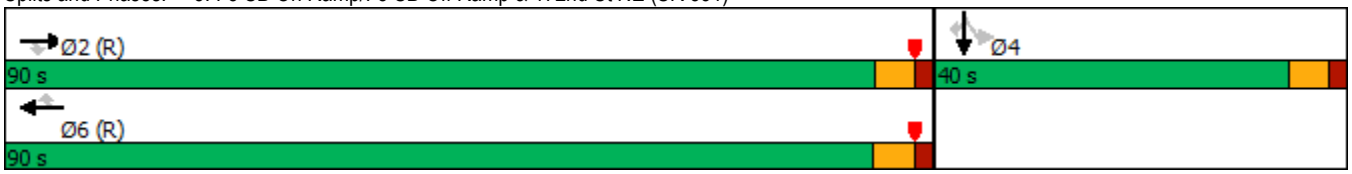
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

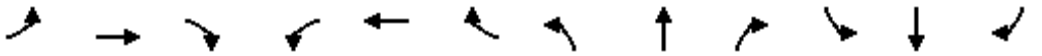
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1060	514	0	1415	680	0	0	0	334	1	300
Future Volume (vph)	0	1060	514	0	1415	680	0	0	0	334	1	300
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	0		250	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		640			928			283			330	
Travel Time (s)		12.5			18.1			6.4			7.5	
Confl. Peds. (#/hr)	4		5	5		4			3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	1%	0%	1%	3%	0%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)										50%		
Turn Type		NA	Perm		NA	Perm				Perm	NA	Perm
Protected Phases		2			6						4	
Permitted Phases			2			6				4		4
Detector Phase		2	2		6	6				4	4	4
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0	7.0				5.0	5.0	5.0
Minimum Split (s)		24.8	24.8		34.1	34.1				33.8	33.8	33.8
Total Split (s)		90.0	90.0		90.0	90.0				40.0	40.0	40.0
Total Split (%)		69.2%	69.2%		69.2%	69.2%				30.8%	30.8%	30.8%
Yellow Time (s)		3.8	3.8		4.1	4.1				3.8	3.8	3.8
All-Red Time (s)		2.0	2.0		2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)		5.8	5.8		6.1	6.1				5.8	5.8	5.8
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min		C-Min	C-Min				None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 5: I-5 SB On Ramp/I-5 SB Off Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1060	514	0	1415	680	0	0	0	334	1	300
Future Volume (veh/h)	0	1060	514	0	1415	680	0	0	0	334	1	300
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	0	1688	1688	0	1845	1817				1723	1750	1723
Adj Flow Rate, veh/h	0	1060	0	0	1415	0				335	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	1	3				2	0	2
Cap, veh/h	0	2502		0	2735					420	0	
Arrive On Green	0.00	0.78	0.00	0.00	1.00	0.00				0.13	0.00	0.00
Sat Flow, veh/h	0	3291	1430	0	3597	1540				3281	0	1460
Grp Volume(v), veh/h	0	1060	0	0	1415	0				335	0	0
Grp Sat Flow(s),veh/h/ln	0	1603	1430	0	1753	1540				1641	0	1460
Q Serve(g_s), s	0.0	14.1	0.0	0.0	0.0	0.0				12.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.1	0.0	0.0	0.0	0.0				12.9	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2502		0	2735					420	0	
V/C Ratio(X)	0.00	0.42		0.00	0.52					0.80	0.00	
Avail Cap(c_a), veh/h	0	2502		0	2735					863	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.50	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.7	0.0	0.0	0.0	0.0				55.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.4	0.0				3.5	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	0.0	4.0	0.0	0.0	0.1	0.0				5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.2	0.0	0.0	0.4	0.0				58.5	0.0	0.0
LnGrp LOS	A	A		A	A					E	A	
Approach Vol, veh/h		1060	A		1415	A					335	A
Approach Delay, s/veh		5.2			0.4						58.5	
Approach LOS		A			A						E	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	107.6	22.4	107.6
Change Period (Y+Rc), s	* 6.1	* 5.8	6.1
Max Green Setting (Gmax), s	* 84	* 34	83.9
Max Q Clear Time (g_c+I1), s	16.1	14.9	2.0
Green Ext Time (p_c), s	9.9	1.1	16.6

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

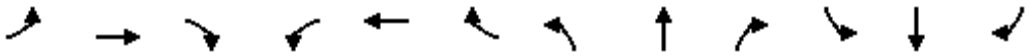
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

2022 With-Project PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	11	15	225	4	39	12	288	254	42	257	4
Future Volume (vph)	9	11	15	225	4	39	12	288	254	42	257	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		333			324			1539			380	
Travel Time (s)		9.1			6.3			30.0			7.4	
Confl. Peds. (#/hr)							3					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	27.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	11	15	225	4	39	12	288	254	42	257	4
Future Vol, veh/h	9	11	15	225	4	39	12	288	254	42	257	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	3	1	0
Mvmt Flow	10	12	16	245	4	42	13	313	276	46	279	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.9	17.1	39.4	16.8
HCM LOS	B	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	26%	84%	14%
Vol Thru, %	52%	31%	1%	85%
Vol Right, %	46%	43%	15%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	554	35	268	303
LT Vol	12	9	225	42
Through Vol	288	11	4	257
RT Vol	254	15	39	4
Lane Flow Rate	602	38	291	329
Geometry Grp	1	1	1	1
Degree of Util (X)	0.909	0.076	0.535	0.561
Departure Headway (Hd)	5.433	7.189	6.61	6.13
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	674	496	545	586
Service Time	3.433	5.267	4.661	4.177
HCM Lane V/C Ratio	0.893	0.077	0.534	0.561
HCM Control Delay	39.4	10.9	17.1	16.8
HCM Lane LOS	E	B	C	C
HCM 95th-tile Q	11.7	0.2	3.1	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	4	678	24	3	557
Future Volume (vph)	22	4	678	24	3	557
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		35			35
Link Distance (ft)	329		2789			122
Travel Time (s)	9.0		54.3			2.4
Confl. Peds. (#/hr)	2	8		5	5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	678	24	3	557
Future Vol, veh/h	22	4	678	24	3	557
Conflicting Peds, #/hr	2	8	0	5	5	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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	23	4	706	25	3	580

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1312	732	0	0	736	0
Stage 1	724	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	177	424	-	-	879	-
Stage 1	484	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	175	419	-	-	875	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	555	-	-	-	-	-

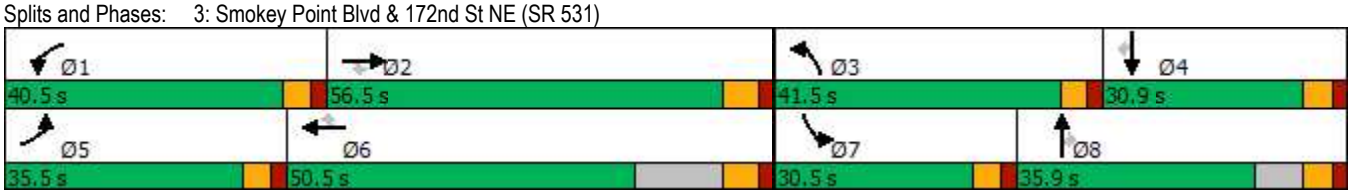
Approach	WB	NB	SB
HCM Control Delay, s	26.8	0	0
HCM LOS	D		

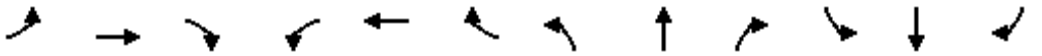
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	192	875	-
HCM Lane V/C Ratio	-	-	0.141	0.004	-
HCM Control Delay (s)	-	-	26.8	9.1	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	850	431	198	1029	150	566	490	217	168	310	347
Future Volume (vph)	502	850	431	198	1029	150	566	490	217	168	310	347
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	900		0	400		350	450		380	250		250
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1080			1325			734			367	
Travel Time (s)		21.0			25.8			14.3			7.1	
Confl. Peds. (#/hr)	5		3	3		5	5		10	10		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	3%	0%	1%	0%	1%	1%	1%	0%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.5	42.5	42.5	10.5	46.5	46.5	10.5	45.9	45.9	10.5	44.9	44.9
Total Split (s)	35.5	56.5	56.5	40.5	50.5	50.5	41.5	35.9	35.9	30.5	30.9	30.9
Total Split (%)	21.0%	33.4%	33.4%	23.9%	29.8%	29.8%	24.5%	21.2%	21.2%	18.0%	18.2%	18.2%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 169.4	
Actuated Cycle Length: 150.8	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Description: PM Peak (Free)	

Splits and Phases: 3: Smokey Point Blvd & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	502	850	431	198	1029	150	566	490	217	168	310	347
Future Volume (veh/h)	502	850	431	198	1029	150	566	490	217	168	310	347
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1709	1750	1736	1750	1736	1736	1736	1750	1736	1736
Adj Flow Rate, veh/h	502	850	139	198	1029	0	566	490	13	168	310	-4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	3	0	1	0	1	1	1	0	1	1
Cap, veh/h	372	1162	512	225	1264	396	638	726	319	193	452	202
Arrive On Green	0.22	0.35	0.35	0.13	0.27	0.00	0.20	0.22	0.22	0.12	0.14	0.00
Sat Flow, veh/h	1667	3273	1442	1667	4740	1483	3208	3299	1451	1667	3299	1471
Grp Volume(v), veh/h	502	850	139	198	1029	0	566	490	13	168	310	-4
Grp Sat Flow(s),veh/h/ln	1667	1637	1442	1667	1580	1483	1604	1650	1451	1667	1650	1471
Q Serve(g_s), s	30.0	30.4	9.2	15.7	27.3	0.0	23.1	18.3	0.9	13.3	12.0	0.0
Cycle Q Clear(g_c), s	30.0	30.4	9.2	15.7	27.3	0.0	23.1	18.3	0.9	13.3	12.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	1162	512	225	1264	396	638	726	319	193	452	202
V/C Ratio(X)	1.35	0.73	0.27	0.88	0.81	0.00	0.89	0.68	0.04	0.87	0.69	-0.02
Avail Cap(c_a), veh/h	372	1218	537	434	1552	486	859	736	324	310	614	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.2	37.8	30.9	57.1	46.1	0.0	52.4	48.0	41.2	58.4	55.2	0.0
Incr Delay (d2), s/veh	174.0	2.2	0.3	10.6	2.8	0.0	8.8	2.4	0.1	14.1	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.4	12.4	3.3	7.2	11.0	0.0	10.0	7.7	0.3	6.3	5.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	226.2	39.9	31.2	67.7	49.0	0.0	61.2	50.4	41.3	72.5	57.1	0.0
LnGrp LOS	F	D	C	E	D	A	E	D	D	E	E	A
Approach Vol, veh/h		1491			1227			1069			474	
Approach Delay, s/veh		101.8			52.0			56.0			63.1	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	54.2	32.2	24.3	35.5	42.3	21.1	35.5
Change Period (Y+Rc), s	5.5	6.5	5.5	5.9	5.5	6.5	5.5	5.9
Max Green Setting (Gmax), s	35.0	50.0	36.0	25.0	30.0	44.0	25.0	30.0
Max Q Clear Time (g_c+I1), s	17.7	32.4	25.1	14.0	32.0	29.3	15.3	20.3
Green Ext Time (p_c), s	0.5	6.0	1.6	1.4	0.0	6.1	0.3	2.2

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

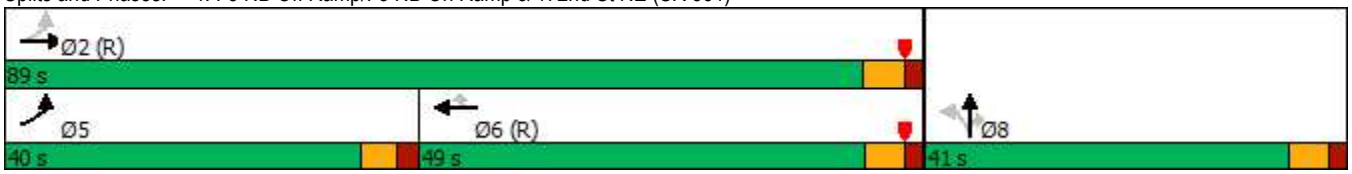
Notes

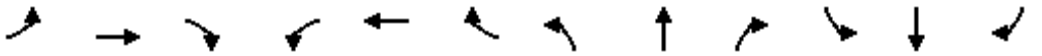
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	1026	0	0	1447	567	658	0	715	0	0	0
Future Volume (vph)	330	1026	0	0	1447	567	658	0	715	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		4%			5%			4%			0%	
Storage Length (ft)	650		0	0		300	0		0	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		928			1080			356			277	
Travel Time (s)		18.1			21.0			8.1			6.3	
Confl. Peds. (#/hr)	8		7	7		8			1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	0%	0%	2%	3%	3%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)							50%					
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0	7.0			7.0	7.0	5.0	5.0	5.0			
Minimum Split (s)	10.6	23.1			20.8	20.8	40.8	40.8	40.8			
Total Split (s)	40.0	89.0			49.0	49.0	41.0	41.0	41.0			
Total Split (%)	30.8%	68.5%			37.7%	37.7%	31.5%	31.5%	31.5%			
Yellow Time (s)	3.6	4.1			3.8	3.8	3.8	3.8	3.8			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	5.6	6.1			5.8	5.8	5.8	5.8	5.8			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Min			C-Min	C-Min	None	None	None			

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Red	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 4: I-5 NB Off Ramp/I-5 NB On Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	1026	0	0	1447	567	658	0	715	0	0	0
Future Volume (veh/h)	330	1026	0	0	1447	567	658	0	715	0	0	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	1636	1622	0	0	1587	1573	1622	1663	1581			
Adj Flow Rate, veh/h	330	1026	0	0	1447	0	658	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	3	0	0	2	3	3	0	6			
Cap, veh/h	350	2077	0	0	2151		725	0				
Arrive On Green	0.27	1.00	0.00	0.00	0.50	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1558	3163	0	0	4476	1333	3090	0	1340			
Grp Volume(v), veh/h	330	1026	0	0	1447	0	658	0	0			
Grp Sat Flow(s),veh/h/ln	1558	1541	0	0	1444	1333	1545	0	1340			
Q Serve(g_s), s	14.6	0.0	0.0	0.0	32.8	0.0	26.9	0.0	0.0			
Cycle Q Clear(g_c), s	14.6	0.0	0.0	0.0	32.8	0.0	26.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	350	2077	0	0	2151		725	0				
V/C Ratio(X)	0.94	0.49	0.00	0.00	0.67		0.91	0.00				
Avail Cap(c_a), veh/h	553	2077	0	0	2151		837	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	0.51	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	19.7	0.0	0.0	0.0	24.7	0.0	48.4	0.0	0.0			
Incr Delay (d2), s/veh	16.6	0.7	0.0	0.0	0.9	0.0	12.5	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	5.9	0.2	0.0	0.0	11.1	0.0	11.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.7	0.0	0.0	25.6	0.0	60.9	0.0	0.0			
LnGrp LOS	D	A	A	A	C		E	A				
Approach Vol, veh/h		1356			1447	A		658	A			
Approach Delay, s/veh		9.4			25.6			60.9				
Approach LOS		A			C			E				

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.7			23.1	70.6		36.3				
Change Period (Y+Rc), s		6.1			5.6	* 6.1		5.8				
Max Green Setting (Gmax), s		82.9			34.4	* 43		35.2				
Max Q Clear Time (g_c+I1), s		2.0			16.6	34.8		28.9				
Green Ext Time (p_c), s		9.5			0.9	5.7		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

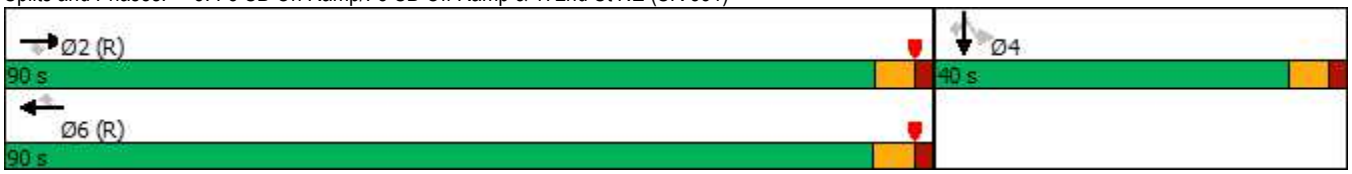
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

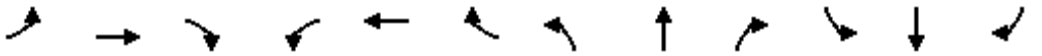
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1064	514	0	1418	687	0	0	0	339	1	300
Future Volume (vph)	0	1064	514	0	1418	687	0	0	0	339	1	300
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	0		250	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		640			928			283			330	
Travel Time (s)		12.5			18.1			6.4			7.5	
Confl. Peds. (#/hr)	4		5	5		4			3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	1%	0%	1%	3%	0%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)										50%		
Turn Type		NA	Perm		NA	Perm				Perm	NA	Perm
Protected Phases		2			6						4	
Permitted Phases			2			6				4		4
Detector Phase		2	2		6	6				4	4	4
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0	7.0				5.0	5.0	5.0
Minimum Split (s)		24.8	24.8		34.1	34.1				33.8	33.8	33.8
Total Split (s)		90.0	90.0		90.0	90.0				40.0	40.0	40.0
Total Split (%)		69.2%	69.2%		69.2%	69.2%				30.8%	30.8%	30.8%
Yellow Time (s)		3.8	3.8		4.1	4.1				3.8	3.8	3.8
All-Red Time (s)		2.0	2.0		2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)		5.8	5.8		6.1	6.1				5.8	5.8	5.8
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min		C-Min	C-Min				None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Description: PM Peak	

Splits and Phases: 5: I-5 SB On Ramp/I-5 SB Off Ramp & 172nd St NE (SR 531)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1064	514	0	1418	687	0	0	0	339	1	300
Future Volume (veh/h)	0	1064	514	0	1418	687	0	0	0	339	1	300
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	0	1688	1688	0	1845	1817				1723	1750	1723
Adj Flow Rate, veh/h	0	1064	0	0	1418	0				340	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	1	3				2	0	2
Cap, veh/h	0	2497		0	2730					425	0	
Arrive On Green	0.00	0.78	0.00	0.00	1.00	0.00				0.13	0.00	0.00
Sat Flow, veh/h	0	3291	1430	0	3597	1540				3281	0	1460
Grp Volume(v), veh/h	0	1064	0	0	1418	0				340	0	0
Grp Sat Flow(s),veh/h/ln	0	1603	1430	0	1753	1540				1641	0	1460
Q Serve(g_s), s	0.0	14.3	0.0	0.0	0.0	0.0				13.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.3	0.0	0.0	0.0	0.0				13.1	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2497		0	2730					425	0	
V/C Ratio(X)	0.00	0.43		0.00	0.52					0.80	0.00	
Avail Cap(c_a), veh/h	0	2497		0	2730					863	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.50	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.8	0.0	0.0	0.0	0.0				54.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.4	0.0				3.5	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	0.0	4.1	0.0	0.0	0.1	0.0				5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.3	0.0	0.0	0.4	0.0				58.4	0.0	0.0
LnGrp LOS	A	A		A	A					E	A	
Approach Vol, veh/h		1064	A		1418	A					340	A
Approach Delay, s/veh		5.3			0.4						58.4	
Approach LOS		A			A						E	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	107.4	22.6	107.4
Change Period (Y+Rc), s	* 6.1	* 5.8	6.1
Max Green Setting (Gmax), s	* 84	* 34	83.9
Max Q Clear Time (g_c+I1), s	16.3	15.1	2.0
Green Ext Time (p_c), s	9.9	1.1	16.7

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.