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Memorandum

To/Attention	Patrick McMahon, City of Ottawa	**Date**	May 17, 2022
From	David Hook	**Project No**	126884
cc	Bill McCurdy, Creva Group Michael Boucher, Phoenix Homes Jacob Bolduc, FOTENN		
Subject	1470 Hunt Club Road TIA - Addendum #1		

This TIA addendum has been prepared to address key comments received following the first submission of a Zoning By-Law Amendment and Official Plan Amendment application made to the City of Ottawa in October 2021 as it relates to the transportation impact of the proposed Larga Baffin development at 1452, 1460 and 1470 Hunt Club Road and 1525, 1531 and 1545 Sieveright Avenue. Since the public meeting on April 26, 2022, additional analysis has been undertaken to address community concerns with regards to parking and traffic. It is important to note that both the Official Plan Amendment and the Zoning By-law Amendment applications apply to the entirety of the subject lands, meeting the requirements as outlined in the Future Land Use Study, as required by the Community Design Plan, Secondary Plan, and Official Plan. However, at this time, development is only proposed on the northern portion (i.e. Larga Baffin site) and any conceptual plans for the southern lands are provided solely at the request of Staff to demonstrate the site's full development potential. The potential impacts of the southern portion have been estimated based on a development concept that adheres to the maximum allowable building height under the existing zoning to provide an indication of the combined potential impact of this property as a whole. While retaining this height restriction, the southern portion of the lands are now intended to be rezoned to Residential-R4 to provide greater certainty with regards to the future use of this land while also limiting its potential traffic impact on the adjacent community. Future development of the southern portion of this site will ultimately require a Site Plan Control application and will be subject to a Transportation Impact Assessment specific to that development. At this time, there are no plans to develop the southern portion of the site.

The following items will be discussed as part of the TIA Addendum:

1. Assessment of the impact of the adjacent 2600 Bank Street development;
2. Clarification of the parking requirements for Larga Baffin;
3. Discussion regarding the high U-turn volumes at Hunt Club & Cahill intersection; and
4. Assessment of the potential long-term traffic impacts associated with development of the southern portion of the site.

Additional Background Developments

At the time that the 1470 Hunt Club Road Transportation Impact Assessment (TIA) report was submitted (October 14, 2021), the supporting TIA for the adjacent 2600 Bank Street development application was not publicly available (submitted October 18, 2021) and therefore traffic generation

associated with the development could not be included in the analysis. At the request of the community, these impacts have now been considered.

Based on the supporting TIA for the 2600 Bank Street development, that site is anticipated to generate 120 and 180 two-way vehicle-trips during the weekday morning and afternoon peak hours, respectively. Traffic associated with the adjacent 2600 Bank Street development was superimposed over the Future (2027) Background and Total Traffic volumes from the 1470 Hunt Club TIA to evaluate the combined impact of these developments. Intersection capacity analysis was subsequently completed using these volumes and the results are presented in **Table 1** and **Table 2** below.

Table 1 - Intersection Capacity Analysis: Future (2027) Background Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club & Albion	Signalized	A (0.52)	NBTR (0.86)	D (0.83)	NBTR (0.90)
Hunt Club & Cahill	Signalized	A (0.45)	SBL (0.51)	A (0.53)	SBL (0.54)
Hunt Club & Lorry Greenberg/Sable Ridge	Signalized	A (0.57)	EBL (0.72)	B (0.68)	EBL (0.84)
Bank & Albion	Signalized	B (0.63)	NBL (0.80)	B (0.65)	SBTR (0.77)
Bank & Sieveright[1]	Unsignalized	**E (44.7s)**	**SBL (44.7s)**	**F (50.3s)**	**SBL (50.3s)**

Notes:

[1] – For the purposes of this traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

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Table 2 - Intersection Capacity Analysis: Future (2027) Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club & Albion	Signalized	A (0.52)	NBTR (0.86)	D (0.85)	NBTR (0.90)
Hunt Club & Cahill	Signalized	A (0.45)	SBL (0.51)	A (0.53)	SBL (0.54)
Hunt Club & Lorry Greenberg/Sable Ridge	Signalized	A (0.57)	EBL (0.72)	B (0.68)	EBL (0.84)
Bank & Albion	Signalized	B (0.63)	NBL (0.80)	B (0.64)	SBTR (0.76)
Bank & Sieveright[1]	Unsignalized	**E (46.5s)**	**SBL (46.5s)**	**F (52.5s)**	**SBL (52.5s)**
Hunt Club & Right-in/Right-out Access	Unsignalized	B (12.9s)	NBR (12.9s)	C (17.2s)	NBR (17.2s)

Notes:

[1] – For the purposes of this traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

As the above intersection capacity analysis results indicate, the additional traffic generated by the 2600 Bank Street development is anticipated to increase delays for the southbound left-turn movement at the Bank & Sieveright intersection during the weekday afternoon peak hour resulting in a Level of Service (LOS) of 'F'. The addition of site-generated traffic associated with the proposed 1470 Hunt Club development will not have a significant impact on traffic operations at any of the study area intersections, and result in an increased vehicular delay of only 2 seconds at the Bank/Sieveright intersection.

As the Bank & Sieveright intersection is anticipated to continue operating poorly under Future (2027) Background Traffic conditions due to increased traffic on Bank Street, it is recommended that traffic signals be implemented by the City of Ottawa. It should be noted, however, that the warrants for traffic signals are not expected to be met under future traffic conditions despite being operationally required to address sidestreet delays.

Revised Synchro output for the Future (2027) Background and Total Traffic scenarios are included in **Appendix A**.

Parking Requirements

Following the submission of the TIA, the interpretation of the Zoning By-law parking requirements was clarified with the City and it was concluded that the TIA had over-stated the minimum requirements. The parking requirements documented in the Planning Rational are the correct rates and are noted as follows:

- Minimum Vehicle Parking Required: 0.25 spaces per unit plus one space per 100m^2 of GFA used for medical, health or personal services

- Minimum Bicycle Parking Required: 0.25 spaces per unit

The proposed development will contain a total of 220 units and areas designated specifically for medical, health or personal services. As such, the minimum parking required for the proposed development is 82 vehicle spaces and 55 bicycle spaces. A total of 93 and 80 vehicle and bicycle spaces will be provided, respectively, thereby exceeding the by-law requirements.

With regards to parking demand, the TIA noted that "the development is expected to employ up to 175 full-time and part-time staff, with approximately 100 staff on site at any time". Assuming three 8-hour shift schedules of approximately 60 employees each, this estimate of staff on-site takes into consideration shift changes and thus the proposed parking demand is sufficient. There is no visitor parking requirement under the zoning by-law for this land use and while the visitor parking demand at the proposed facility is expected to be negligible, a surplus of parking will be available on-site.

U-Turns at Hunt Club & Cahill

Some concerns were expressed by City staff and residents regarding the projected volume of U-turn movements generated by the proposed development at the Hunt Club & Cahill intersection. A high volume of U-turn movements was assigned to this intersection to evaluate a worst-case scenario and, based on the intersection capacity analysis, no significant operational impacts are anticipated nor are any significant queuing, sight line or pedestrian conflicts expected (see Appendix 'F' of the TIA).

To improve the safety of this movement, a protected eastbound left-turn phase at the intersection is recommended to remove conflicts with opposing westbound traffic or pedestrians. As the intersection is expected to operate well under capacity, supplemental analysis confirms that this signal phasing adjustment would not have a significant impact on intersection operations or traffic flow along Hunt Club Road.

This site-generated traffic could equally be accommodated at the right-turn from Sieveright to Bank Street with minimal impacts to intersection performance or queueing as these vehicle-trips would not increase traffic demand on the critical left-turn movement onto Bank Street due to the presence of separate right- and left-turn auxiliary lanes. It is expected that traffic will likely be split between these two intersections based on driver preference.

Potential Future Development Impacts

The Zoning By-Law Amendment application for the proposed development is being revised in order to re-zone the southern portion of the site from Mixed-Use to Residential-R4 in order to limit the potential future traffic generation of the site. Based on a 4-storey height limit and the maximum gross floor area that could be accommodated on these lands, it is estimated that a mid-rise residential building with approximately 76 units could be provided. It should be reiterated, however, that there are currently no plans to develop the southern portion of the site. Any future development on the site would be subject to its own Site Plan Control application and associated TIA.

The potential person-trip generation for this conceptual development was estimated using the trip generation rates from the 2020 TRANS Trip Generation Manual Summary Report. These person-trips were subsequently subdivided by mode using the existing mode share distribution applicable to multi-unit residential buildings of 3-storeys or more, located in the Hunt Club Traffic Assessment Zone (TAZ). Based on the 2020 TRANS Trip Generation Manual Summary Report, a residential development of this magnitude is expected to generate 32 two-way *person*-trips during both the

weekday morning and afternoon peak hours. Approximately 39% and 44% of person-trips generated by developments of this type are expected to be vehicle-trips. The resulting weekday morning and afternoon peak hour trip generation of this conceptual development is only 12 and 14 two-way vehicle-trips, respectively.

Traffic generated by this conceptual development was distributed 90% and 10% to/from the north and south, respectively, based on data from the TRANS 2011 Origin-Destination Survey. Based on the proposed access control measures recommended for the Larga Baffin development, it is assumed that all traffic will enter/exit the residential development via the Bank & Sieveright intersection.

Additional intersection capacity analysis was completed for the Bank & Sieveright intersection for the 2027 horizon year of the TIA and the results are summarized in **Table 3**. As shown below, the addition of traffic generated by the conceptual development is expected to have a negligible impact on intersection performance. The poor intersection level of service anticipated is primarily due to background traffic growth along Bank Street, not site-generated traffic, as shown in **Table 1**.

Table 3 - Intersection Capacity Analysis: Future Potential Development

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Bank & Sieveright[1]	Unsignalized	E (47.5s)	SBL (47.5s)	F (55.8s)	SBL (55.8s)

Notes:

[1] – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

The above results are theoretical based on a conceptual land use for the southern portion of the Larga Baffin development site. As there are currently no plans for the development of this site, any future development on the site would be subject to its own TIA to support a Site Plan Control application.

Additional traffic signal warrants were undertaken with consideration of the combined impact of this traffic and concluded that, despite being operationally required, the minimum warrants for the implementation of signals are not met. The results of the signal warrants are provided in **Appendix B**.

Conclusion

An addendum to the Transportation Impact Assessment was prepared to address key transportation-related comments received following the first submission of the Zoning By-law Amendment and Official Plan Amendment application.

Based on the revised traffic analysis provided in this addendum, it is expected that the Bank & Sieveright intersection will exceed its theoretical capacity (i.e. LOS ‘F’) during the weekday afternoon peak hour as a result of background traffic growth on Bank Street, with consideration of additional developments within the study area. Under existing conditions, this intersection is already operating beyond its permissible threshold at LOS ‘E’. It is therefore recommended that the City give consideration towards the signalization of this intersection, despite not meeting the technical warrants under existing or future conditions. The proposed development has been

shown to have a negligible impact on the performance of this intersection, contributing only one to four vehicles to the intersection's critical left-turn movement during the weekday peak hours Additional traffic generated by a conceptual future development on the southern portion of the site was also shown to have a negligible impact on traffic operations and is not expected to trigger the warrants for signalization in the future.

This addendum also confirms that sufficient parking has been provided to meet the Zoning By-law requirements while also satisfying the expected parking demand. As well, no operational or safety issues are anticipated at the Hunt Club & Cahill intersection due to high U-turn volumes, however this concern can be further mitigated with the implementation of a protected signal phase as required.

Based on the findings of this TIA addendum, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network, with the City of Ottawa's consideration of the recommendations made.

Appendix A - Intersection Capacity Analysis

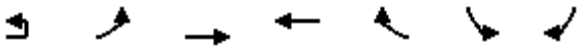
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	468	1044	24	30	114
Future Vol, veh/h	40	468	1044	24	30	114
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	40	468	1044	24	30	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1070	0	-	0	1372	536
Stage 1	-	-	-	-	1058	-
Stage 2	-	-	-	-	314	-
Critical Hdwy	4.14	-	-	-	7	6.98
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.22	-	-	-	3.6	3.34
Pot Cap-1 Maneuver	647	-	-	-	128	484
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	646	-	-	-	120	483
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	689	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	646	-	-	-	120	483
HCM Lane V/C Ratio	0.062	-	-	-	0.25	0.236
HCM Control Delay (s)	10.9	-	-	-	44.7	14.7
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.9



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	4	15	1080	1237	54	77	45
Future Volume (vph)	4	15	1080	1237	54	77	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.212				0.950	
Satd. Flow (perm)	0	386	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					48		45
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	4	15	1080	1237	54	77	45
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	19	1080	1237	54	77	45
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09

Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.06	0.39	0.45	0.05	0.51	0.25
Control Delay		4.4	4.1	4.4	0.4	62.8	17.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.4	4.1	4.4	0.4	62.8	17.1
LOS		A	A	A	A	E	B
Approach Delay			4.1	4.2		45.9	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.5	22.0	93.1	0.4	17.6	0.0
Queue Length 95th (m)		m3.1	61.8	3.2	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		326	2784	2758	1121	451	449
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.06	0.39	0.45	0.05	0.17	0.10

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 6.2 Intersection LOS: A
Intersection Capacity Utilization 49.9% ICU Level of Service A
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	756	8	9	182	1044	79	6	90	216	41	84
Future Volume (vph)	58	756	8	9	182	1044	79	6	90	216	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.894			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1666	3202	1532	1729	1545	0	1695	1520
Flt Permitted	0.237				0.303			0.571			0.205	
Satd. Flow (perm)	392	3232	1206	0	530	3202	1483	1031	1545	0	365	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		93			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	756	8	9	182	1044	79	6	90	216	41	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	756	8	0	191	1044	79	6	306	0	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	5	2	2	1	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	78.1	71.1	71.1		85.3	76.5	76.5	21.7	21.7		21.7	21.7
Actuated g/C Ratio	0.65	0.59	0.59		0.71	0.64	0.64	0.18	0.18		0.18	0.18

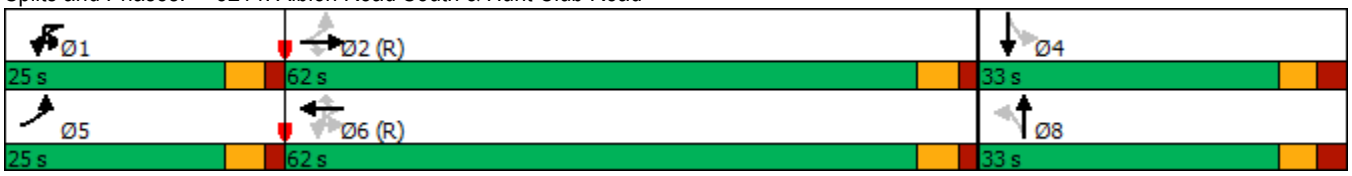
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.18	0.39	0.01		0.41	0.51	0.08	0.03	0.86		0.63	0.51
Control Delay	7.6	14.9	0.0		5.2	3.9	0.3	59.5	77.2		83.0	39.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.6	14.9	0.0		5.2	3.9	0.3	59.5	77.2		83.0	39.7
LOS	A	B	A		A	A	A	E	E		F	D
Approach Delay		14.3				3.9			76.9			48.8
Approach LOS		B				A			E			D
Queue Length 50th (m)	3.7	48.2	0.0		3.4	11.0	0.0	1.4	56.1		8.9	25.4
Queue Length 95th (m)	8.4	71.6	0.0		7.4	20.0	0.4	m4.7	#79.0		#23.6	44.5
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	475	1915	746		568	2040	973	230	417		81	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.12	0.39	0.01		0.34	0.51	0.08	0.03	0.73		0.51	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 77.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

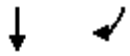
Splits and Phases: 5214: Albion Road South & Hunt Club Road



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	143	998	12	7	19	1074	37	23	18	71	74
Future Volume (vph)	1	143	998	12	7	19	1074	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3224	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	998	12	7	19	1074	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	1010	0	0	26	1074	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9			5.9	5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10

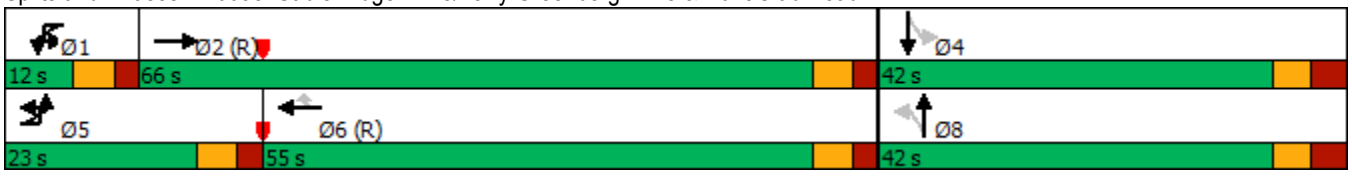


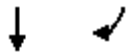
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	189
Future Volume (vph)	7	189
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	189	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	189
Shared Lane Traffic (%)		
Lane Group Flow (vph)	196	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.43			0.31	0.55	0.04	0.38	0.40		0.57
Control Delay		65.1	10.1			64.5	15.4	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.1	10.1			64.5	15.4	0.1	66.6	20.9		67.0
LOS		E	B			E	B	A	E	C		E
Approach Delay			16.9				16.1			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		31.9	43.0			6.0	73.3	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.3	89.1			15.4	107.0	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2357			87	1968	970	170	495		369
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.62	0.43			0.30	0.55	0.04	0.14	0.18		0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road





Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	20	479	95	32	1008	120	298	214	29	37	130
Future Volume (vph)	1	20	479	95	32	1008	120	298	214	29	37	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.982			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1753	0	1558	1661
Flt Permitted		0.950			0.950			0.296			0.608	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1753	0	996	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		8			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	479	95	32	1008	120	298	214	29	37	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	479	95	32	1008	120	298	243	0	37	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

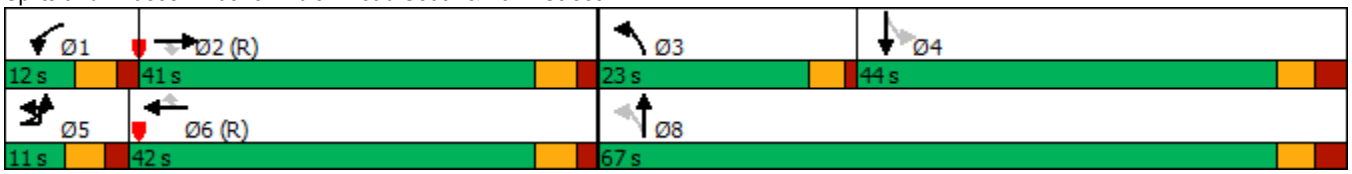
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.28	0.31	0.12	0.40	0.59	0.15	0.80	0.39		0.23	0.76
Control Delay		64.9	21.7	2.4	69.9	24.8	4.4	45.0	28.9		46.9	58.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		64.9	21.7	2.4	69.9	24.8	4.4	45.0	28.9		46.9	58.7
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			20.1			23.9			37.8			57.1
Approach LOS			C			C			D			E
Queue Length 50th (m)		4.9	38.2	0.0	7.4	78.4	0.0	52.6	40.8		8.5	47.8
Queue Length 95th (m)		13.3	57.4	6.4	17.9	134.4	11.4	69.7	56.0		18.3	70.0
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1556	774	82	1710	782	376	889		312	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.28	0.31	0.12	0.39	0.59	0.15	0.79	0.27		0.12	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6343: Albion Road South & Bank Street



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

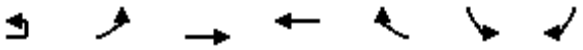
Intersection	
Int Delay, s/veh	1.7

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	7	100	1068	701	26	23	99
Future Vol, veh/h	7	100	1068	701	26	23	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	7	100	1068	701	26	23	99

Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	727	727	0	-	0	1462	364
Stage 1	-	-	-	-	-	714	-
Stage 2	-	-	-	-	-	748	-
Critical Hdwy	6.4	4.1	-	-	-	6.88	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	-	5.88	-
Follow-up Hdwy	2.5	2.2	-	-	-	3.54	3.3
Pot Cap-1 Maneuver	504	886	-	-	-	117	639
Stage 1	-	-	-	-	-	441	-
Stage 2	-	-	-	-	-	423	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	828	828	-	-	-	102	639
Mov Cap-2 Maneuver	-	-	-	-	-	102	-
Stage 1	-	-	-	-	-	384	-
Stage 2	-	-	-	-	-	423	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	828	-	-	-	102	639
HCM Lane V/C Ratio	0.129	-	-	-	0.225	0.155
HCM Control Delay (s)	10	-	-	-	50.3	11.7
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.8	0.5



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	15	58	1482	1378	103	84	29
Future Volume (vph)	15	58	1482	1378	103	84	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.179				0.950	
Satd. Flow (perm)	0	326	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					81		29
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	15	58	1482	1378	103	84	29
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	73	1482	1378	103	84	29
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.27	0.53	0.49	0.08	0.54	0.17
Control Delay		1.4	0.6	13.6	2.9	63.5	18.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		1.4	0.6	13.6	2.9	63.5	18.1
LOS		A	A	B	A	E	B
Approach Delay			0.7	12.8		51.8	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.1	1.2	153.0	5.4	19.2	0.0
Queue Length 95th (m)		m0.2	1.4	189.1	m8.0	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		274	2822	2822	1260	439	437
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.27	0.53	0.49	0.08	0.19	0.07

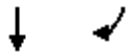
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 63.3% ICU Level of Service B
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1260	23	5	316	997	64	7	114	255	48
Future Volume (vph)	3	118	1260	23	5	316	997	64	7	114	255	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Frt				0.850				0.850		0.896		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1580	0	1601
Flt Permitted		0.272				0.084			0.528			0.166
Satd. Flow (perm)	0	463	3357	1499	0	150	3390	1451	936	1580	0	279
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		89		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1260	23	5	316	997	64	7	114	255	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1260	23	0	321	997	64	7	369	0	48
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		64.2	55.4	55.4		82.4	68.2	68.2	26.0	26.0		26.0
Actuated g/C Ratio		0.54	0.46	0.46		0.69	0.57	0.57	0.22	0.22		0.22
v/c Ratio		0.37	0.81	0.03		0.84	0.52	0.07	0.03	0.90		0.80

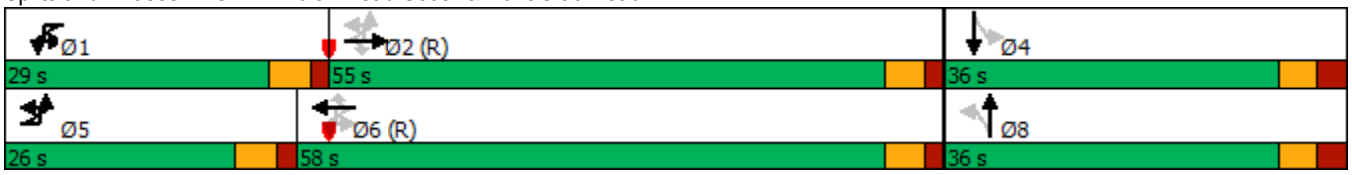


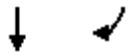
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	26.0	
Actuated g/C Ratio	0.22	
v/c Ratio	0.49	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		12.4	34.6	0.1		34.4	29.9	9.9	30.7	54.2		113.4
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		12.4	34.6	0.1		34.4	29.9	9.9	30.7	54.2		113.4
LOS		B	C	A		C	C	A	C	D		F
Approach Delay			32.1				30.0			53.8		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.4	141.4	0.0		66.5	129.1	6.1	1.3	72.2		10.5
Queue Length 95th (m)		16.9	#188.1	0.0		#93.1	150.3	14.1	m4.2	#105.0		#31.6
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		492	1548	733		407	1926	858	232	459		69
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.25	0.81	0.03		0.79	0.52	0.07	0.03	0.80		0.70

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 35.3		Intersection LOS: D	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5214: Albion Road South & Hunt Club Road

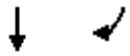




Lane Group	SBT	SBR
Control Delay	41.4	
Queue Delay	0.0	
Total Delay	41.4	
LOS	D	
Approach Delay	56.3	
Approach LOS	E	
Queue Length 50th (m)	34.1	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	247	1281	31	2	61	1304	41	15	18	34	57
Future Volume (vph)	1	247	1281	31	2	61	1304	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	247	1281	31	2	61	1304	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	1312	0	0	63	1304	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9			5.9	5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09

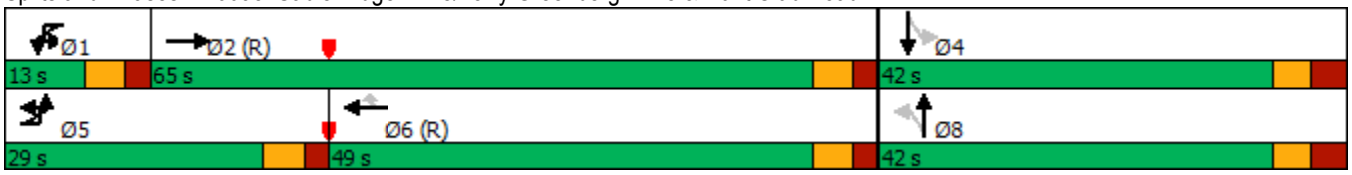


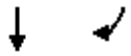
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	159
Future Volume (vph)	19	159
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	159	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	159
Shared Lane Traffic (%)		
Lane Group Flow (vph)	178	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.55			0.64	0.66	0.04	0.25	0.30		0.49
Control Delay		64.7	12.6			82.8	20.1	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		64.7	12.6			82.8	20.1	0.1	59.4	28.0		65.2
LOS		E	B			F	C	A	E	C		E
Approach Delay			20.9				22.4			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		45.0	133.0			14.8	108.8	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#90.0	160.4			#34.7	146.5	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1974	937	200	493		386
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.76	0.55			0.62	0.66	0.04	0.07	0.11		0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road





Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.1	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	69	1029	279	61	692	163	158	169	44	183	255
Future Volume (vph)	1	69	1029	279	61	692	163	158	169	44	183	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Frt				0.850			0.850		0.969			0.977
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1736	0	1712	1773
Flt Permitted		0.950			0.950			0.260			0.625	
Satd. Flow (perm)	0	1717	3424	1510	1694	3424	1440	472	1736	0	1122	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			163		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	1029	279	61	692	163	158	169	44	183	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	1029	279	61	692	163	158	213	0	183	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	57.6	57.6	9.7	57.1	57.1	39.4	37.3		26.3	26.3
Actuated g/C Ratio		0.08	0.48	0.48	0.08	0.48	0.48	0.33	0.31		0.22	0.22

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

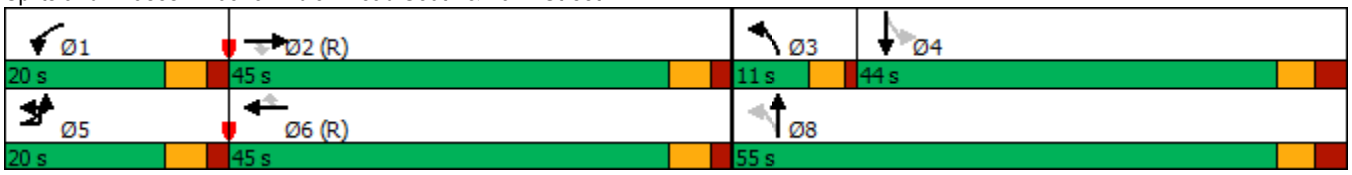
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.48	0.63	0.32	0.45	0.42	0.21	0.70	0.39		0.75	0.77
Control Delay		62.3	28.2	4.1	62.1	24.4	4.7	46.8	31.2		46.3	41.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		62.3	28.2	4.1	62.1	24.4	4.7	46.8	31.2		46.3	41.1
LOS		E	C	A	E	C	A	D	C		D	D
Approach Delay			25.1			23.4			37.9			43.0
Approach LOS			C			C			D			D
Queue Length 50th (m)		16.0	96.2	0.0	14.0	57.1	0.0	27.4	36.8		45.5	73.5
Queue Length 95th (m)		29.9	145.9	17.6	26.9	89.8	14.3	38.9	50.9		m59.7	m93.7
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		206	1642	869	201	1629	770	225	710		351	561
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.34	0.63	0.32	0.30	0.42	0.21	0.70	0.30		0.52	0.54

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 81.2% ICU Level of Service D
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	468	1044	27	31	116
Future Vol, veh/h	42	468	1044	27	31	116
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	42	468	1044	27	31	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1073	0	-	0	1378	538
Stage 1	-	-	-	-	1060	-
Stage 2	-	-	-	-	318	-
Critical Hdwy	4.14	-	-	-	7	6.98
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.22	-	-	-	3.6	3.34
Pot Cap-1 Maneuver	645	-	-	-	126	482
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	644	-	-	-	117	481
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	644	-	-	-	117	481
HCM Lane V/C Ratio	0.065	-	-	-	0.265	0.241
HCM Control Delay (s)	11	-	-	-	46.5	14.8
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1	0.9

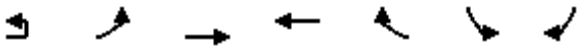
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1099	38	0	1309	0	14
Future Vol, veh/h	1099	38	0	1309	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	6	0	0	5	0	0
Mvmt Flow	1099	38	0	1309	0	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	569
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	470
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	470
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	470	-	-	-
HCM Lane V/C Ratio	0.03	-	-	-
HCM Control Delay (s)	12.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	13	15	1085	1248	54	77	46
Future Volume (vph)	13	15	1085	1248	54	77	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.209				0.950	
Satd. Flow (perm)	0	380	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					47		46
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	13	15	1085	1248	54	77	46
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	28	1085	1248	54	77	46
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09

Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.09	0.39	0.45	0.05	0.51	0.25
Control Delay		4.9	4.5	4.5	0.4	62.8	17.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.9	4.5	4.5	0.4	62.8	17.3
LOS		A	A	A	A	E	B
Approach Delay			4.5	4.3		45.8	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.9	22.8	94.4	0.4	17.6	0.0
Queue Length 95th (m)		m5.0	67.5	3.2	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		321	2784	2758	1121	451	450
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.09	0.39	0.45	0.05	0.17	0.10

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 6.4 Intersection LOS: A
Intersection Capacity Utilization 50.3% ICU Level of Service A
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	781	8	21	182	1053	79	6	90	216	42	84
Future Volume (vph)	58	781	8	21	182	1053	79	6	90	216	42	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.894			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1669	3202	1532	1729	1545	0	1695	1520
Flt Permitted	0.234				0.291			0.571			0.205	
Satd. Flow (perm)	387	3232	1206	0	511	3202	1483	1031	1545	0	365	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		93			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	781	8	21	182	1053	79	6	90	216	42	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	781	8	0	203	1053	79	6	306	0	42	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	5	2	2	1	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	77.8	70.8	70.8		85.5	76.5	76.5	21.7	21.7		21.7	21.7
Actuated g/C Ratio	0.65	0.59	0.59		0.71	0.64	0.64	0.18	0.18		0.18	0.18

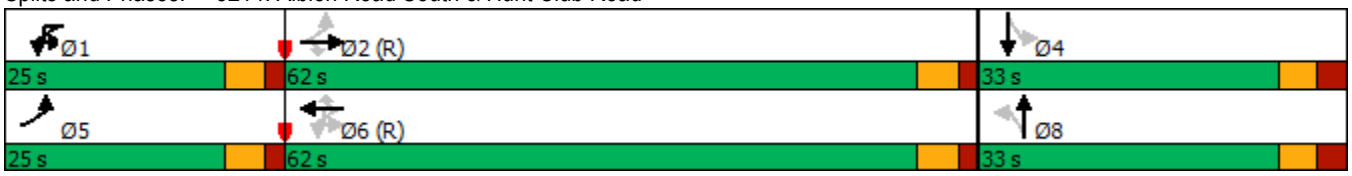
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.18	0.41	0.01		0.44	0.52	0.08	0.03	0.86		0.65	0.51
Control Delay	7.7	15.3	0.0		6.4	4.0	0.3	58.2	77.1		85.1	39.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.7	15.3	0.0		6.4	4.0	0.3	58.2	77.1		85.1	39.7
LOS	A	B	A		A	A	A	E	E		F	D
Approach Delay		14.6				4.1			76.7			49.5
Approach LOS		B				A			E			D
Queue Length 50th (m)	3.7	50.7	0.0		3.7	11.3	0.0	1.4	56.1		9.1	25.4
Queue Length 95th (m)	8.4	75.2	0.0		8.8	20.6	0.4	m4.7	#78.6		#24.1	44.5
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	472	1906	743		558	2040	973	230	417		81	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.12	0.41	0.01		0.36	0.52	0.08	0.03	0.73		0.52	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.1 Intersection LOS: B
Intersection Capacity Utilization 77.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

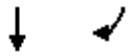
Splits and Phases: 5214: Albion Road South & Hunt Club Road



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	143	1003	12	7	19	1084	37	23	18	71	74
Future Volume (vph)	1	143	1003	12	7	19	1084	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3224	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	1003	12	7	19	1084	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	1015	0	0	26	1084	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9			5.9	5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10



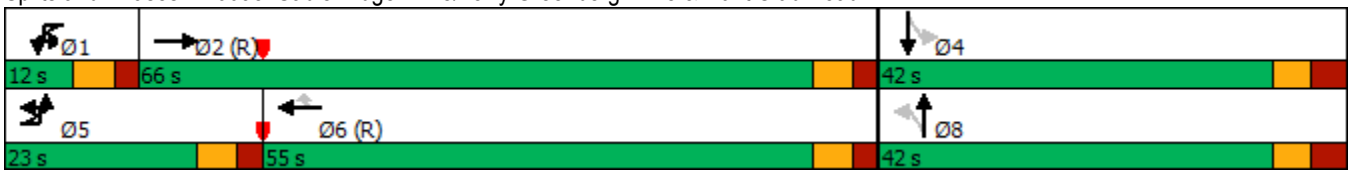
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	190
Future Volume (vph)	7	190
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	190	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	190
Shared Lane Traffic (%)		
Lane Group Flow (vph)	197	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

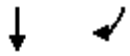
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.43			0.31	0.55	0.04	0.38	0.40		0.57
Control Delay		64.7	10.6			64.5	15.5	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		64.7	10.6			64.5	15.5	0.1	66.6	20.9		67.0
LOS		E	B			E	B	A	E	C		E
Approach Delay			17.3				16.2			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		32.1	42.8			6.0	74.2	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.4	92.4			15.4	108.6	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2357			87	1968	970	170	495		369
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.62	0.43			0.30	0.55	0.04	0.14	0.18		0.20

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 18.6 Intersection LOS: B
Intersection Capacity Utilization 76.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road





Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	20	479	95	33	1009	120	298	214	31	37	130
Future Volume (vph)	1	20	479	95	33	1009	120	298	214	31	37	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.981			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1751	0	1558	1661
Flt Permitted		0.950			0.950			0.296			0.607	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1751	0	994	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		9			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	479	95	33	1009	120	298	214	31	37	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	479	95	33	1009	120	298	245	0	37	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

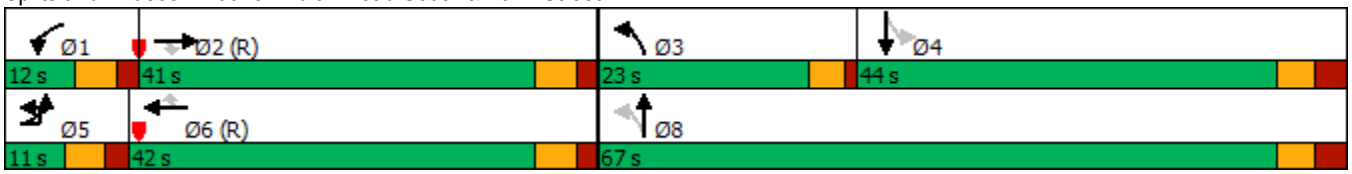
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.28	0.31	0.12	0.41	0.59	0.15	0.80	0.39		0.23	0.76
Control Delay		64.9	21.7	2.4	70.7	24.8	4.4	45.0	28.9		46.0	57.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		64.9	21.7	2.4	70.7	24.8	4.4	45.0	28.9		46.0	57.9
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			20.1			24.0			37.7			56.2
Approach LOS			C			C			D			E
Queue Length 50th (m)		4.9	38.2	0.0	7.7	78.5	0.0	52.6	41.0		8.5	47.8
Queue Length 95th (m)		13.3	57.4	6.4	18.4	134.5	11.4	69.7	56.2		18.2	69.6
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1556	774	82	1710	782	376	888		311	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.28	0.31	0.12	0.40	0.59	0.15	0.79	0.28		0.12	0.42

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6343: Albion Road South & Bank Street



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.8

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	7	101	1068	701	28	27	105
Future Vol, veh/h	7	101	1068	701	28	27	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	7	101	1068	701	28	27	105

Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	729	729	0	-	0	1465	365
Stage 1	-	-	-	-	-	715	-
Stage 2	-	-	-	-	-	750	-
Critical Hdwy	6.4	4.1	-	-	-	6.88	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	-	5.88	-
Follow-up Hdwy	2.5	2.2	-	-	-	3.54	3.3
Pot Cap-1 Maneuver	502	884	-	-	-	117	638
Stage 1	-	-	-	-	-	440	-
Stage 2	-	-	-	-	-	422	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	825	825	-	-	-	102	638
Mov Cap-2 Maneuver	-	-	-	-	-	102	-
Stage 1	-	-	-	-	-	382	-
Stage 2	-	-	-	-	-	422	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	825	-	-	-	102	638
HCM Lane V/C Ratio	0.131	-	-	-	0.265	0.165
HCM Control Delay (s)	10	-	-	-	52.5	11.8
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.5	-	-	-	1	0.6

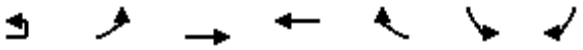
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1554	23	0	1459	0	42
Future Vol, veh/h	1554	23	0	1459	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	1554	23	0	1459	0	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	789
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	338
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	338
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	338	-	-	-
HCM Lane V/C Ratio	0.124	-	-	-
HCM Control Delay (s)	17.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	43	59	1495	1385	103	84	30
Future Volume (vph)	43	59	1495	1385	103	84	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.177				0.950	
Satd. Flow (perm)	0	322	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					81		30
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	43	59	1495	1385	103	84	30
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	102	1495	1385	103	84	30
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.38	0.53	0.49	0.08	0.54	0.17
Control Delay		2.8	0.7	13.6	2.9	63.5	18.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		2.8	0.7	13.6	2.9	63.5	18.0
LOS		A	A	B	A	E	B
Approach Delay			0.8	12.9		51.5	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.3	2.0	154.4	5.4	19.2	0.0
Queue Length 95th (m)		m0.4	2.6	189.9	m7.9	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		270	2822	2822	1260	439	438
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.38	0.53	0.49	0.08	0.19	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 8.3		Intersection LOS: A	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive

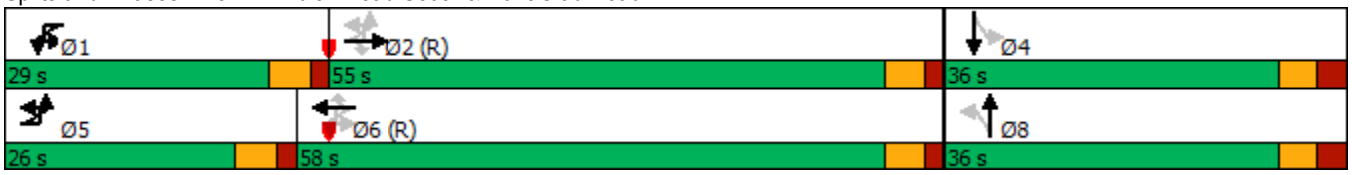
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1275	23	12	316	1025	65	7	114	255	49
Future Volume (vph)	3	118	1275	23	12	316	1025	65	7	114	255	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Frt				0.850				0.850		0.896		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1580	0	1601
Flt Permitted		0.261				0.080			0.528			0.166
Satd. Flow (perm)	0	444	3357	1499	0	143	3390	1451	936	1580	0	279
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		89		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1275	23	12	316	1025	65	7	114	255	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1275	23	0	328	1025	65	7	369	0	49
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		63.9	55.1	55.1		82.4	68.2	68.2	26.0	26.0		26.0
Actuated g/C Ratio		0.53	0.46	0.46		0.69	0.57	0.57	0.22	0.22		0.22
v/c Ratio		0.38	0.83	0.03		0.87	0.53	0.08	0.03	0.90		0.82

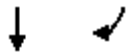
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	26.0	
Actuated g/C Ratio	0.22	
v/c Ratio	0.49	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		12.7	35.4	0.1		37.0	30.1	9.7	30.7	54.3		116.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		12.7	35.4	0.1		37.0	30.1	9.7	30.7	54.3		116.9
LOS		B	D	A		D	C	A	C	D		F
Approach Delay			32.9				30.8			53.8		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.4	144.3	0.0		67.9	132.5	6.1	1.3	72.1		10.8
Queue Length 95th (m)		16.9	#192.0	0.0		#98.7	153.9	14.6	m4.2	#104.9		#32.5
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		482	1542	731		403	1926	858	232	459		69
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.25	0.83	0.03		0.81	0.53	0.08	0.03	0.80		0.71

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 36.0		Intersection LOS: D	
Intersection Capacity Utilization 103.3%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5214: Albion Road South & Hunt Club Road

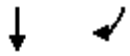




Lane Group	SBT	SBR
Control Delay	41.4	
Queue Delay	0.0	
Total Delay	41.4	
LOS	D	
Approach Delay	57.2	
Approach LOS	E	
Queue Length 50th (m)	34.1	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	248	1293	31	2	61	1310	41	15	18	34	57
Future Volume (vph)	1	248	1293	31	2	61	1310	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	248	1293	31	2	61	1310	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	1324	0	0	63	1310	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9			5.9	5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09



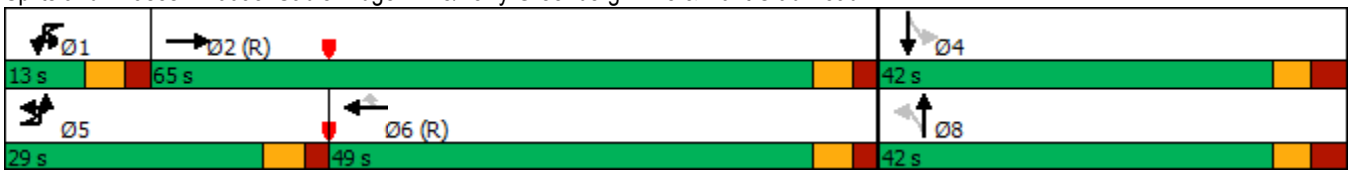
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	160
Future Volume (vph)	19	160
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	160	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	160
Shared Lane Traffic (%)		
Lane Group Flow (vph)	179	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

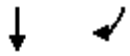
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.56			0.64	0.66	0.04	0.25	0.30		0.49
Control Delay		65.2	12.6			82.8	20.2	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.2	12.6			82.8	20.2	0.1	59.4	28.0		65.2
LOS		E	B			F	C	A	E	C		E
Approach Delay			20.9				22.4			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		45.9	134.2			14.8	109.6	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#90.6	162.0			#34.7	147.6	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1973	937	200	493		386
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.76	0.56			0.62	0.66	0.04	0.07	0.11		0.15

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.6 Intersection LOS: C
Intersection Capacity Utilization 83.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road





Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.3	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	69	1029	279	63	696	163	158	169	45	183	255
Future Volume (vph)	1	69	1029	279	63	696	163	158	169	45	183	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Frt				0.850			0.850		0.968			0.977
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1734	0	1712	1773
Flt Permitted		0.950			0.950			0.260			0.624	
Satd. Flow (perm)	0	1717	3424	1510	1694	3424	1440	472	1734	0	1120	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			163		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	1029	279	63	696	163	158	169	45	183	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	1029	279	63	696	163	158	214	0	183	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	57.4	57.4	9.8	57.1	57.1	39.4	37.3		26.3	26.3
Actuated g/C Ratio		0.08	0.48	0.48	0.08	0.48	0.48	0.33	0.31		0.22	0.22

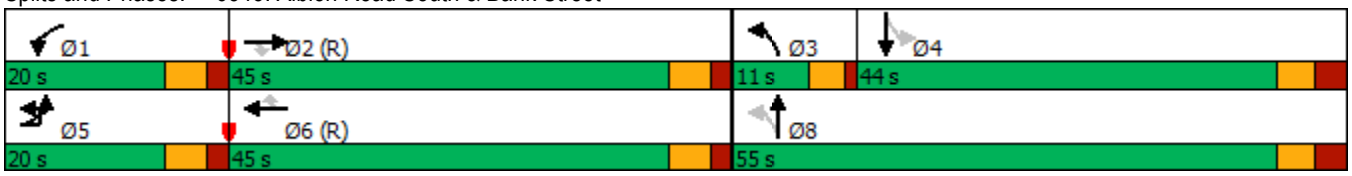
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.48	0.63	0.32	0.46	0.43	0.21	0.70	0.39		0.75	0.76
Control Delay		62.3	28.4	4.1	62.3	24.5	4.7	46.7	31.2		46.2	41.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		62.3	28.4	4.1	62.3	24.5	4.7	46.7	31.2		46.2	41.0
LOS		E	C	A	E	C	A	D	C		D	D
Approach Delay			25.2			23.6			37.8			42.9
Approach LOS			C			C			D			D
Queue Length 50th (m)		16.0	96.3	0.0	14.4	57.5	0.0	27.4	37.0		45.4	73.2
Queue Length 95th (m)		29.9	#148.2	17.7	27.8	90.6	14.3	38.8	51.0		m58.3	m91.7
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		206	1637	867	201	1628	770	225	710		350	561
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.34	0.63	0.32	0.31	0.43	0.21	0.70	0.30		0.52	0.54

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 81.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Appendix B - Traffic Signal Warrant Analysis

IBI

OTM BOOK 12* - TRAFFIC SIGNAL WARRANT

Project: 1470 Hunt Club Road **Date:** May 16, 2022

Project #: 126884

Location: Bank Street (Major Roadway) at Sieveright Avenue (Minor Roadway)

Orientation: East/West North/South

Municipality: City of Ottawa **Scenario:** Future (2027) Total Traffic*

* Includes 2600 Bank St traffic and traffic generated by the conceptual future residential development.

Justification 1 - Minimum Vehicle Volume

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, all approaches	480	720	600	**900**	1740 100%	870 97%	870 97%	870 97%	2051 100%	1026 100%	1026 100%	1026 100%	99%
B. Vehicle volume along minor roads	120	170	180	**255**	155 61%	78 30%	78 30%	78 30%	138 54%	69 27%	69 27%	69 27%	36%

Justification 2 - Delay to Cross Traffic

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, along artery	480	720	600	**900**	1585 100%	793 88%	793 88%	793 88%	1913 100%	957 100%	957 100%	957 100%	96%
B. Combined vehicle and pedestrian volume crossing artery from minor roads	50	70	50	**70**	32 46%	16 23%	16 23%	16 23%	28 40%	14 20%	14 20%	14 20%	27%

Justification 3 - Volume/Delay Combination

JUSTIFICATION	SATISFIED TO 80% OR MORE?	BOTH SATISFIED TO 80% OR MORE?
Justification 1 - Minimum Vehicular Volume	NO	NO
Justification 2 - Delay to Cross Traffic	NO	

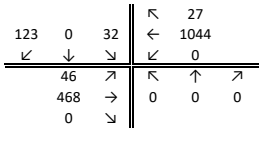
Justification 7 - Projected Volumes

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT				COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	ADJUSTED FREE FLOW	ADJUSTED RESTRICTED FLOW	SECTIONAL AHV	SECTIONAL %	ENTIRE %
1. MINIMUM VEHICULAR VOLUME	A. Vehicle volumes, all approaches (Average Hour)	480	720	720	**1080**	947	88%	24%
	B. Vehicle volume along minor roads (Average Hour)	120	170	216	**306**	73	24%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volumes, along artery (Average Hour)	480	720	720	**1080**	874	81%	17%
	B. Combined vehicle and pedestrian volume crossing artery from minor roads (Average Hour)	50	75	60	**90**	15	17%	

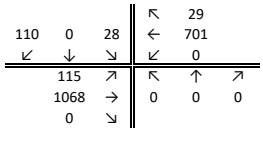
Projected Traffic Volumes:

Average Hourly Volume (AHV) Equation: AHV = (amPHV + pmPHV)/4

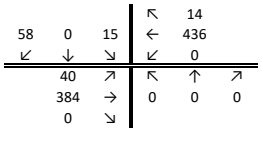
AM Peak Hour Volumes



PM Peak Hour Volumes



Average Hourly Volumes (AHV)



Eight Hour Traffic Volumes:**

Hour	Major Road						Minor Road						Ped*
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
7:00 AM	46	468	0	0	1044	27	0	0	0	32	0	123	0
8:00 AM	23	234	0	0	522	14	0	0	0	16	0	62	0
9:00 AM	23	234	0	0	522	14	0	0	0	16	0	62	0
10:00 AM	23	234	0	0	522	14	0	0	0	16	0	62	0
3:00 PM	115	1068	0	0	701	29	0	0	0	28	0	110	0
4:00 PM	58	534	0	0	351	15	0	0	0	14	0	55	0
5:00 PM	58	534	0	0	351	15	0	0	0	14	0	55	0
6:00 PM	58	534	0	0	351	15	0	0	0	14	0	55	0

** Number of pedestrians crossing the major road*
*** These are projected 8-hour traffic volumes.*

Notes:

1. Vehicle volume warrant (1A) and (2A) for intersections of roadways having two or more moving lanes in one direction should be 25% higher than the values given above.

2+ Lanes per Direction

2. Warrant values for free flow apply when the 85th percentile speed of artery traffic equals or exceeds 70 km/h or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000. Warrant values for restricted flow apply to large urban communities when the 85th percentile speed of artery traffic does not exceed 70 km/h.

Restricted Flow

3. The lowest sectional percentage governs the entire warrant.

4. For "T" intersections the warrant values for the minor road should be increased by 50% (Warrant 1B only).

3-legged Intersection

5. All flow values for Justification 1 and 2 are to be increased by 20% in the case of new intersections, Justification 3 is to only be used for existing intersections and all flow values for Warrant 1 and Warrant 2 of Justification 7 are to be increased by 20% for existing intersections and by 50% in the case of new intersections.

Existing Intersection

6. The crossing volumes are defined as the sum of:
   (a) Left-turns from both minor road approaches.
   (b) The heaviest through volume from the minor road.
   (c) 50% of the heavier left turn movement from major road when both of the following are met:
      (i) the left-turn volume >120 vph
      (ii) the left-turn volume plus the opposing volume >720 vph
   (d) Pedestrians crossing the main road.

CONCLUSION: **The intersection does NOT meet the minimum warrants for traffic control signals.**

* "Ontario Traffic Manual, Book 12 (March 2012)", Ontario Ministry of Transportation.