2582-2600, 2626 Bank Street

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

Prepared for:

Upper Hunt Club Centre Inc.
2335 St. Laurent Blvd, Unit 107
Ottawa, ON, K1G 5G6

Prepared by:

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September 2021

PN: 2021-010

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1 Screening

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This report accompanies a site plan application.

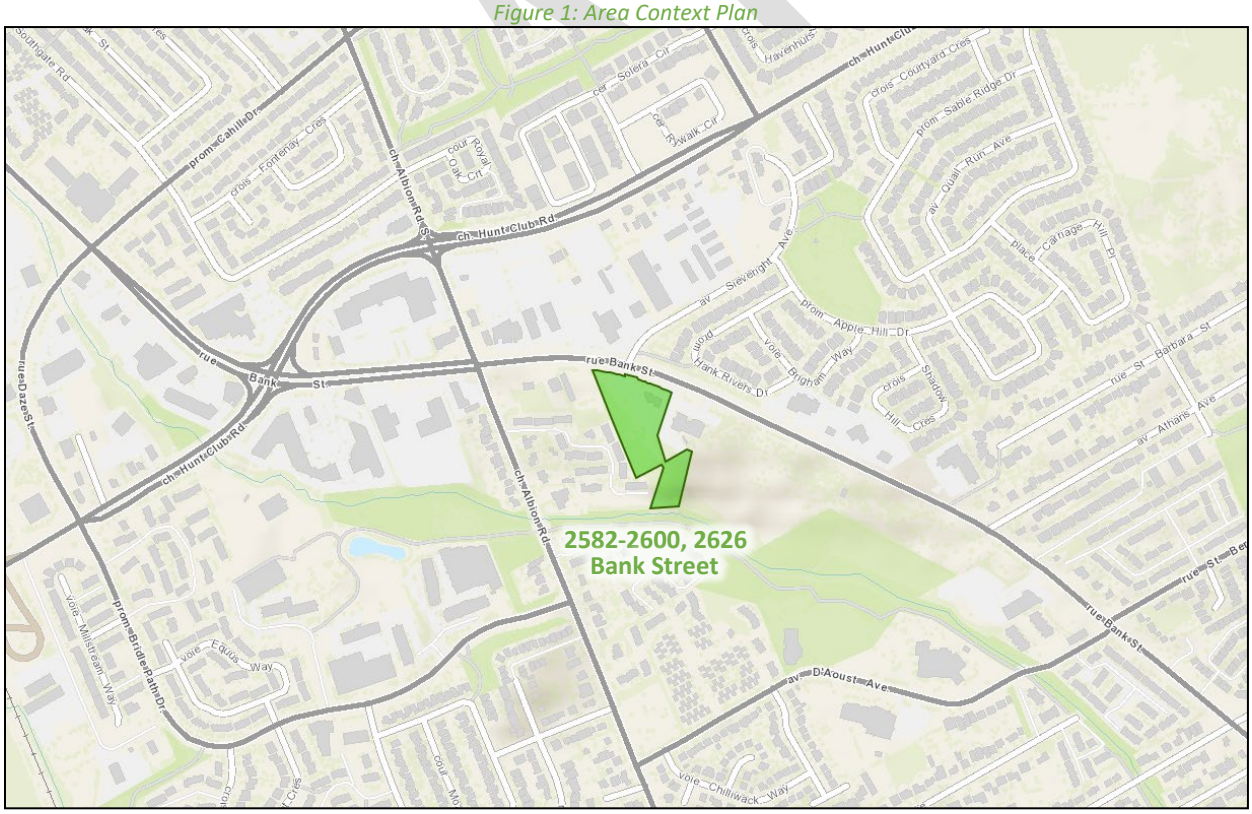
2 Existing and Planned Conditions

2.1 Proposed Development

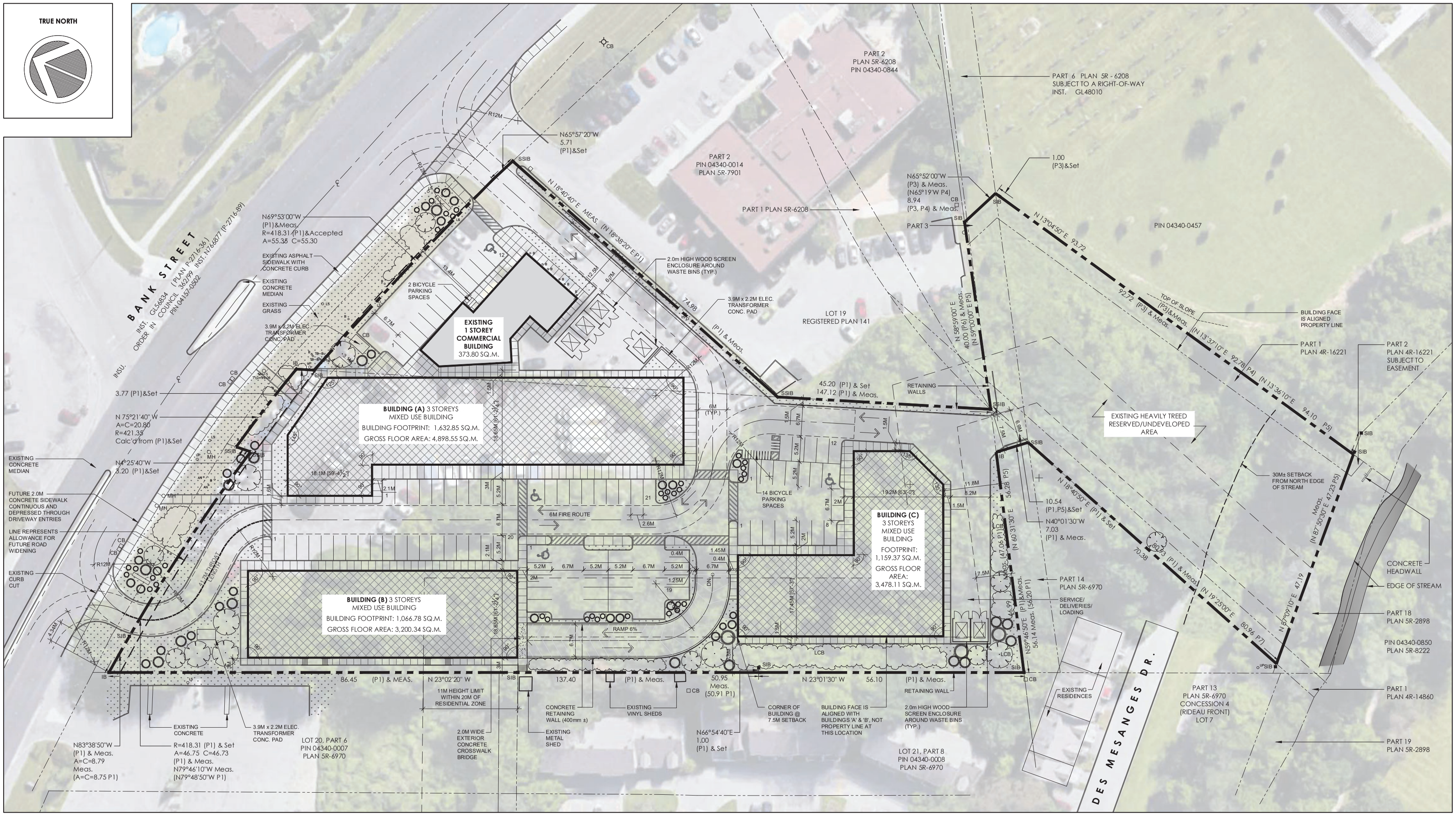
The subject site currently occupied by a used car dealership/car rental centre, is zoned as Arterial Mainstreet (AM H(30)) and Residential Third Density (R3Y[708]) and intersects the Bank Arterial Mainstreet Design Priority Area. The proposed development includes three new mixed-use buildings on the 2582 and 2600 Bank Street parcels, comprising 4,232.8 m^2 of commercial space and 7,718.0 m^2 of office space with the retention and repurposing of the existing car sales/rental building. The construction is to be phased, with the number of phases yet to be determined, where full build-out and occupation is expected by 2025. The existing full-movement site access is to be retained and the development proposes a new right-in/right-out site access onto Bank Street in line with a median which would prevent left-turns to and from the access.

Figure 1 illustrates the Study Area Context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: February 8, 2021



1 SITE PLAN
A1.0 SCALE 1:400

LEGEND

PROPERTY LINE	EXISTING LIGHT STANDARD
SETBACK LINE	PROPOSED PAINTED GALVANIZED STEEL BOLLARD
FIRE DEPARTMENT ACCESS ROUTE	EXISTING UTILITY POLE
OUTLINE OF NEW BUILDING	EXISTING CATCH BASIN
OUTLINE OF EXISTING BUILDING	DRAINAGE INLET
OUTLINE OF LANDSCAPED AREA	PROPOSED CATCH BASIN
	PROPOSED CATCH BASIN SANITARY MANHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED LEACHING CATCH BASIN
	EXISTING IRON BAR
	EXISTING STANDARD IRON BAR
	EXISTING SHORT STANDARD IRON BAR

ZONING DATA (BASED ON ZONING BY-LAW 2008-250)

Municipal Address:
2582, 2600, 2626 Bank Street, Ottawa, Ontario

Legal Description:
Plan 141 PT Lot 19 RP5R;14339 PT of Part 1
Plan 141 PT Lot 19 RP5R7901;Part 1
Plan 141 PT Lots 19 & 21 RP;5R-6970 Parts 16 & 17 less; RP 5R-2898 Part 18; Gloucester Concession 4 RF PT Lot 7; and Plan 141 PT Lot 21 RP;5R2898 Parts 17 to 19 PT; Part 16 RP 5R7045 Part 1 RP; 5R8222 Parts 1 2 and 4 RP

Zoning Designation:
2582, 2600 Bank Street: AM H(30) Arterial Mainstreet
2626 Bank Street: R3Y(708) Residential

Site Area: 16,321.58 Sq.M. (1.632 Ha)

Lot Coverage: (3859/16,321.58) x 100 = 23.64%

ZONING PROVISIONS

ZONING MECHANISM	REQUIRED	PROVIDED
PARKING REQUIREMENTS	**Parking Ratio – Commercial** 3.6/100 Sq.M. = 152 Parking Spaces **Parking Ratio – Office** 2.4/100 Sq.M. = 185 Parking Spaces **Total: 152 + 185 = 337 spaces**	441 Spaces (92 above ground; 349 below ground)
DISABLED PARKING SPACES	5 Parking Spaces	13 Spaces (4 above ground; 9 below ground)
BICYCLE PARKING REQUIREMENTS	**Bike Space Ratio – Commercial** 1/250 Sq.M. = 17 Parking Spaces **Bike Space Ratio – Office** 1/250 Sq.M. = 31 Parking Spaces **Total: 17 + 31 = 48 spaces**	48 Spaces (16 above ground; 32 below ground)

BUILDING USE & AREAS

BUILDING	FLOOR	USE	AREA (SQ.M.)
EXISTING	1ST	COMMERCIAL	**373.80**
BUILDING (A)	1ST	COMMERCIAL	1,632.85
	2ND	OFFICE	1,632.85
	3RD	OFFICE	1,632.85
	TOTAL GROSS FLOOR AREA		**4,898.55**
BUILDING (B)	1ST	COMMERCIAL	1,066.78
	2ND	OFFICE	1,066.78
	3RD	OFFICE	1,066.78
	TOTAL GROSS FLOOR AREA		**3,200.34**
BUILDING (C)	1ST	COMMERCIAL	1,159.37
	2ND	OFFICE	1,159.37
	3RD	OFFICE	1,159.37
	TOTAL GROSS FLOOR AREA		**3,478.11**

TOTAL GROSS FLOOR AREA CALCULATION

DESCRIPTION	GFA (SQ.M.)
TOTAL COMMERCIAL	4,232.80
TOTAL OFFICE	7,718.00
TOTAL GROSS FLOOR AREA	**11,950.80**

SHEET SIZE: ARCH D 24" X 36" (609.6mm X 914.4mm) | PLOT DATE: July 11, 2021

PLAN NO.: #####

GENERAL NOTES

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR MUST COMPLY WITH ALL CODES AND BYLAWS AND OTHER REGULATIONS BY AUTHORITIES HAVING JURISDICTION OVER THE WORK.
- DO NOT SCALE THIS DRAWING.
- THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNLESS SEALED/SIGNED BY THE ARCHITECT.
- COPYRIGHT OF THIS DRAWINGS IS RESERVED.

SURVEY PLAN DISCLAIMER

THIS ARCHITECTURAL SITE PLAN DRAWING IS PREPARED BASED ON A SURVEY PLAN PROVIDED TO A+ ARCHITECTURE INC. OF EXISTING LAND FEATURES, INCLUDING BUT NOT LIMITED TO, EXISTING LEGAL BOUNDARIES, LOT LINES, GRADES, TOPOGRAPHY, VEGETATION ETC., SHOWN ON THIS DRAWING FOR COORDINATION PURPOSES ONLY AND ARE BASED ON THE SURVEY PLAN PREPARED BY **ANNIS, O'SULLIVAN, VOLLEBEKK LTD.**, ONTARIO LAND SURVEYOR, DATED **SEPTEMBER 25, 2019**.

THE AFOREMENTIONED SURVEY PLAN WAS INCORPORATED INTO THE ARCHITECTURAL SITE PLAN DRAWING, AS PROVIDED TO A+ ARCHITECTURE INC., WITH NO ALTERATIONS WHATSOEVER. A+ ARCHITECTURE INC. SHALL NOT BE HELD LIABLE AS TO THE ACCURACY OF THE INFORMATION PROVIDED ON THE SURVEY PLAN.

NO.	ISSUE	DATE (YY/MM/DD)
02	ISSUED FOR REVIEW	2021/07/11
01	UPDATED FOR REVIEW	2020/02/28
00	PRELIMINARY FOR REVIEW	2019/10/11

REVISIONS

PROJECT NORTH | SEAL

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2335 ST. LAURENT BLVD., OTTAWA, ON

PROJECT
UPPER HUNT CLUB CENTRE
2600 BANK STREET, OTTAWA, ON

DRAWING TITLE
SITE PLAN

DRAWN BY	J.R.	DRAWING NO.	A1.0
REVIEWED BY	A.A.		
START DATE	2019/10/08		
PROJECT NO.	19009	REVISION NO.	02

FILE NO.: X##-##-##-####

2.2 Existing Conditions

2.2.1 Area Road Network

Bank Street: Bank Street is a City of Ottawa arterial road with a divided four-lane urban cross-section including sidewalks on both sides of the road to the west of Albion Road. Between Albion Road and Sieveright Avenue, Bank Street has a five-lane urban cross-section including a two-way left-turn lane, with sidewalks on both sides of the road, where the sidewalk is discontinuous on the south side of the road along the frontage of the Petro-Canada. Between Sieveright Avenue and Councillors Way, the cross-section is: semi-urban for 175 metres, curbed with a sidewalk on the south side and with a paved shoulder on the north side; fully rural for 40 metres with paved shoulders on both sides; semi-urban for 90 metres, curbed with sidewalk on the north side and with a paved shoulder on the south side; semi-urban for 145 metres, curbed on the north side with a paved shoulder on the south side of the road, and a functional paved shoulder on the north side of the road, given nearly half of the frontage is driveways and the shoulder is bounded by curbed sidewalks; fully rural for 50 metres with paved shoulders on both sides; semi-urban for 300 metres curbed with a sidewalk on the north side and with a paved shoulder on the south side. East of Councillors Way within the study area, the cross-section urban with sidewalks on both sides of the road. The posted speed limit is 60 km/h, and City-protected right of way within the study area is 37.5 metres, north of Hunt Club Road, and is 44.5 metres, south of Hunt Club Road. Bank Street is a truck route.

Hunt Club Road: Hunt Club Road is a City of Ottawa arterial road with a divided six-lane urban cross-section including sidewalks and bike lanes on both sides of the road to the west of Bank Street within the study area. East of Bank Street, Hunt Club Road has a divided four-lane cross-section with sidewalks on both sides of the road. Outside lane transit priority lanes are present at the western extent of the study area. The posted speed limit is 60 km/h, and City-protected right of way within the study area is 44.5 metres. Hunt Club Road is a truck route.

Albion Road: Albion Road is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks and curbside bike lanes on both sides of the road south of Bank Street. North of Bank Street, Albion Road's cross-section includes a sidewalk on the west side of the road along its entire length within the study area and a sidewalk on the east side of the road for: 50 metres north of Bank Street; 50 metres south of Hunt Club Road; and 165 metres north of Hunt Club Road. The posted speed limit is 50 km/h, and City-protected right of way within the study area is 24.0 metres to the south of Bank Street, and the measured right of way is 20.0 metres to the north.

Sieveright Avenue: Sieveright Avenue is a City of Ottawa local road with a two-lane urban cross-section including a sidewalk on the east side of the road. The posted speed limit is 50 km/h, and measured right of way is 24.0 metres to the south of Apple Hill Drive, and 23.0 metres to the north.

2.2.2 Existing Intersections

The key existing signalized area intersections with 400 metres of the site and along Bank Street or Hunt Club Road have been summarized below:

Bank Street at Hunt Club Road	The intersection of Bank Street at Hunt Club Road is a signalized intersection. The northbound and southbound approaches of Bank Street each consist of two auxiliary left-turn lanes, two through lanes, and an auxiliary channelized right-turn lane. The eastbound approach consists of two auxiliary left-turn lanes, two through lanes, and a channelized right-turn lane and the westbound approach consists of an auxiliary left-turn lane, two through lanes, and an auxiliary channelized right-turn lane. No turn restrictions were noted.

Albion Road at Hunt Club Road	The intersection of Albion Road at Hunt Club Road is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane and a shared through/channelized right-turn lane. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, two through lanes, and an auxiliary channelized right-turn lane. No turn restrictions were noted.
Bank Street at Towngate Plaza	The intersection of Bank Street at the Towngate Plaza shopping centre access/Petro-Canada access is a signalized intersection. The northbound approach of Bank Street consists of an auxiliary left-turn lane that functions as through/left-turn lane, an auxiliary through lane, two through lanes, and an auxiliary right-turn lane and the southbound approach consists of two through lanes and a right-turn lane. The eastbound approach consists of a shared left/through/channelized right-turn lane and the westbound approach consists of a shared all-movements lane. Southbound left turns are prohibited at this intersection.
Albion Road at Bank Street	The intersection of Albion Road at Bank Street is a signalized intersection. The northbound and southbound approaches of Albion Road each consist of an auxiliary left-turn lane and a shared through/channelized right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, two through lanes, and an auxiliary right-turn lane and the westbound approach consists of an auxiliary left-turn lane, two through lanes, and an auxiliary channelized right-turn lane. No turn restrictions were noted.
Sieveright Avenue at Bank Street	The intersection of Sieveright Avenue at Bank Street is an unsignalized T-intersection, stop-controlled on the minor approach of Sieveright Avenue. The southbound approach of Sieveright Avenue consists of an auxiliary left-turn lane and a right-turn lane. The eastbound approach consists of an auxiliary left-turn lane and two through lanes, and the westbound approach consists of a through lane and a shared through/channelized right-turn lane. No turn restrictions were noted.

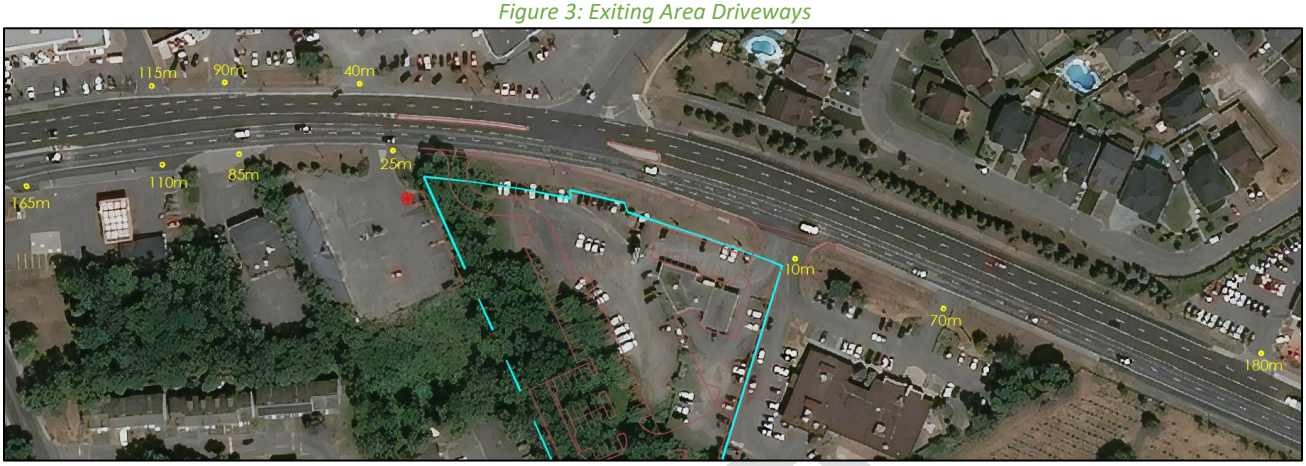
2.2.3 Existing Driveways

Within 200 metres of the proposed site accesses, four driveways exist along the south side of Bank Street and three driveways exist on the north side of Bank Street to the west of the site, and one on the north side of Bank Street and two on the south side of Bank Street exist to the east of the site, with all driveways accessing a number of commercial land uses.

The existing site access permits full movements and is shared with the adjacent parcel's full-movement access, a veterinary hospital, where a 2.5-metre median separates the driveways.

Driveways onto Bank Street within proximity of the site are illustrated in Figure 3.

Figure 3: Exiting Area Driveways

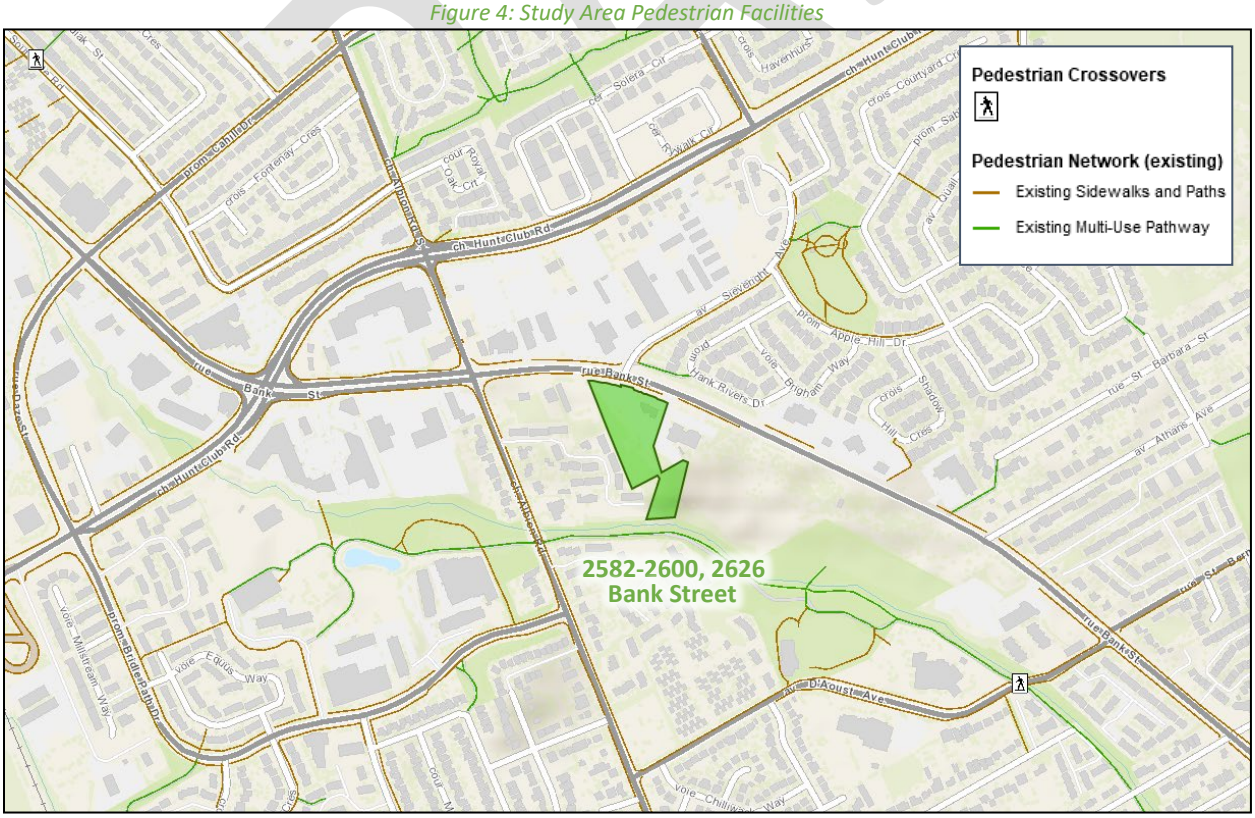


2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the pedestrian facilities in the study area and Figure 5 illustrates the cycling facilities.

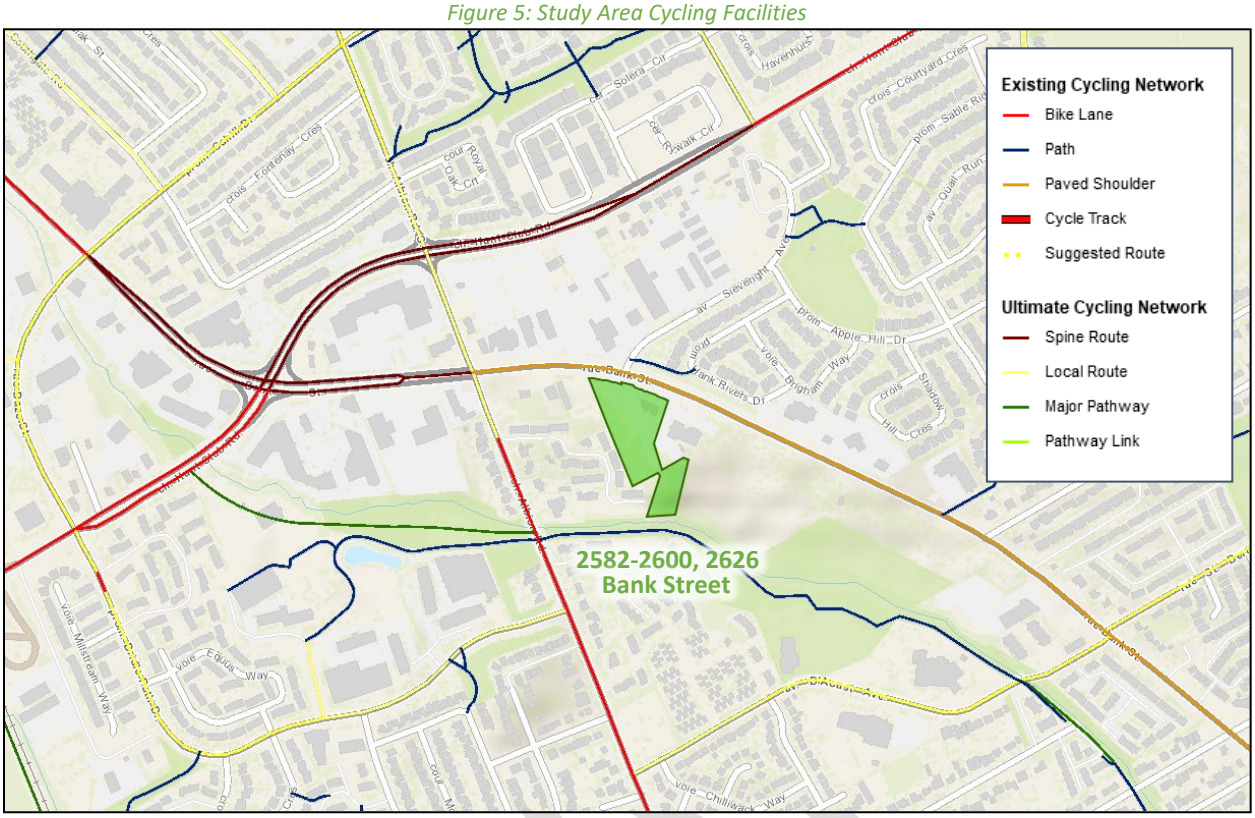
Sidewalks are provided along both sides of Hunt Club Road and both sides of Bank Street to the west of the site and both sides of Albion Road South of Bank Street. A single sidewalk is found along the west side of Albion Road north of Bank Street. A sidewalk exists along the site frontage which connects to the pedestrian facilities to the west. Cycling facilities include curbside bike lanes on Albion Road south of Bank Street and on Hunt Club Road west of Bank Street, and discontinuous paved shoulders along Bank Street east of Albion Road. Bank Street and Hunt Club Road are spine routes, and Albion Road, Bridle Path Drive/Dazé Street/Cahill Drive, and D'Aoust Avenue are local routes.

Figure 4: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: February 8, 2021

Figure 5: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: February 8, 2021

Pedestrian and cyclist volumes included in study area intersection counts, presented in Section 2.2.7, have been compiled and are illustrated in Figure 6 and Figure 7 respectively.

Figure 6: Existing Pedestrian Counts

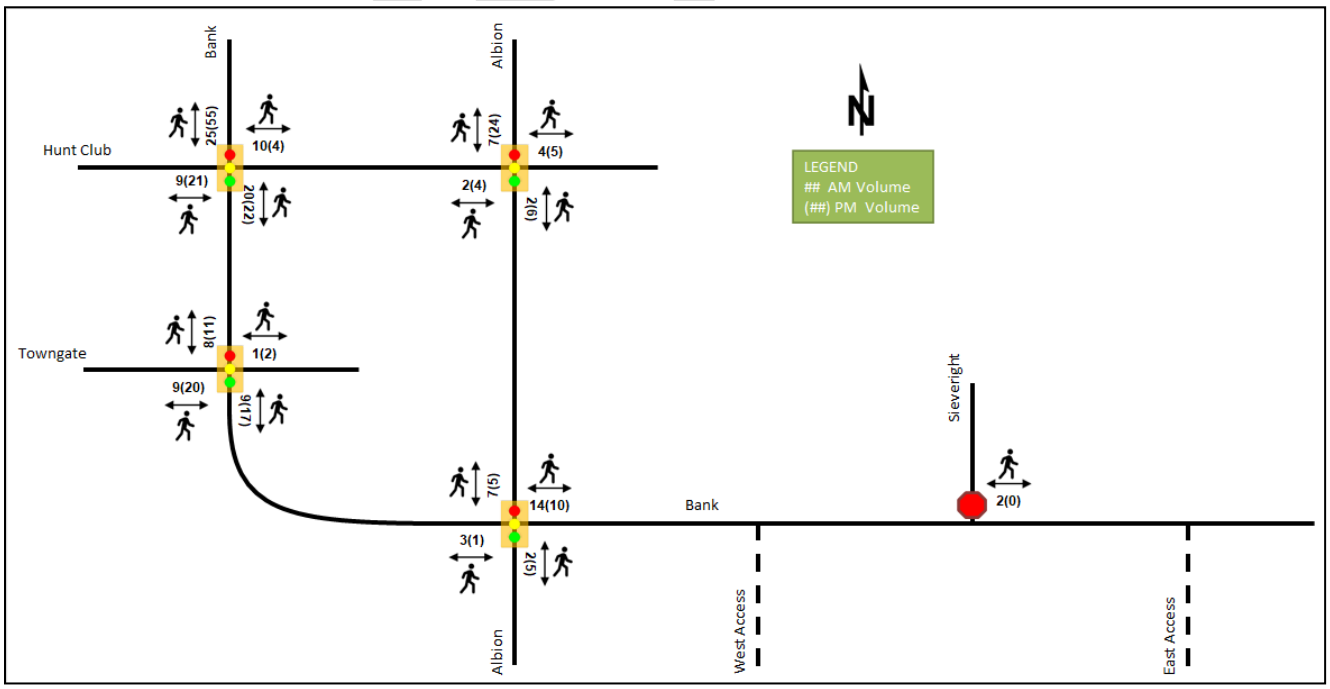
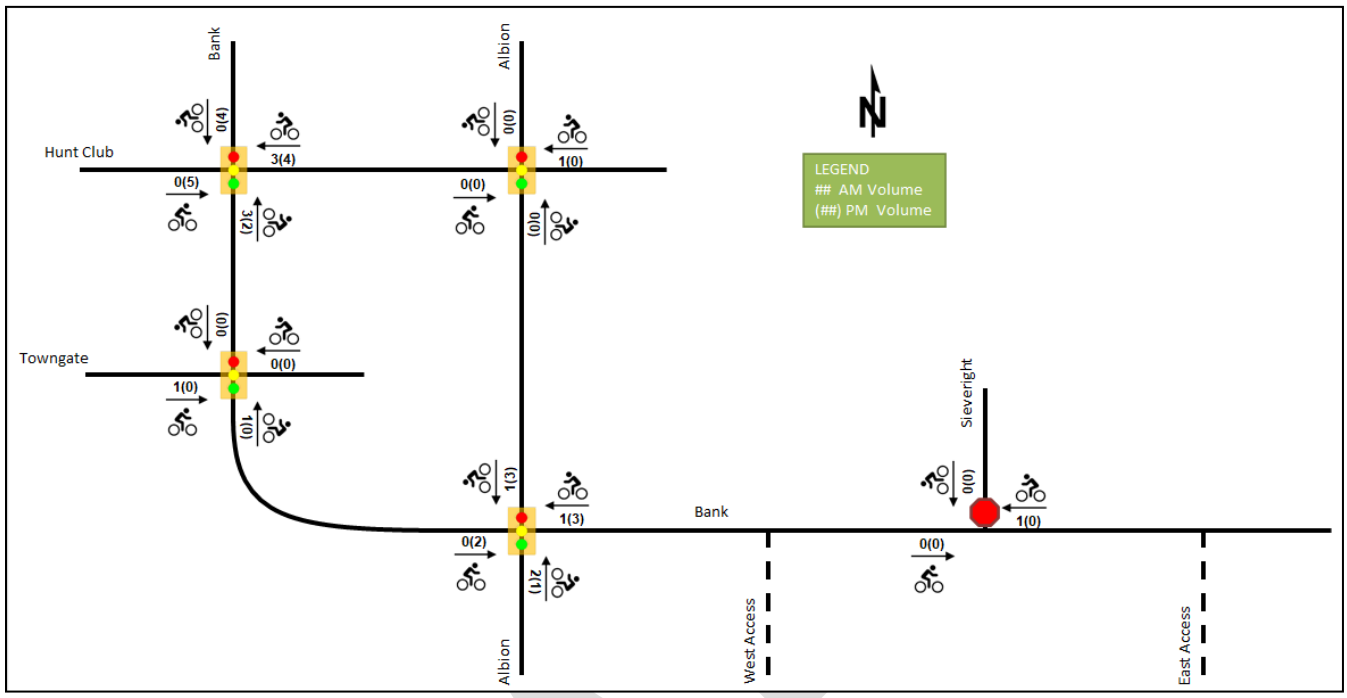


Figure 7: Existing Cyclist Counts



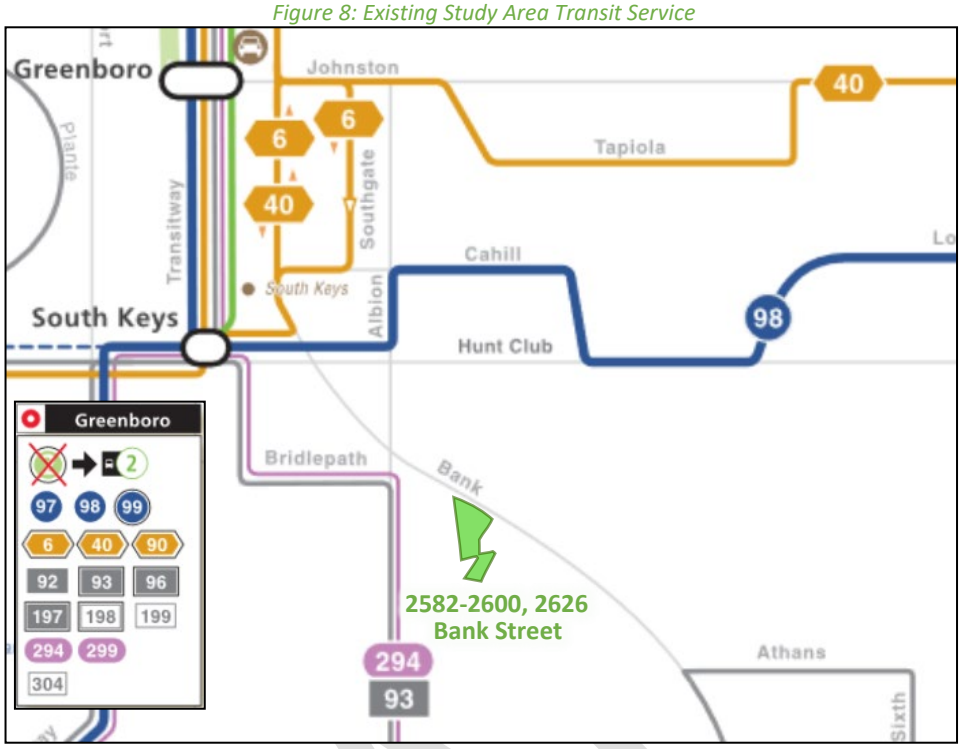
2.2.5 Existing Transit

The site is approximately 550 metres-walk to the intersection of Albion Road and Hunt Club Road, and 600 metres-walk to the intersection of Bank Street and Hunt Club Road, around which the route #98 stops. The site is additionally 950 metres-walk from the intersection of Bridle Path Drive at Albion Road where the routes #93 and 294 stop and 900 metres-walk from Bank Street at St. Bernard Street where the route #93 stops. The frequency of these routes within proximity of the proposed site currently are:

- Route # 93 – 10-15-minute service during peak period/direction, 30-minute service all day
- Route # 98 – 10-15-minute service during peak period/direction, 30-minute service all day
- Route # 294 – 15-30-minute service in peak period/direction only

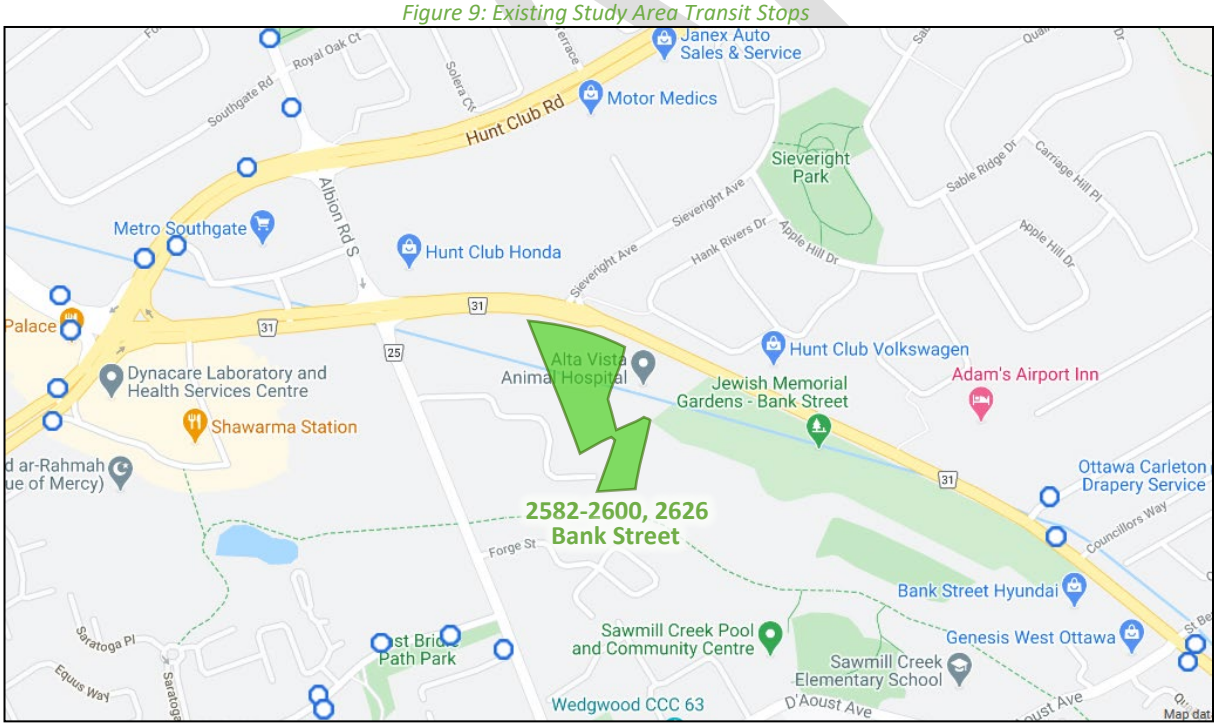
Figure 8 illustrates the transit system map in the study area and Figure 9 illustrates nearby transit stops.

Figure 8: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: February 8, 2021

Figure 9: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: February 8, 2021

2.2.6 Existing Area Traffic Management Measures

There are no existing area traffic management measures within the Study Area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the City of Ottawa for the existing Study Area intersections. Table 1 summarizes the intersection count dates.

Table 1: Intersection Count Date

Intersection	Count Date
Bank Street at Hunt Club Road	Wednesday, June 12, 2019
Albion Road at Hunt Club Road	Thursday, April 5, 2018
Bank Street at Towngate Mall	Thursday, April 5, 2018
Albion Road at Bank Street	Thursday, June 20, 2019
Sieveright Avenue at Bank Street	Thursday, November 30, 2017

Figure 10 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 10: Existing Traffic Counts

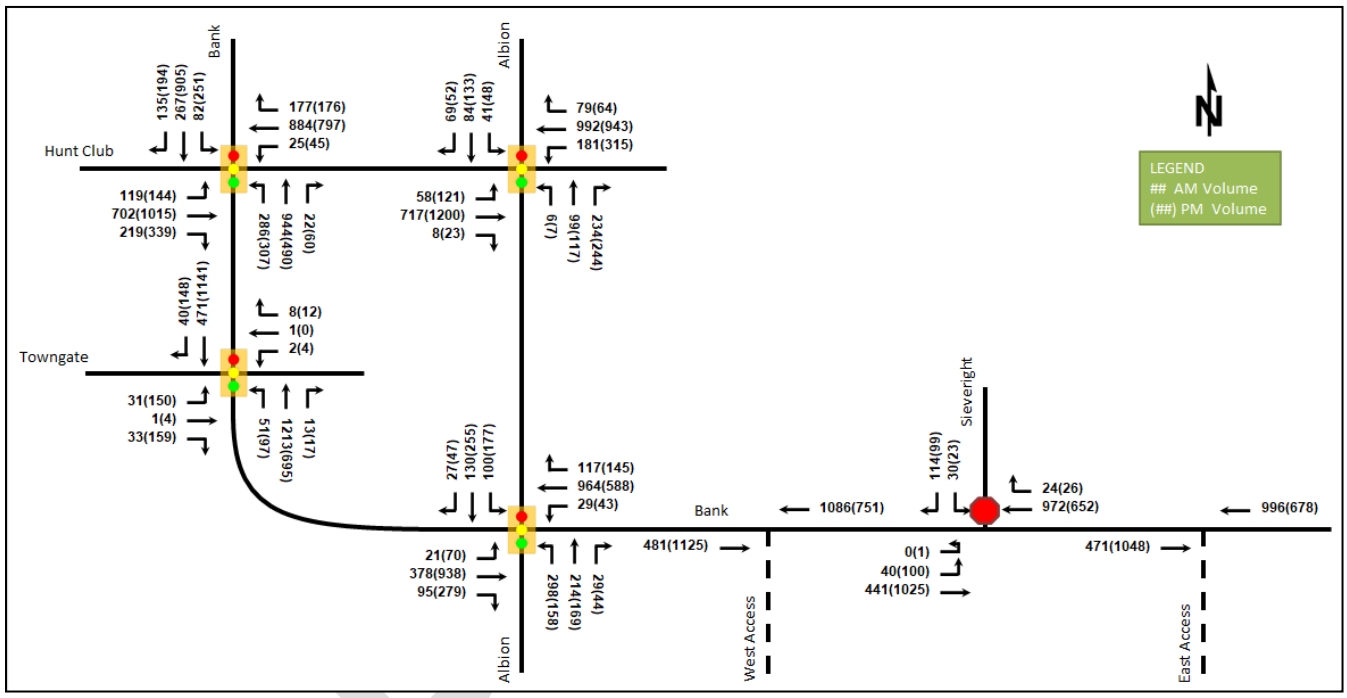


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road *Signalized*	EBL	A	0.50	58.3	24.8	B	0.63	64.6	30.2
	EBT	B	0.69	37.5	111.1	**F**	**1.12**	**107.5**	**#212.3**
	EBR	A	0.36	5.3	17.6	A	0.60	14.6	51.9
	WBL	A	0.34	53.2	m11.7	A	0.52	73.8	m21.4
	WBT	**F**	**1.09**	**114.7**	**#194.8**	**F**	**1.01**	**83.8**	**#150.7**
	WBR	A	0.32	16.5	29.7	A	0.37	22.1	37.4
	NBL	C	0.75	66.4	55.9	**F**	**1.07**	**126.3**	**m#71.4**
	NBT	E	0.92	57.2	**#159.2**	A	0.50	38.9	m87.8
	NBR	A	0.04	0.1	0.0	A	0.12	4.5	m6.1
	SBL	A	0.50	64.9	19.4	D	0.88	**80.8**	**#57.2**
	SBT	A	0.35	37.4	43.2	E	0.92	53.2	**#159.2**
	SBR	A	0.27	1.2	0.0	A	0.39	10.1	26.7
	Overall	**E**	**0.98**	**59.2**	-	**F**	**1.04**	**69.0**	-
Albion Road at Hunt Club Road *Signalized*	EBL	A	0.22	3.3	m0.3	A	0.45	10.3	m4.9
	EBT	A	0.44	4.6	2.4	E	0.92	14.2	m26.6
	EBR	A	0.01	0.0	m0.0	A	0.04	0.1	m0.0
	WBL	A	0.46	9.6	22.5	E	0.99	**81.1**	**#133.3**
	WBT	A	0.57	15.5	101.6	A	0.58	20.7	113.9
	WBR	A	0.10	3.1	7.6	A	0.09	3.2	6.4
	NBL	A	0.04	62.0	m5.0	A	0.04	30.6	m4.0
	NBT/R	E	1.00	**102.2**	**#129.0**	E	0.94	63.3	**#129.5**
	SBL	C	0.79	**117.7**	**#32.8**	D	0.88	**133.6**	**#36.9**
	SBT/R	A	0.54	42.1	51.9	A	0.52	41.6	62.2
	Overall	**B**	**0.68**	**25.9**	-	**E**	**1.00**	**30.8**	-
Bank Street at Towngate Mall *Signalized*	EB	A	0.39	30.6	18.3	E	0.95	78.3	**#127.1**
	WB	A	0.07	24.5	5.4	A	0.05	8.8	4.3
	NBT/L	A	0.33	2.7	m23.6	A	0.32	7.2	18.1
	NBR	A	0.01	0.0	m0.0	A	0.02	0.4	m0.3
	SBT	A	0.20	3.9	24.6	A	0.59	5.6	m32.8
	SBR	A	0.04	1.7	0.9	A	0.17	0.8	m0.0
	Overall	**A**	**0.33**	**4.0**	-	**B**	**0.69**	**15.2**	-
Albion Road at Bank Street *Signalized*	EBL	A	0.23	66.0	14.2	A	0.53	74.9	m26.4
	EBT	A	0.25	20.4	52.1	B	0.67	14.4	**m#155.6**
	EBR	A	0.13	5.9	9.2	A	0.37	1.5	m6.4
	WBL	A	0.31	60.6	17.2	A	0.39	61.5	22.6
	WBT	B	0.61	24.9	**#173.3**	A	0.44	26.3	86.7
	WBR	A	0.16	5.5	14.5	A	0.22	5.0	14.6
	NBL	**F**	**1.06**	**103.0**	**#87.0**	D	0.83	59.8	**#48.1**
	NBT/R	A	0.53	36.7	61.8	A	0.42	30.7	56.0
	SBL	B	0.63	60.1	30.7	C	0.78	45.2	m54.6
	SBT/R	A	0.59	50.3	39.1	D	0.82	41.7	m88.7
	Overall	**D**	**0.81**	**37.3**	-	**C**	**0.77**	**25.6**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Sieveright Avenue at Bank Street ***Signalized***	EBL	B	0.07	11.2	1.5	A	0.13	9.9	3.8
	EBT	-	-	-	-	-	-	-	-
	WBT/R	-	-	-	-	-	-	-	-
	SBL	D	0.16	25.0	3.8	C	0.12	23.5	3.0
	SBR	C	0.27	15.3	8.3	B	0.18	12.0	4.5
	Overall	**A**	**-**	**1.8**	**-**	**A**	**-**	**1.4**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 0.90
m = metered queue
# = queue exceeds storage or mid-block length

During both the AM and PM peak hours, various capacity issues are noted throughout the study area.

The intersection of Bank Street and Hunt Club Road during the AM peak hour is shown to experience extended queuing on the northbound through movement, the westbound through movement is shown as being over capacity with high delay and extended queuing, and the overall intersection is shown to be at capacity. During the PM peak hour at this intersection, the eastbound through, westbound through, and northbound left movements each show as being over capacity with high delay and queueing, the southbound left movement shows high delay and extended queuing, where the southbound through movement is shown as exhibiting extended queuing, and the overall intersection is shown as being over capacity.

The intersection of Albion Road and Hunt Club Road during the AM peak hour shows the northbound through/right and southbound left movements as experiencing high delay and extended queuing, with the northbound through/right movement as being at capacity. During the PM peak hour, the westbound left and southbound left movements are shown as experiencing high delay and extended queuing, where the westbound left is also at capacity, the northbound through/right is shown as experiencing extended queuing, and the overall intersection is at capacity.

The intersection of Bank Street and the Towngate Plaza shopping centre is shown to experience high delay, and extended queuing and is at capacity during the PM peak hour, however this performance is a function of priority being given to the performance of the Bank Street approaches.

The intersection of Albion Road and Bank Street during the AM peak hour shows the northbound left movement as being over capacity and experiencing high delay and extended queuing, and the westbound through movement as exhibiting extended queueing. During the PM peak hour, the eastbound through movement and the northbound left movements are shown as exhibiting extended queuing.

2.2.8 Collision Analysis

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study are road network. Table 3 summarizes the collisions types and conditions in the study area, Figure 11 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data are included in Appendix D.

Table 3: Study Area Collision Summary, 2015-2019

		Number	%
Total Collisions		**71**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	19	27%
	Property Damage Only	52	73%
Initial Impact Type	**Angled**	19	27%
	Rear end	24	34%
	Sideswipe	8	11%
	Turning Movement	12	17%
	SMV Unattended	2	3%
	SMV Other	6	8%
Road Surface Condition	**Dry**	52	73%
	Wet	11	15%
	Loose Snow	5	7%
	Slush	2	3%
	Ice	1	1%
Pedestrian Involved		4	6%
Cyclists Involved		2	3%

Figure 11: Study Area Collision Records – Representation of 2015-2019

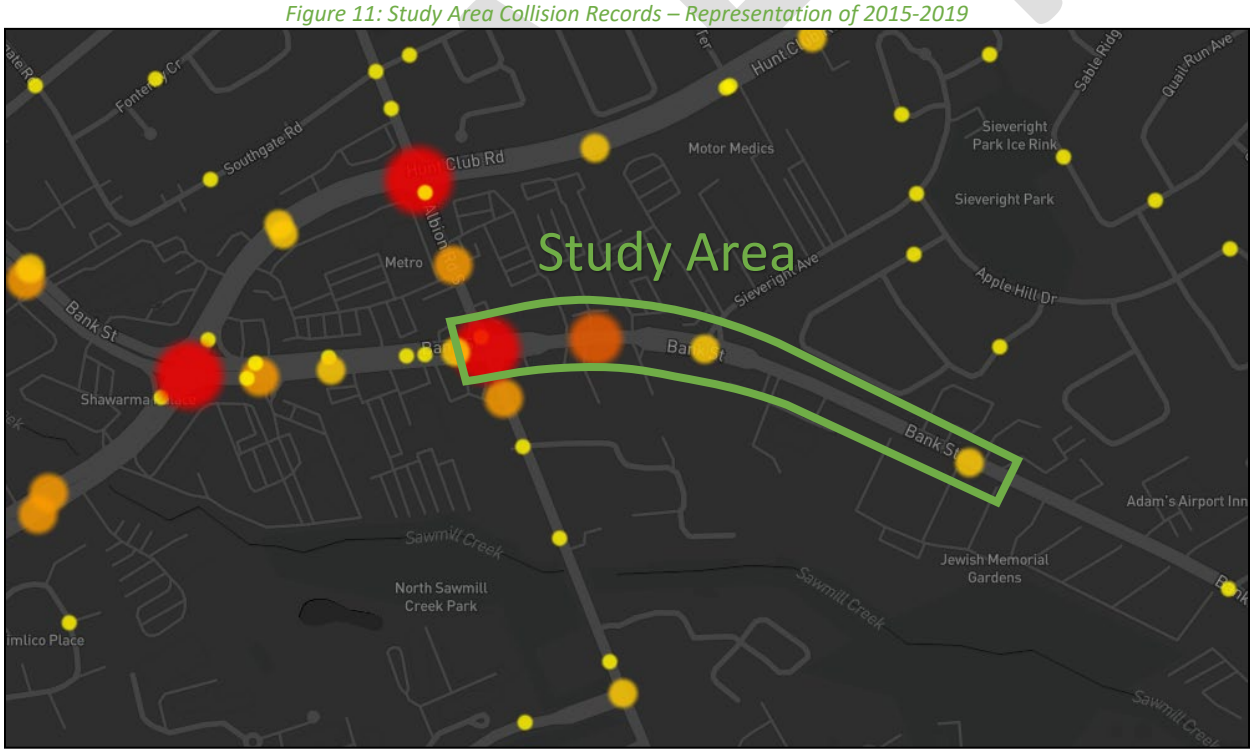


Table 4: Summary of Collision Locations, 2015-2019

	Number	%
Intersections / Segments	**71**	**100%**
Albion Road at Bank Street	39	55%
Bank Street at Sieveright Avenue	7	10%
Albion Road between Albion Road S and Bank Street	2	3%
Bank Street between Albion Road and Sieveright Avenue	15	21%
Bank Street between Sieveright Avenue and Athans Avenue	8	11%

Within the study area, the intersection of Albion Road at Bank Street and the segment of Bank Street between Albion Road and Sieveright Avenue are noted to have experienced higher collisions than other locations. Table 5 and Table 6 summarize the collision types and conditions for each of the intersection of Albion Road at Bank Street and segment of Bank Street between Albion Road and Sieveright Avenue.

Table 5: Albion Road at Bank Street Collision Summary

		Number	%
Total Collisions		**39**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	9	23%
	Property Damage Only	30	77%
Initial Impact Type	**Angle**	7	18%
	Rear end	17	44%
	Sideswipe	4	10%
	Turning Movement	8	21%
	SMV Other	2	5%
	SMV Unattended	1	3%
Road Surface Condition	**Dry**	26	67%
	Wet	8	21%
	Loose Snow	3	8%
	Slush	2	5%
Pedestrian Involved		2	5%
Cyclists Involved		1	3%

The Albion Road at Bank Street intersection had a total of 39 collisions during the 2015-2019 time period, with 30 involving property damage only and the remaining nine having non-fatal injuries. The collision types are most represented by rear end with 17 collisions, followed by turning movement with eight and angle with seven, and four or fewer for sideswipe, SMV (other), and SMV (unattended). Rear end collisions are generally associated with congestion, and the turning movements may be influenced by the right-turn channels present on all but the eastbound approach. Weather conditions are not considered to influence collisions at this location. No mitigation is recommended at this time as a more detailed review would be required by the City to identify specific or full intersection upgrades.

Table 6: Bank Street between Albion Road and Sieveright Avenue Collision Summary

		Number	%
Total Collisions		**15**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	3	20%
	Property Damage Only	12	80%
Initial Impact Type	**Angle**	5	33%

		Number	%
Total Collisions		**15**	**100%**
	Rear end	3	20%
	Sideswipe	2	13%
	Turning Movement	2	13%
	SMV Other	2	13%
	SMV Unattended	1	7%
Road Surface Condition	**Dry**	13	87%
	Wet	1	7%
	Ice	1	7%
Pedestrian Involved		1	7%
Cyclists Involved		0	0%

The segment of Bank Street between Albion Road and Sieveright Avenue had a total of 15 collisions during the 2015-2019 time period, with 12 involving property damage only and the remaining three having non-fatal injuries. The collision types are most represented by angle with five collisions, followed by a relatively even split of rear end, sideswipe, turning movement, SMV (other) and SMV (unattended) with three or fewer collisions each. No discernible pattern is noted along the segment. Weather conditions are not considered to influence collisions at this location. No mitigation is recommended due to lack of specific collision type to be addressed.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

Within the Transportation Master Plan, the Road Network's Network Concept diagram shows the widening of Hunt Club Road, however this improvement is not included in the Affordable Network.

The TMP's Rapid Transit and Transit Priority's Affordable Network diagram identifies a continuous transit priority corridor on Hunt Club Road west of Albion Road, and the Network Concept diagram depicts isolated transit priority measures on Hunt Club Road east of Albion Road and on Bank Street North of Hunt Club Road.

Stage 2 LRT is due to extend the Trillium Line beyond Greenboro Station notably to South Keys Station just outside of the study area.

From the Ottawa Cycling Plan, Hunt Club Road between Bank Street and Lorry Greenburg Drive is to receive bike lanes as part of the Phase 2 Affordable Cycling Project List.

From the Planned Construction Projects portal, Bank Street is due to receive new sidewalks south of Sieveright Avenue to commence within four-to-seven years.

2.3.2 Other Study Area Developments

20 Mountain Crescent

The proposed development application includes a zoning by-law amendment to allow the construction of a 12-storey residential building comprising 151 residential dwelling units. The development is anticipated to generate 36 new AM and 41 new PM peak hour two-way auto trips and to be built out by 2022. (Parsons, 2020)

2425-2431 Bank Street

The proposed development application includes a site plan for the construction of a one-, seven-, and fourteen-storey addition to an existing retirement community. The development would add 144 units to the site, generate seven new AM and 17 new PM peak hour two-way auto trips and is anticipated to be built out by 2021. (Novatech, 2020)

3776-3780 Albion Road

The proposed development application includes a zoning by-law amendment to rezone the property from R1 to R4. No TIA is available for this development.

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of:

- Bank Street at:
  - Hunt Club Road
  - Towngate Plaza Access/Petro-Canada Access
  - Albion Road
  - Site Access West (Future Conditions)
  - Site Access East (Future Conditions)
- Albion Road at Hunt Club Road

The boundary road will be Bank Street and no screenlines are present within proximity to the site.

3.2 Time Periods

As the proposed development is composed primarily of office space the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2025. As a result, the full build-out plus five years horizon year is 2030.

4 Exemption Review

Table 7 summarizes the exemptions for this TIA.

Table 7: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.8 Network Concept		Only required when proposed development generates more than 200	Exempt

Module	Element	Explanation	Exempt/Required
		person-trips during the peak hour in excess of equivalent volume permitted by established zoning	

5 Development-Generated Travel Demand

5.1 Trip Generation and Mode Shares

This TIA has been prepared using the vehicle and person trip rates for the land uses of General Office using the fitted curve equation and of Shopping Centre using the average rates from the ITE Trip Generation Manual 10th Edition (2017). As the source rates are provided in vehicle trips alone, conversion to person trips is via the City-prescribed adjustment factor of 1.28. Table 8 summarizes the person trip rates for the proposed land use.

Table 8: Trip Generation Person Trip Rates

Dwelling Type	Land Use Code	Peak Hour	Vehicle Trip Rate	Person Trip Rates
General Office	710 (ITE)	AM	1.19	1.52
		PM	1.13	1.45
Shopping Centre	820 (ITE)	AM	0.94	1.20
		PM	3.81	4.88

Using the above Person Trip rates, the total person trip generation has been estimates. Table 9 below illustrates the total person trip generation for the proposed land uses.

Table 9: Total Person Trip Generation

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
General Office	83,076 ft^2	115	19	134	20	102	122
Shopping Centre	45,561 ft^2	34	21	55	107	115	222

Using the most recent National Capital Region Origin-Destination survey (OD Survey), the existing mode shares for Hunt Club have been determined and compared to various modes share breakdowns identified by City Staff as potential interpretations of the data. Table 10 summarizes these modal shares.

Table 10: Mode Shares

Travel Mode	Hunt Club (average)	Hunt Club (AM to/within)	Hunt Club (PM from/within)
Auto Driver	65%	75%	70%
Auto Passenger	15%	10%	20%
Transit	15%	5%	5%
Cycling	0%	1%	0%
Walking	5%	9%	5%
Total	100%	100%	100%

Internal capture rates from the ITE Trip Generation Handbook 3rd Edition have been assigned for the retail component for mixed-use developments. The rates summarized in Table 11 represent the percentage of trips to/from the retail use based on the office component.

Table 11: Internal Capture Rates

Land Use	AM		PM	
	In	Out	In	Out
Office to/from Shopping Centre	32%	29%	8%	2%

Pass-by reductions applied to the retail trip generation at a rate of 35% have been included, a value taken as a moderately conservative interpretation from the rates presented in the ITE Trip Generation Handbook 3rd Edition.

Using the above mode share targets by peak hour and from the person trip rates, the person trips by mode, internal capture, and pass-by reductions have been projected. Table 12 summarizes the trip generation by mode and the appropriate reductions.

Table 12: Trip Generation by Mode

Travel Mode	Mode Share (AM)	AM Peak Hour			Mode Share (PM)	PM Peak Hour		
		In	Out	Total		In	Out	Total
Auto Driver	75%	97	22	120	70%	59	122	180
Auto Passenger	10%	14	3	16	20%	17	35	51
Transit	5%	7	2	8	5%	4	9	13
Cycling	1%	1	0	1	0%	0	0	0
Walking	9%	11	3	14	5%	4	9	13
Internal Capture	***varies***	*-7*	*-4*	*-11*	***varies***	*-6*	*-2*	*-8*
Pass-by	***35%***	*-12*	*-7*	*-19*	***35%***	*-37*	*-40*	*-78*
Total	**100%**	**130**	**30**	**159**	**100%**	**84**	**175**	**258**

As shown above, 120 AM and 180 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the existing district travel and these patterns were applied based on the build-out of Hunt Club. Table 13 below summarizes the distributions.

Table 13: OD Survey Distribution – Hunt Club

To/From	Residential % of Trips	Via
North	55%	40% Bank St, 10% Hunt Club Rd (W), 5% Hunt Club Rd (E)
South	10%	Bank St
East	10%	Hunt Club Rd
West	25%	15% Albion Road (S), 5% Hunt Club Rd, 5% Bank St (N)
Total	100%	-

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Figure 12 illustrates the new site generated volumes and Figure 13 illustrates pass-by volumes.

Figure 12: New Site Generation Auto Volumes

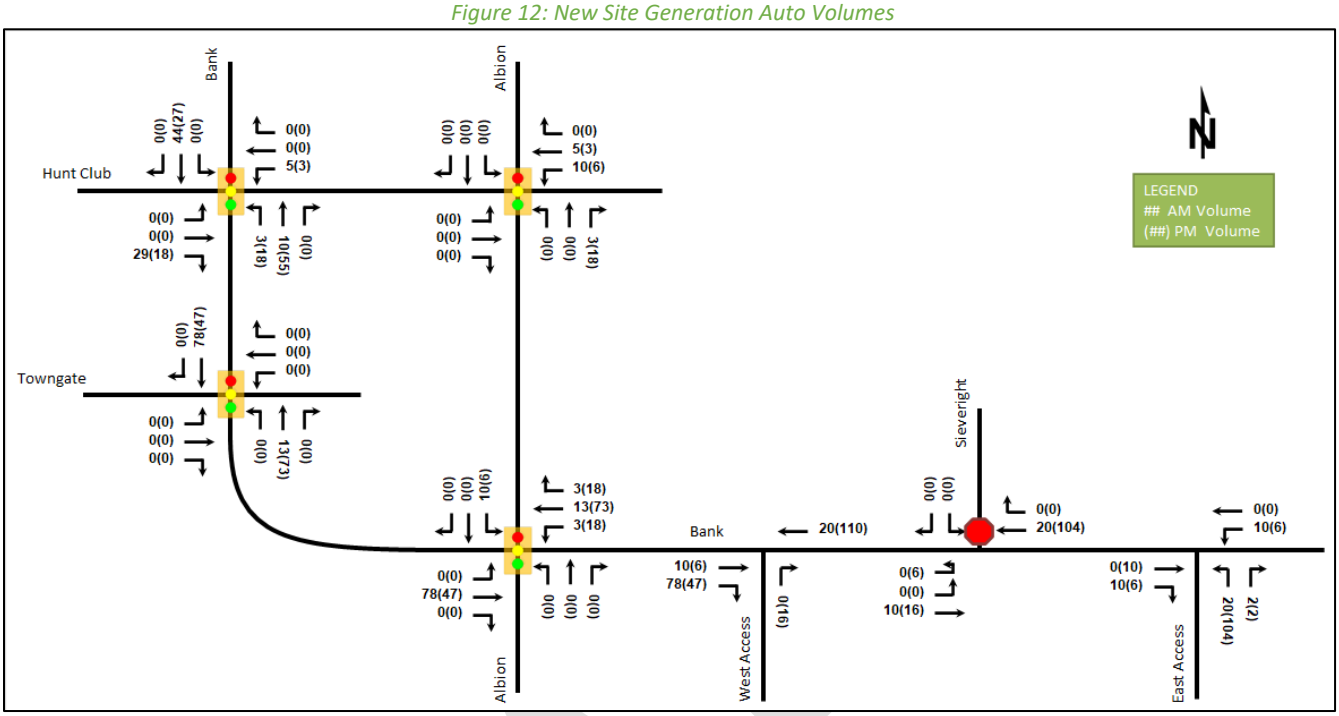
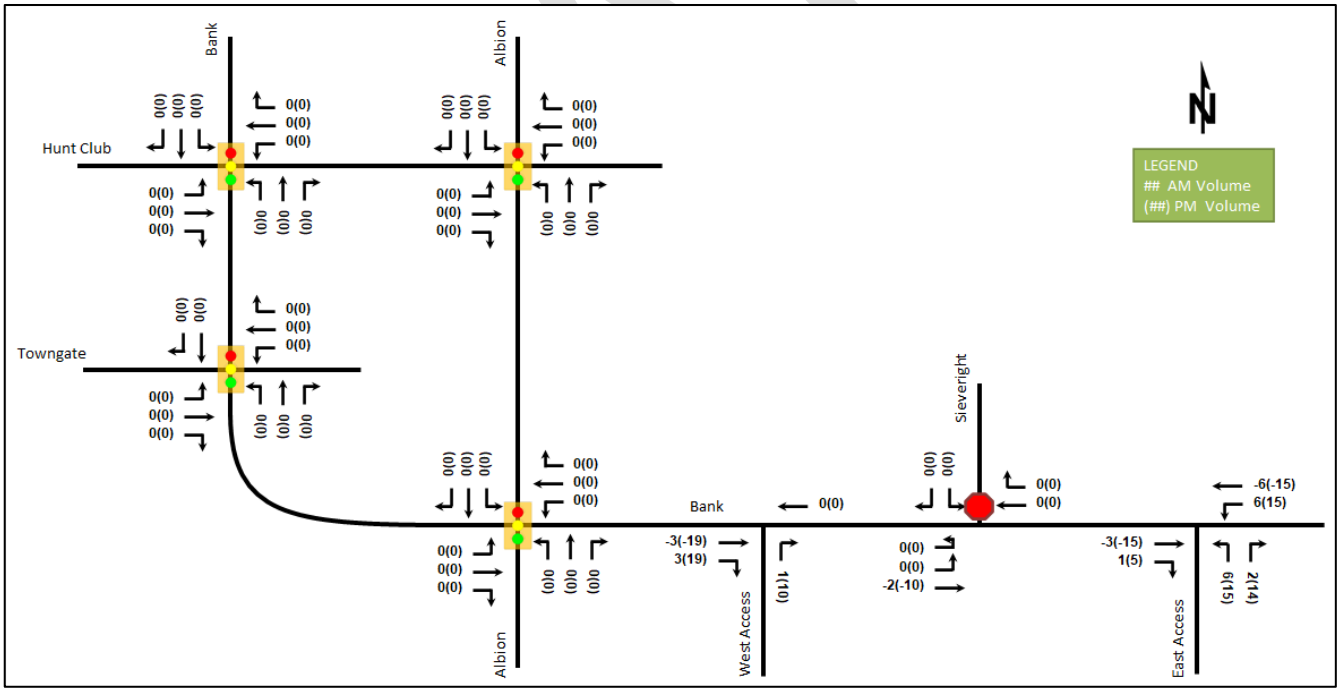


Figure 13: Pass-By Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. None of the listed projects are anticipated to impact traffic operations within the study area.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. Table 14 summarizes the results of the model, and the projections are provided in Appendix E.

Table 14: TRANS Regional Model Projections – Study Area Growth Rates

Street	Direction Growth % from 2011 to 2031		Direction Growth % from Existing to 2031	
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
Hunt Club Rd	-0.89%	-0.38%	-0.09%	-0.56%
	Northbound	**Southbound**	**Northbound**	**Southbound**
Bank St	0.29%	-0.38%	1.37%	-2.05%
Albion Rd	0.66%	-0.29%	0.04%	-2.19%

Growth during the AM peak hour within the study area is forecasted only to occur in the northbound direction. When accounting for the existing volumes, it can be seen that the growth predicted on Albion Road has been largely achieved and the growth on Bank Street has not yet occurred. As such, growth rates rounded to the nearest 0.25% have been applied to peak direction mainline volumes with negative growth rates taken as zero.

6.3 Other Developments

As the only active development files with TIAs, the background developments that are explicitly considered in the background conditions (Section 6.2) are:

- 20 Mountain Crescent
- 2425 Bank Street

The background development volumes within the study area have been provided in Appendix F.

7 Demand Rationalization

7.1 2025 Future Background Operations

Figure 14 illustrates the 2025 background volumes and Table 15 summarizes the 2025 background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets for the 2025 future background horizon are provided in Appendix G.

Figure 14: 2025 Future Background Volumes

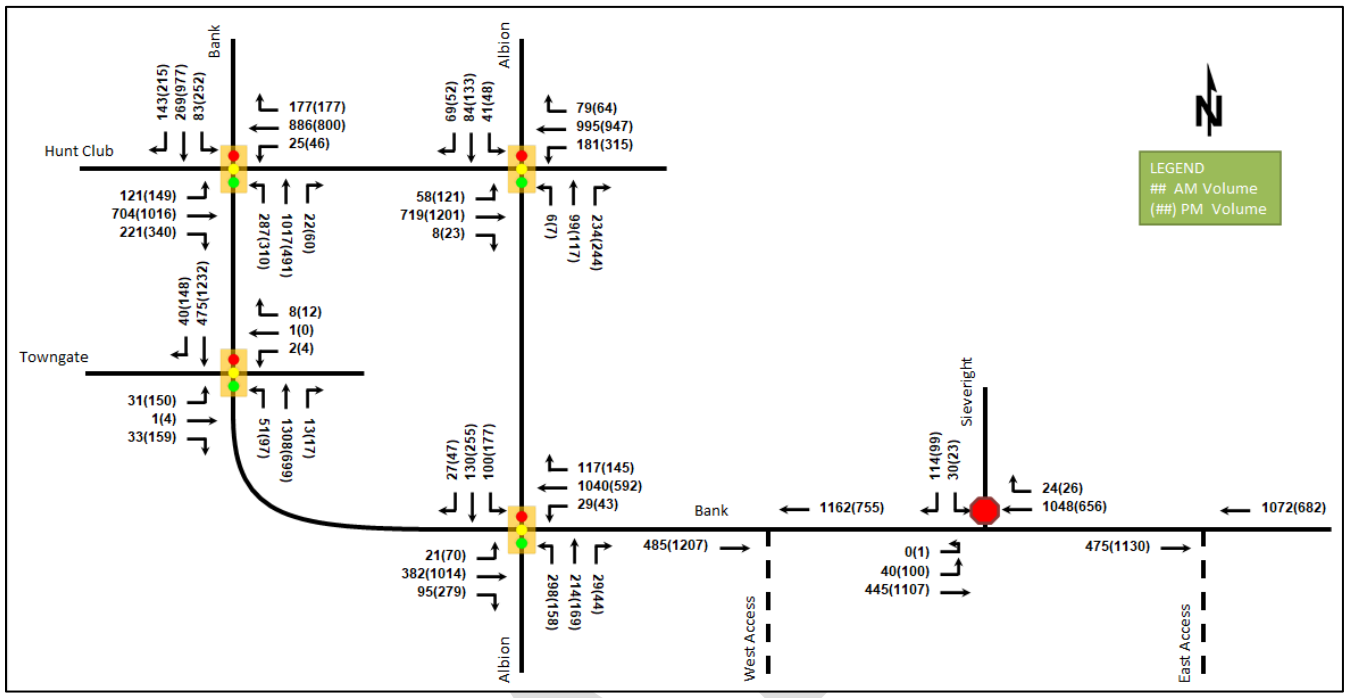


Table 15: 2025 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road *Signalized*	EBL	A	0.48	58.3	23.2	A	0.59	63.2	28.4
	EBT	B	0.62	35.6	98.0	**F**	**1.01**	**72.9**	**#182.6**
	EBR	A	0.34	5.4	17.0	A	0.54	10.7	37.6
	WBL	A	0.30	53.1	m11.5	A	0.48	74.5	m22.7
	WBT	E	0.97	**85.1**	**#166.6**	E	0.91	61.6	**#126.6**
	WBR	A	0.29	14.3	24.7	A	0.34	19.1	31.1
	NBL	C	0.71	59.9	51.2	E	0.97	**101.9**	**m#64.4**
	NBT	D	0.84	40.2	**#121.4**	A	0.45	35.3	m81.4
	NBR	A	0.03	0.1	0.0	A	0.10	3.8	m5.4
	SBL	A	0.46	63.4	18.1	D	0.81	72.7	**#49.6**
	SBT	A	0.31	36.4	39.4	D	0.90	50.1	**#151.4**
	SBR	A	0.26	1.1	0.0	A	0.39	9.4	25.4
	Overall	**D**	**0.90**	**47.0**	-	**E**	**0.97**	**54.1**	-
Albion Road at Hunt Club Road *Signalized*	EBL	A	0.18	1.9	m0.3	A	0.36	6.6	m4.8
	EBT	A	0.39	3.4	2.3	C	0.77	11.0	m26.1
	EBR	A	0.01	0.0	m0.0	A	0.03	0.1	m0.0
	WBL	A	0.39	8.2	20.3	D	0.86	47.2	**#97.0**
	WBT	A	0.50	14.1	87.2	A	0.50	18.0	95.9
	WBR	A	0.08	2.6	6.2	A	0.08	2.5	5.0
	NBL	A	0.03	61.3	m4.3	A	0.04	30.7	m4.0
	NBT/R	E	0.94	**89.5**	**#107.7**	D	0.90	56.9	**#108.4**
	SBL	C	0.72	**103.5**	**#28.7**	C	0.72	**93.2**	**#29.7**
	SBT/R	A	0.50	40.4	46.6	A	0.51	41.8	55.8
	Overall	**A**	**0.60**	**22.9**	-	**D**	**0.88**	**24.1**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Towngate Mall ***Signalized***	EB	A	0.36	30.5	17.2	D	0.90	67.8	**#107.6**
	WB	A	0.07	25.9	5.2	A	0.05	8.2	3.9
	NBT/L	A	0.31	2.6	m22.8	A	0.28	6.8	16.9
	NBR	A	0.01	0.0	m0.0	A	0.02	0.3	m0.0
	SBT	A	0.18	3.8	22.7	A	0.56	4.6	m29.4
	SBR	A	0.04	1.8	0.7	A	0.15	0.7	m0.0
	Overall	**A**	**0.32**	**3.9**	**-**	**B**	**0.65**	**12.9**	**-**
Albion Road at Bank Street ***Signalized***	EBL	A	0.21	67.1	13.6	A	0.49	75.0	m25.7
	EBT	A	0.23	17.9	46.4	B	0.63	12.3	102.4
	EBR	A	0.12	4.3	7.3	A	0.33	1.3	m4.6
	WBL	A	0.29	60.1	16.0	A	0.37	61.1	21.1
	WBT	A	0.56	21.9	**#164.3**	A	0.38	24.2	77.3
	WBR	A	0.14	4.4	11.5	A	0.20	5.0	13.9
	NBL	E	0.94	74.8	68.7	C	0.72	48.3	38.6
	NBT/R	A	0.49	36.3	55.3	A	0.40	31.1	50.6
	SBL	A	0.59	58.2	28.4	C	0.73	48.3	m54.2
	SBT/R	A	0.56	49.8	0.0	C	0.79	45.8	m87.9
	Overall	**C**	**0.75**	**31.6**	**-**	**B**	**0.70**	**24.2**	**-**
Sieveright Avenue at Bank Street ***Signalized***	EBL	B	0.06	10.9	1.5	A	0.11	9.5	3.0
	EBT	-	-	-	-	-	-	-	-
	WBT/R	-	-	-	-	-	-	-	-
	SBL	C	0.13	23.4	3.8	C	0.10	21.4	2.3
	SBR	B	0.23	14.6	6.8	B	0.15	11.5	3.8
	Overall	**A**	**-**	**1.6**	**-**	**A**	**-**	**1.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

During both the AM and PM peak hours at the 2025 future background horizon, the study area intersections operate similarly to the existing conditions, with operational improvement for all study area intersections due to the peak hour factor increasing from 0.90 to 1.00. No new capacity issues are noted.

7.2 2030 Future Background Operations

Figure 15 illustrates the 2030 background volumes and Table 16 summarizes the 2030 background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets for the 2030 future background horizon are provided in Appendix H.

Figure 15: 2030 Future Background Volumes

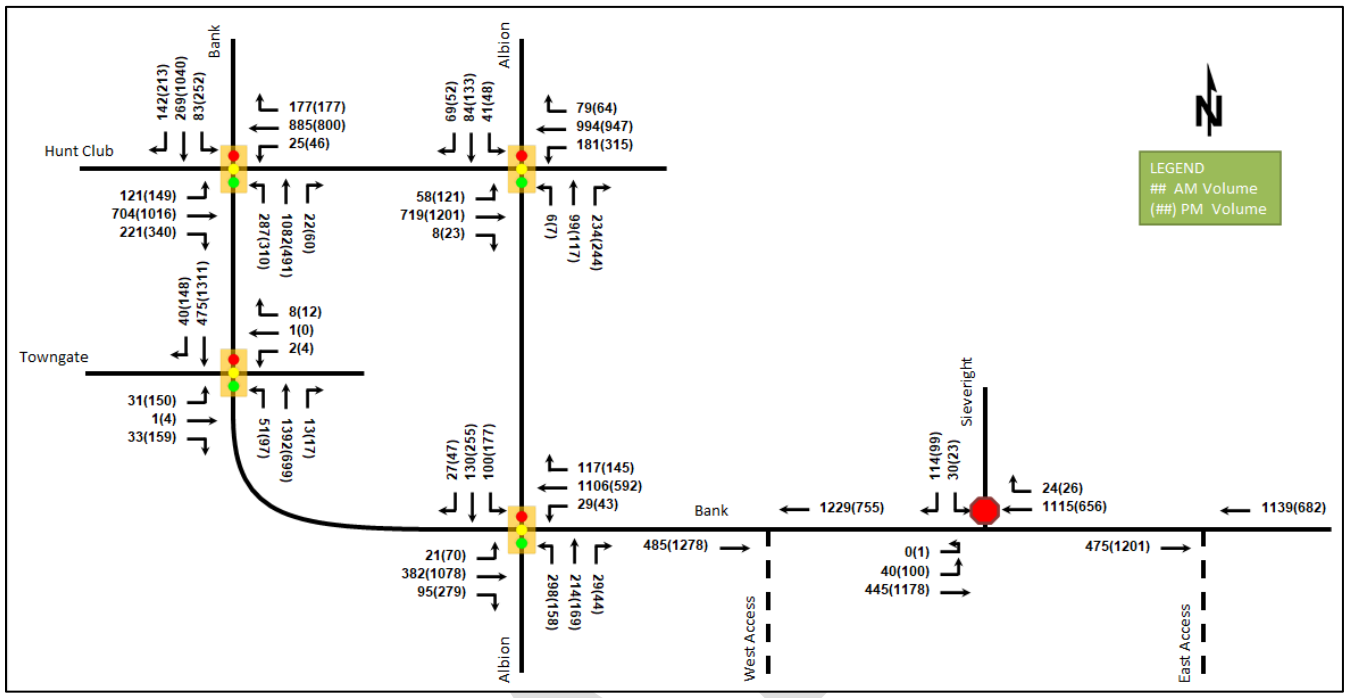


Table 16: 2030 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road *Signalized*	EBL	A	0.48	58.3	23.2	A	0.59	63.2	28.4
	EBT	B	0.62	35.6	98.0	**F**	**1.01**	**72.9**	**#182.6**
	EBR	A	0.34	5.4	17.0	A	0.54	10.9	38.1
	WBL	A	0.30	53.0	m11.5	A	0.48	74.5	m22.7
	WBT	E	0.97	**84.9**	**#166.3**	E	0.91	61.6	**#126.6**
	WBR	A	0.29	14.3	24.7	A	0.34	19.1	31.1
	NBL	C	0.71	60.5	51.2	E	0.97	**101.9**	**m#64.4**
	NBT	D	0.89	45.7	**#167.3**	A	0.45	35.3	m81.4
	NBR	A	0.03	0.1	0.0	A	0.10	3.8	m5.4
	SBL	A	0.46	63.4	18.1	D	0.81	72.7	**#49.6**
	SBT	A	0.31	36.4	39.4	E	0.95	57.8	**#168.2**
	SBR	A	0.26	1.1	0.0	A	0.39	9.3	24.9
	Overall	**E**	**0.93**	**48.4**	-	**E**	**0.99**	**55.8**	-
Albion Road at Hunt Club Road *Signalized*	EBL	A	0.18	1.9	m0.3	A	0.36	6.6	m4.8
	EBT	A	0.39	3.4	2.3	C	0.77	11.0	m26.1
	EBR	A	0.01	0.0	m0.0	A	0.03	0.1	m0.0
	WBL	A	0.39	8.2	20.3	D	0.86	47.2	**#97.0**
	WBT	A	0.50	14.1	87.2	A	0.50	18.0	95.9
	WBR	A	0.08	2.6	6.2	A	0.08	2.5	5.0
	NBL	A	0.03	61.3	m4.3	A	0.04	30.7	m4.0
	NBT/R	E	0.94	**89.5**	**#107.7**	D	0.90	56.9	**#108.5**
	SBL	C	0.72	**103.5**	**#28.7**	C	0.72	**93.2**	**#29.7**
	SBT/R	A	0.50	40.4	46.6	A	0.51	41.8	55.8
	Overall	**B**	**0.60**	**22.9**	-	**D**	**0.88**	**24.1**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Towngate Mall ***Signalized***	EB	A	0.36	30.5	17.2	D	0.90	67.8	**#107.6**
	WB	A	0.07	25.9	5.2	A	0.05	8.2	3.9
	NBT/L	A	0.33	2.5	m23.5	A	0.28	6.8	16.9
	NBR	A	0.01	0.0	m0.0	A	0.02	0.3	m0.0
	SBT	A	0.18	3.8	22.7	A	0.60	5.0	m29.1
	SBR	A	0.04	1.8	0.7	A	0.15	0.7	m0.0
	Overall	**A**	**0.33**	**3.8**	**-**	**B**	**0.68**	**12.8**	**-**
Albion Road at Bank Street ***Signalized***	EBL	A	0.21	67.1	13.6	A	0.49	74.7	m24.2
	EBT	A	0.23	17.9	46.4	B	0.67	13.9	**#162.6**
	EBR	A	0.12	4.3	7.3	A	0.33	1.4	m4.5
	WBL	A	0.29	60.1	16.0	A	0.37	61.1	21.1
	WBT	A	0.60	22.6	**#181.5**	A	0.38	24.2	77.3
	WBR	A	0.14	4.4	11.5	A	0.20	5.0	13.9
	NBL	E	0.94	74.8	68.7	C	0.72	48.3	38.6
	NBT/R	A	0.49	36.3	55.3	A	0.40	31.1	50.6
	SBL	A	0.59	58.1	28.4	C	0.73	48.3	m54.2
	SBT/R	A	0.56	49.8	0.0	C	0.79	45.8	m87.9
	Overall	**C**	**0.77**	**31.6**	**-**	**C**	**0.73**	**24.5**	**-**
Sieveright Avenue at Bank Street ***Signalized***	EBL	B	0.07	11.3	1.5	A	0.11	9.5	3.0
	EBT	-	-	-	-	-	-	-	-
	WBT/R	-	-	-	-	-	-	-	-
	SBL	D	0.14	25.2	3.8	C	0.10	21.8	2.3
	SBR	C	0.25	15.2	7.5	B	0.15	11.5	3.8
	Overall	**A**	**-**	**1.7**	**-**	**A**	**-**	**1.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

During both the AM and PM peak hours at the 2030 future background horizon, the study area intersections operate similarly to the 2025 future background conditions. No new capacity issues are noted.

7.3 Modal Share Sensitivity and Demand Rationalization Conclusions

Capacity constraints have been noted at the Bank Street at Hunt Club Road intersection. With specific concern to the subject development, capacity constraints are noted on the northbound left-turn movement during the PM peak hour, where v/c for existing conditions is 1.07 on this movement. Area modal shift may occur with the extension of the LRT line to and beyond South Keys Station, and operations may improve at this intersection as a result. Given the existing transit service in the immediate site context, a modal shift exceeding the existing area mode shares for site traffic is not anticipated. The changes to area transit service that support the new LRT stations would likely be the pretext to a network auto demand reduction within the study area.

As with initial redevelopments along arterial roadways, mode share constraints and a reliance on auto modes is typically the impact documented with the TIAs. Subsequent to these development locations, the City road rehabilitation to construct additional active mode facilities and an increase in transit service in the area will need lead to a shift in the area mode share. This may reduce the future trips from the site or decrease the impact of additional developments that align more closely with more supportive infrastructure and service. The Bank Street improvements currently envision by the City are a step towards this progression but are anticipated to be on a mid to long term implementation timeline. Previous transit service models have included routes along Bank Street between Albion Road and Athans Avenue and could be a near term solution for the City to support further redevelopment in the area and increase connectivity to the Trillium LRT line.

Within the site plan itself, the road impacts are anticipated to result in queuing and delays within the internal drive aisles and have limited impact on the operation of Bank Street as a whole. This condition would be conducive to additional mode share adoption for non-auto modes if the supporting services are provided. Due to the current transportation environment, it is anticipated that active mode demand management features will provide potential reductions (if required) and support alternative modes, and transit management will be ineffectual at this time.

7.3.1 Review of Design Considerations for U-Turns on Bank Street at Sieveright Avenue

Given the proposed access locations and volumes along Bank Street, it is anticipated that there will be potential for increased U-turn volumes are the Bank Street and Sieveright Avenue intersection. The U-turn would be in the eastbound left-turn lane to head west and north towards Hunt Club Road.

A desktop review was completed to review the sight line distance from the eastbound left-turn lane on Bank Street at Sieveright Avenue. Using the contour lines from geoOttawa, the westbound approach along Bank Street to Sieveright Avenue has an approximately 3% downgrade. Based on TAC equations 2.5.2 and 2.5.3 from section 2.5.3, the stopping sight distance is approximately 110 metres for a design speed of 70 km/h with the given grade. The available sight distance is approximately 120 metres. While the location meets the +10 km/h deign speed for Bank Street, the City's desired design speed will need to be confirmed if a higher design speed is required. For example, the 75 km/h stopping sight distance is approximately 122 metres and would require a subsequent site visit, once permitted, to confirm it is currently provided at this intersection. An illustration of the stopping sight distance for the westbound approach is provided in Appendix I.

8 Development Design

8.1 Design for Sustainable Modes

Parking for vehicles is proposed both via surface lots surrounding the site buildings and underground via the ramp to the garage entrance below Building B. Bicycle parking for the respective buildings is proposed via racks in front of the existing building and Building C, and underground for Buildings A and B, in proportion to the required spaces per building.

Walkways circulate the site surrounding the buildings and parking facilities and connect to the existing pedestrian facilities on Bank Street via two connections between the site accesses and another at the eastern site access.

Bus stop distances are provided in Section 2.2.5. Area bus stops are all over 400 metres walk from the building entrances, with the nearest stop approximately 550 metres walk at the intersection of Albion Road and Hunt Club Road.

8.2 Circulation and Access

Access is to be provided via a proposed right-in/right-out western access and an existing full-movement eastern access, each with 6.7-metre-wide drive aisles. Waste collection is anticipated as occurring on-site, and emergency vehicles will access the site via both accesses.

9 Parking

9.1 Parking Supply

The site plan proposes 441 vehicle parking spaces of which 92 are proposed as being above ground and 349 as being below. Bicycle parking is proposed as 48 spaces, of which 16 are proposed as being above ground and 32 as being below.

Per the zoning by-law, the office space requires 185 vehicle spaces (based upon 2.4 vehicle spaces per 100 m2 of gross floor area) and 31 bicycle spaces (based upon one bicycle space per 250 m2 of gross floor area), and the retail component requires 152 vehicle spaces (based upon 3.6 vehicle spaces per 100 m^2 of gross floor area) and 17 bicycle spaces (based upon one bicycle space per 250 m^2 of gross floor area).

The minimum vehicle and bicycle parking is being proposed by the development.

10 Boundary Street Design

Table 17 summarizes the MMLOS analysis for the boundary street of Bank Street. The existing and future conditions will be the same and are considered in one row. The boundary street analysis is based on the land use designation of "Arterial Main Street". The MMLOS worksheets has been provided in Appendix J.

Table 17: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Bank Street	F	C	F	C	-	-	A	D

Bank Street does not meet the pedestrian and cycling MMLOS targets. The pedestrian LOS targets cannot be met with any sidewalk configuration due to the volumes and operating speeds on the roadway. Bicycle LOS is limited by the mixed traffic conditions and targets may be met through the introduction of a dedicated bike facility. The appropriateness of cycling treatments along Bank Street would be within a corridor context beyond the scope of this report.

11 Access Intersections Design

11.1 Location and Design of Access

The site will connect to the adjacent arterial road network via the existing full-movement access at the eastern property line and via a proposed right-in/right-out access near the western property line. No sightline issues are present for the proposed western site access, as illustrated in the sightline analysis in Appendix I.

The proposed right-in/right-out access, constituting the second two-way private approach for the frontage of over 138 metres, has a width of 6.7 metres, a throat length of 41.7 metres and is over 3.0 metres from the property line. This access will have through and left-turn movements restricted through the median on Bank Street.

The existing full movement access is shared with the adjacent property and will not be modified through this site plan.

11.2 Intersection Control

Both accesses are to be stop controlled on the minor approach with Bank Street operating under free-flow conditions.

11.3 Access Intersection Design

11.3.1 2025 Future Total Access Intersection Operations

The 2025 future total intersection volumes are illustrated in Figure 16 and the access intersection operations are summarized below in Table 18. The level of service for is based on HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix K.

Figure 16: 2025 Future Total Volumes

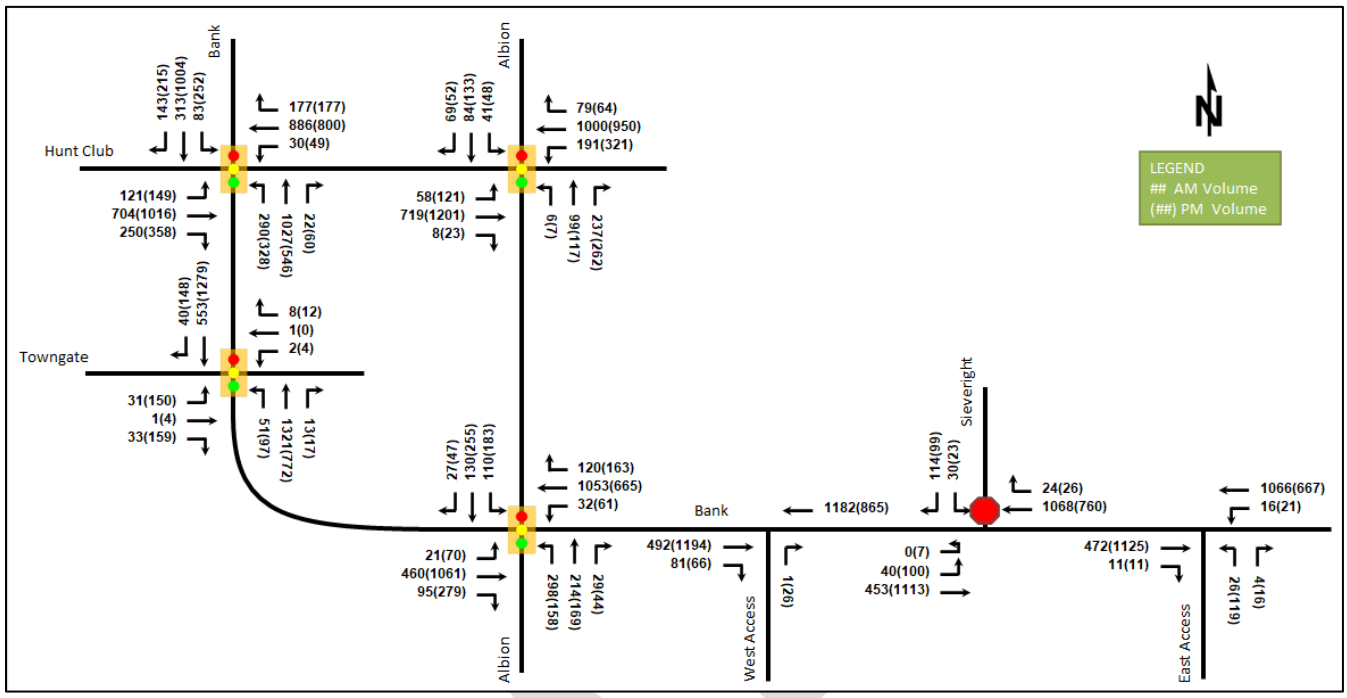


Table 18: 2025 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at West Access *Signalized*	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	B	0.00	10.1	0.0	B	0.06	14.0	1.5
	Overall	**A**	**-**	**0.0**	**-**	**A**	**-**	**0.2**	**-**
Bank Street and East Access *Signalized*	EBT	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-
	WBL	A	0.02	8.4	0.0	B	0.03	11.1	0.8
	WBT	-	-	-	-	-	-	-	-
	NBL/R	C	0.08	15.2	2.3	E	0.59	41.4	25.5
	Overall	**A**	**-**	**0.4**	**-**	**A**	**-**	**3.0**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The access intersections at the 2025 future total horizon operate satisfactorily with the forecasted average delays on the northbound left/right movement at the eastern access of just over 40 seconds. All other movements operate well at both intersections, notably including the westbound left movement at the east access.

11.3.2 2030 Future Total Access Intersection Operations

The 2030 future total intersection volumes are illustrated in Figure 17 and the access intersection operations are summarized below in Table 19. The level of service for is based on HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix L.

Figure 17: 2030 Future Total Volumes

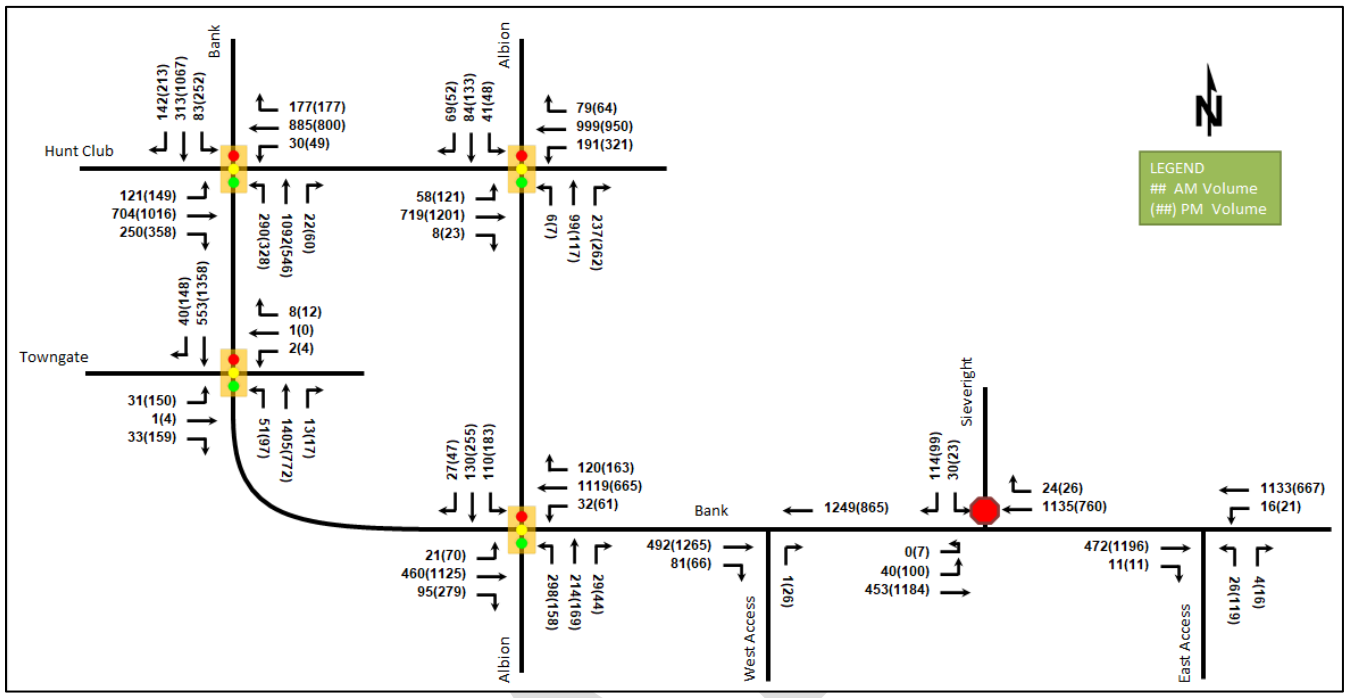


Table 19: 2030 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at West Access *Signalized*	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	B	0.00	10.1	0.0	B	0.07	14.6	1.5
	Overall	**A**	**-**	**0.0**	**-**	**A**	**-**	**0.2**	**-**
Bank Street and East Access *Signalized*	EBT	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-
	WBL	A	0.02	8.4	0.0	B	0.04	11.5	0.8
	WBT	-	-	-	-	-	-	-	-
	NBL/R	C	0.08	15.5	2.3	E	0.64	48.2	28.5
	Overall	**A**	**-**	**0.3**	**-**	**A**	**-**	**3.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The access intersections at the 2030 future total horizon operate similarly to the 2025 future total conditions, with an increase in average delay on the northbound left/right movement to just under 50 seconds. The remaining movements at both intersections continue to operate well.

11.3.3 Access Intersection MMLOS

As the access intersections are not signalized, no access intersection MMLOS analysis has been performed.

11.3.4 Recommended Design Elements

No design elements are recommended for the existing site accesses and the new access location will meet the private approach bylaw and be restricted to right-in/right-out by the centre median on Bank Street.

12 Transportation Demand Management

12.1 Context for TDM

The mode shares used within the TIA represent a reliance on auto travel and reflect the limited site access to transit. Overall, the modal shares are likely to be achieved, and limited opportunity for modal shifts exist in the absence of transit stops in the vicinity of the site.

The subject site is within the Bank Arterial Mainstreet design priority area and no age restrictions are noted for the occupants.

12.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel and those assumptions have been carried through the analysis. The risk for not meeting the mode share targets is seen as being low due to their conservative nature.

12.3 TDM Program

The "suite of post occupancy TDM measures" has been summarized in the TDM checklists for the residential land uses. The checklist is provided in Appendix M. The key TDM measures recommended include:

- Display local area walking, cycling, and transit maps and area route schedules at entrances
- Provide a multimodal travel option information package to new employees as well as online links to transit information
- Provide a dedicated ridematching portal
- Charge for long-term parking and unbundle parking cost from lease rates

Should the City plan to revise the transit service in the area, a PRESTO bus pass may be incorporated into the site TDM measures but will have limited impact at this stage.

13 Transit

13.1 Route Capacity

In Section 5.1 the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 20 summarizes the transit trip generation.

Table 20: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	5%	7	2	8	4	9	13

The proposed development is anticipated to generate an additional eight AM peak hour transit trips and 13 PM peak hour transit trips. Of these trips, seven inbound AM trips and nine outbound PM trips are anticipated.

As previously discussed within this report, transit service is limited within the study area. The surrounding routes should be able to accommodate any site transit trips at the 5% mode share assumed for this site. Per Section 2.2.5, the site is approximately 550 metres-walk to the intersection of Albion Road and Hunt Club Road, and 600 metres-walk to the intersection of Bank Street and Hunt Club Road, around which the route #98 stops. The site is additionally 950 metres-walk from the intersection of Bridle Path Drive at Albion Road where the routes #93 and 294 stop and 900 metres-walk from Bank Street at St. Bernard Street where the route #93 stops. The low volume of transit riders can be expected to walk to and from these stops. Transit service changes should be explored by

OC Transpo to service this redevelopment and other land uses on the arterial mainstreet corridor between Hunt Club Road and St. Bernard Street with connections to South Keys Station.

13.2 Transit Priority

No transit priority is required explicitly for this study.

14 Network Intersection Design

14.1 Network Intersection Control

No change to the existing signalized control is recommended for the network intersections.

14.2 Network Intersection Design

14.2.1 2025 Future Total Network Intersection Operations

The 2025 future total network intersection operations are summarized below in Table 21. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix K.

Table 21: 2025 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road *Signalized*	EBL	A	0.48	58.3	23.2	A	0.59	63.2	28.4
	EBT	B	0.62	35.6	98.0	**F**	**1.01**	**73.2**	**#182.6**
	EBR	A	0.37	5.3	17.8	A	0.57	12.7	44.5
	WBL	A	0.36	55.4	m14.1	A	0.51	75.8	m23.9
	WBT	E	0.97	**85.1**	**#166.8**	E	0.91	62.9	**#127.0**
	WBR	A	0.29	14.2	24.7	A	0.34	19.7	31.1
	NBL	C	0.71	61.0	51.7	**F**	**1.03**	**114.7**	**m#69.8**
	NBT	D	0.85	40.4	**#153.1**	A	0.50	37.3	m89.5
	NBR	A	0.03	0.1	0.0	A	0.10	3.9	m5.7
	SBL	A	0.46	63.4	18.1	D	0.81	72.7	**#49.6**
	SBT	A	0.36	37.2	45.4	E	0.92	52.9	**#158.4**
	SBR	A	0.26	1.1	0.0	A	0.39	9.5	25.6
	Overall	**E**	**0.91**	**46.8**	**-**	**E**	**0.99**	**56.0**	**-**
Albion Road at Hunt Club Road *Signalized*	EBL	A	0.18	2.0	m0.3	A	0.36	6.7	m4.8
	EBT	A	0.39	3.6	2.3	C	0.78	11.2	m26.0
	EBR	A	0.01	0.0	m0.0	A	0.03	0.1	m0.0
	WBL	A	0.40	8.5	21.4	D	0.88	51.6	**#101.5**
	WBT	A	0.51	14.2	87.8	A	0.51	18.4	96.3
	WBR	A	0.08	2.6	6.2	A	0.08	2.5	5.0
	NBL	A	0.03	61.3	m4.4	A	0.03	30.6	m3.9
	NBT/R	E	0.94	**89.5**	**#108.6**	E	0.92	58.8	**#115.3**
	SBL	C	0.72	**102.9**	**#28.7**	C	0.79	**109.2**	**#31.7**
	SBT/R	A	0.50	40.4	46.6	A	0.49	41.0	55.8
	Overall	**B**	**0.61**	**23.0**	**-**	**C**	**0.91**	**25.4**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Towngate Mall ***Signalized***	EB	A	0.36	30.5	17.2	D	0.90	69.7	**#107.6**
	WB	A	0.07	25.9	5.2	A	0.05	8.2	3.9
	NBT/L	A	0.32	2.6	m23.1	A	0.30	6.6	17.4
	NBR	A	0.01	0.0	m0.0	A	0.02	0.2	m0.2
	SBT	A	0.21	3.8	25.7	A	0.58	5.1	m31.5
	SBR	A	0.04	1.7	0.9	A	0.15	0.7	m0.0
	Overall	**A**	**0.32**	**3.9**	**-**	**B**	**0.67**	**13.0**	**-**
Albion Road at Bank Street ***Signalized***	EBL	A	0.21	66.0	13.7	A	0.49	74.9	m24.3
	EBT	A	0.28	20.5	57.0	B	0.67	14.4	**#164.8**
	EBR	A	0.12	5.4	8.6	A	0.33	1.4	m5.5
	WBL	A	0.31	60.5	17.2	A	0.46	62.4	27.0
	WBT	A	0.57	22.5	**#167.6**	A	0.43	24.9	88.2
	WBR	A	0.14	4.6	12.2	A	0.22	4.8	14.6
	NBL	E	0.92	69.3	68.7	C	0.72	48.3	38.6
	NBT/R	A	0.48	35.5	55.3	A	0.40	31.1	50.6
	SBL	B	0.62	60.6	31.3	C	0.76	49.1	m55.1
	SBT/R	A	0.54	49.3	36.0	C	0.79	44.8	m86.1
	Overall	**C**	**0.75**	**31.4**	**-**	**C**	**0.72**	**25.0**	**-**
Sieveright Avenue at Bank Street ***Signalized***	EBL	B	0.06	11.1	1.5	B	0.14	10.4	3.8
	EBT	-	-	-	-	-	-	-	-
	WBT/R	-	-	-	-	-	-	-	-
	SBL	C	0.14	23.9	3.8	C	0.11	23.5	3.0
	SBR	B	0.24	14.8	6.8	B	0.16	12.1	4.5
	Overall	**A**	**-**	**1.6**	**-**	**A**	**-**	**1.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The network intersection operations for the 2025 future total horizon operate similarly to the 2025 future background conditions. As in the existing conditions, the northbound left-turn movement at the intersection of Bank Street and Hunt Club Road is forecasted to be over theoretical capacity, and the eastbound through movement at the intersection of Albion Road at Bank Street may exhibit extended queues, each during the PM peak hour at this horizon.

It is noted that the eastbound left-turn lane queue from Bank Street onto Sieveright Avenue is contained in the existing left-turn lane and will not extend back to the proposed site access.

14.2.2 2030 Future Total Network Intersection Operations

The 2030 future total network intersection operations are summarized below in Table 22. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix L.

Table 22: 2030 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road ***Signalized***	EBL	A	0.48	58.3	23.2	A	0.59	63.2	28.4
	EBT	B	0.62	35.6	98.0	**F**	**1.01**	**73.2**	**#182.6**
	EBR	A	0.37	5.3	17.8	A	0.57	12.9	45.1
	WBL	A	0.36	55.6	m14.1	A	0.51	75.8	m23.9
	WBT	E	0.97	**84.9**	**#166.5**	E	0.91	62.9	**#127.0**
	WBR	A	0.29	14.2	24.7	A	0.34	19.7	31.1
	NBL	C	0.71	61.6	51.6	**F**	**1.03**	**114.7**	**m#69.8**
	NBT	D	0.90	46.5	**#170.2**	A	0.50	37.3	m89.5
	NBR	A	0.03	0.1	0.0	A	0.10	3.9	m5.7
	SBL	A	0.46	63.4	18.1	D	0.81	72.7	**#49.6**
	SBT	A	0.36	37.2	45.4	E	0.98	62.6	**#175.1**
	SBR	A	0.26	1.1	0.0	A	0.39	9.3	25.1
	Overall	**E**	**0.93**	**48.3**	-	**F**	**1.01**	**58.1**	-
Albion Road at Hunt Club Road ***Signalized***	EBL	A	0.18	2.0	m0.3	A	0.36	6.7	m4.8
	EBT	A	0.39	3.7	2.3	C	0.78	11.2	m26.0
	EBR	A	0.01	0.0	m0.0	A	0.03	0.1	m0.0
	WBL	A	0.40	8.5	21.4	D	0.88	51.6	**#101.5**
	WBT	A	0.51	14.1	87.7	A	0.51	18.4	96.3
	WBR	A	0.08	2.6	6.2	A	0.08	2.5	5.0
	NBL	A	0.03	61.3	m4.4	A	0.03	30.6	m3.9
	NBT/R	E	0.94	**89.5**	**#108.6**	E	0.92	58.8	**#115.3**
	SBL	C	0.72	**102.9**	**#28.7**	C	0.79	**109.2**	**#31.7**
	SBT/R	A	0.50	40.4	46.6	A	0.49	41.0	55.8
	Overall	**B**	**0.61**	**23.0**	-	**E**	**0.91**	**25.4**	-
Bank Street at Towngate Mall ***Signalized***	EB	A	0.36	30.5	17.2	D	0.90	69.8	**#107.6**
	WB	A	0.07	25.9	5.2	A	0.05	8.2	3.9
	NBT/L	A	0.34	2.5	m23.8	A	0.30	6.6	17.4
	NBR	A	0.01	0.0	m0.0	A	0.02	0.2	m0.2
	SBT	A	0.21	3.8	25.7	B	0.62	5.5	m31.1
	SBR	A	0.04	1.7	0.9	A	0.15	0.7	m0.0
	Overall	**A**	**0.34**	**3.8**	-	**B**	**0.69**	**13.0**	-
Albion Road at Bank Street ***Signalized***	EBL	A	0.21	66.0	13.7	A	0.49	74.1	m23.4
	EBT	A	0.28	20.5	57.0	C	0.71	16.0	**#182.0**
	EBR	A	0.12	5.4	8.6	A	0.33	1.6	m5.2
	WBL	A	0.31	60.5	17.2	A	0.46	62.4	27.0
	WBT	B	0.61	23.2	**#184.9**	A	0.43	24.9	88.2
	WBR	A	0.14	4.6	12.2	A	0.22	4.8	14.6
	NBL	E	0.92	69.3	68.7	C	0.72	48.3	38.6
	NBT/R	A	0.48	35.5	55.3	A	0.40	31.1	50.6
	SBL	B	0.62	60.5	31.3	C	0.76	49.1	m55.1
	SBT/R	A	0.54	49.4	36.0	C	0.79	44.8	m86.1
	Overall	**C**	**0.78**	**31.4**	-	**C**	**0.74**	**25.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Sieveright Avenue at Bank Street *Signalized*	EBL	B	0.07	11.4	1.5	B	0.14	10.4	3.8
	EBT	-	-	-	-	-	-	-	-
	WBT/R	-	-	-	-	-	-	-	-
	SBL	D	0.15	25.8	3.8	C	0.11	24.0	3.0
	SBR	C	0.25	15.4	7.5	B	0.16	12.1	4.5
	Overall	**A**	**-**	**1.7**	**-**	**A**	**-**	**1.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The network intersection operations for the 2030 future total horizon operate similarly to the 2030 future background conditions. As in the existing and 2025 future total conditions, the northbound left-turn movement at the intersection of Bank Street and Hunt Club Road is forecasted to be over theoretical capacity, and as in the existing conditions, the overall intersection is forecasted to be over theoretical capacity, each during the PM peak hour at this horizon.

It is noted that the eastbound left-turn lane queue from Bank Street onto Sieveright Avenue is contained in the existing left-turn lane and will not extend back to the proposed site access.

Mitigation for the capacity issues at the intersection of Bank Street and Hunt Club Road during the PM peak hour may be partially achieved through signal timing optimization, and Table 23 summarizes these operations. The synchro worksheets have been provided in Appendix L.

Table 23: 2030 Future Total Optimized Intersection Operations

Intersection	Lane	PM Peak Hour			
		LOS	V/C	Delay	Q (95th)
Bank Street at Hunt Club Road *Signalized*	EBL	D	0.90	**103.7**	**#37.8**
	EBT	E	0.97	62.4	**#175.6**
	EBR	A	0.55	10.6	39.3
	WBL	B	0.66	**90.7**	**m#29.3**
	WBT	D	0.82	61.4	114.2
	WBR	A	0.32	23.4	35.6
	NBL	E	0.95	**97.7**	**m#68.5**
	NBT	A	0.53	41.7	m90.0
	NBR	A	0.11	4.2	m5.7
	SBL	B	0.67	59.9	42.7
	SBT	E	1.00	69.4	**#178.7**
	SBR	A	0.40	11.7	29.3
	Overall	**F**	**1.01**	**57.2**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

Through signal timing changes, the v/c ratio of each individual movement at the intersection of Bank Street and Hunt Club Road may reduce to 1.00 or below, and the overall intersection v/c remains 1.01.

14.2.3 Network Intersection MMLOS

Table 24 summarizes the MMLOS analysis for the network intersections of Bank Street at Hunt Club Road, Albion Road at Hunt Club Road, Bank Street at the Towngate Mall access, and Albion Road at Bank Street. The existing and future conditions for the intersections will be the same and are considered in one row. The intersection analysis is based on the land use designation of Arterial Mainstreet for the Bank Street intersections, and for

general urban area for the intersection of Albion Road at Hunt Club Road. The MMLOS worksheets has been provided in Appendix J.

Table 24: Study Area Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Bank Street at Hunt Club Road	F	C	F	C	F	D	A	D	F	D
Albion Road at Hunt Club Road	F	C	F	D	F	C	-	-	E	D
Bank Street at Towngate Mall	F	C	F	C	-	-	-	-	B	D
Albion Road at Bank Street	F	C	F	C	-	-	-	-	D	D

The MMLOS targets will not be met for the pedestrian and bicycle LOS at all study area intersections. Auto and transit LOS will not be met at the intersections of Bank Street at Hunt Club Road and Albion Road at Hunt Club Road.

Meeting the pedestrian level of service targets would require a reduction of crossing distance to four lanes on all crossings at the Bank Street at Hunt Club Road intersection due the protected turns, and to three lanes on the crossings at all other intersections.

To meet bicycle level of service targets, the eastbound and westbound approaches at the Albion Road at Hunt Club intersection and all other study area intersection approaches with auxiliary right-turn lanes would require separated facilities and two-stage left turns or left-turn boxes.

Transit level of service targets require that the eastbound through and left movements and the westbound through movement at the Bank Street at Hunt Club Road intersection be reduced to 30 seconds or below, and that the southbound through/right movement at the Albion Road at Hunt Club Road intersection be reduced to 20 seconds or less.

14.2.4 Recommended Design Elements

No study area intersection design elements are proposed as part of this study.

15 Summary of Improvements Indicated and Modifications Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The proposed site includes 4,232.8 m^2 of commercial space and 7,718.0 m^2 of office space
- Accesses to Bank Street is proposed via the retention of the existing access on the east side of the parcel and the addition of a new right-in/right-out access at the west side of the parcel
- The development is proposed to be completed as a single phase by 2025
- The Trip Generation, Location, and Safety triggers were met for the TIA Screening
- This report is in support of a site plan application

Existing Conditions

- Bank Street and Hunt Club Road are arterial roads, and Albion Road is a collector road in the study area

- Sidewalks are provided on both sides of Hunt Club Road, on both sides of Bank Street west of the site and on Albion Road south of Bank Street and are provided on one side of Albion Road north of Bank Street and on Bank Street sporadically east of the site
- Curbside bike lanes are on Albion Road south of Bank Street and on Hunt Club west of Bank Street, and Bank Street and Hunt Club Road are spine routes, Albion Road, Bridle Path Drive/Dazé Street/Cahill Drive, and D'Aoust Avenue are local routes
- The high volumes roadways have produced a high number of collisions at the study area intersections, primarily at the Albion Road at Bank Street intersection where the collisions are predominantly rear end collisions indicating that they are lower speed and a result of congestion, and turning movement and angle collisions which may be influenced by the right-turn channels
- Capacity constraints are noted at the Bank Street at Hunt Club intersection, especially during the PM peak hour, and high delays and extended queuing are noted at the Bank Street at Hunt Club and Albion Road at Hunt Club intersections, and extended queues are noted at the Albion Road at Bank Street intersection

Development Generated Travel Demand

- The proposed development is forecasted produce 189 two-way people trips during the AM peak hour and 344 two-way people trips during the PM peak hour
- Of the forecasted people trips, 120 two-way trips will be vehicle trips during the AM peak hour and 180 two-way trips will be vehicle trips during the PM peak hour based on a 75% AM and 70% PM auto modal share target
- Of the forecasted trips, 55% are anticipated to travel north, 10% each to travel east and south, and 25% to travel west

Background Conditions

- The background developments were explicitly included in the background conditions, along with a total background growth of 1.50% per annum along the mainline volumes on Bank Street
- The study area intersections at both horizons will operate similarly to the existing conditions
- High demand is forecasted on the outbound left-turn onto Bank Street and increased demand on the eastbound U-turn on Bank Street at the Sieveright Avenue intersection will be resultant from any potential on-site impacts from associated delays

Development Design

- The auto parking will be in surface lots surrounding the buildings and in an underground parking level, bike parking will be in surface racks for two of the buildings and will be in the underground parking facilities for the other two newly proposed buildings
- Pedestrian connections will be made from all buildings on the property to the facilities on Bank Street
- Area bus stops are all beyond 400 metres-walk from the site entrances

Parking

- Parking for 441 vehicles is proposed, 92 above ground and 349 below ground, and parking for 48 bicycles is proposed, 16 above ground and 32 below ground
- The minimum vehicle and parking rates from the zoning by-law are met by the proposed parking

Boundary Street Design

- The boundary street will not meet pedestrian LOS targets, due to high volumes and operating speeds on the arterial roadway and bicycle LOS due to mixed traffic conditions
- Bicycle LOS may or may not be met through the provision of a dedicated facility and should be considered within the City's review of the Bank Street corridor

Access Intersections Design

- One new access proposed onto Bank Street as right-in/right-out and one existing full-movements access is to be retained
- The accesses are assumed to be minor stop-controlled, with Bank Street operating as a free flow corridor
- No specific recommendations or design elements are required outside of typical site design
- The northbound left-turn movement at the existing east site access is forecasted to experience moderate delays during the PM peak hour

TDM

- Supportive TDM measures to be included within the proposed development should include:
  - Display local area walking, cycling, and transit maps and area route schedules at entrances
  - Provide a multimodal travel option information package to new employees as well as online links to transit information
  - Provide a dedicated ridematching portal
  - Charge for long-term parking and unbundle parking cost from lease rates

Transit

- The forecasted site-generated transit trips are eight AM and 13 PM peak hour two-way riders
- Transit service is available within 600-950-metres-walk of the site and the provision of transit along Bank Street would support the arterial mainstreet
- No specific transit priority measures were considered as part of this development

Network Intersection Design

- Generally, the network intersections at the future total horizons will operate similarly to background conditions, notably with capacity issues during the PM peak hour at the intersection of Bank Street and Hunt Club Road, as in the existing conditions
- The MMLOS targets will not be met for the pedestrian and bicycle LOS at all network intersections, and for the transit and Auto LOS at the Hunt Club Road intersections
- Pedestrian LOS targets would require shorter crossing distances, and bicycle LOS targets would require separated facilities on the eastbound and westbound approaches at the Albion Road at Hunt Club intersection and where right-turn lanes are present throughout the study area, and two-stage left-turns and bike boxes on these same approaches
- Transit LOS targets would require transit approach delays to be reduced to 30 seconds at the Bank Street at Hunt Club Road intersection and to 20 seconds at the Albion Road at Hunt Club Road intersection

16 Next Steps

Following the circulation and review of the TIA, any outstanding comments will be documents within the context of the site plan application in the Step 4 Strategy Report. Once remaining TIA Steps are completed and sign-off has been received from City Transportation Project Manager, a signed and stamped final report will be provided to City staff.

Appendix A

TIA Screening Form and PM Certification Form

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 21-Jan-21
Project Number: 2021-010
Project Reference: 2582-2626 Bank Street

1.1 Description of Proposed Development	
Municipal Address	2582, 2600, 2626 (back parcel) Bank Street
Description of Location	Existing Auto Centre and Rental
Land Use Classification	Arterial Mainstreet (AM) for 2582 and 2600 Bank Street Residential Third Zone (R3Y) for 2626 Bank Street
Development Size	15,000 sq. m. of commercial/retail, existing building on 2600 Bank Street to remain
Accesses	Existing access for 2600 Bank Street, new right-in/right-out access on 2582 Bank Street
Phase of Development	Phased construction
Buildout Year	2025
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Destination retail	
Development Size	15000	G.F.A.
Trip Generation Trigger	Yes	

1.3 Location Triggers	
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	Yes
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes
Location Trigger	Yes

1.4. Safety Triggers		
Are posted speed limits on a boundary street 80 km/hr or greater?	No	
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	Yes	
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	No	
Is the proposed driveway within auxiliary lanes of an intersection?	Yes	
Does the proposed driveway make use of an existing median break that serves an existing site?	No	
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	Yes	Collisions noted along Bank Street
Does the development include a drive-thru facility?	No	
Safety Trigger	Yes	

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
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Urbanisme et Gestion de la croissance
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Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 13 Markham Avenue
City / Postal Code: Ottawa / K2G 3Z1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com

Appendix B

Turning Movement Counts

Transportation Services - Traffic Services

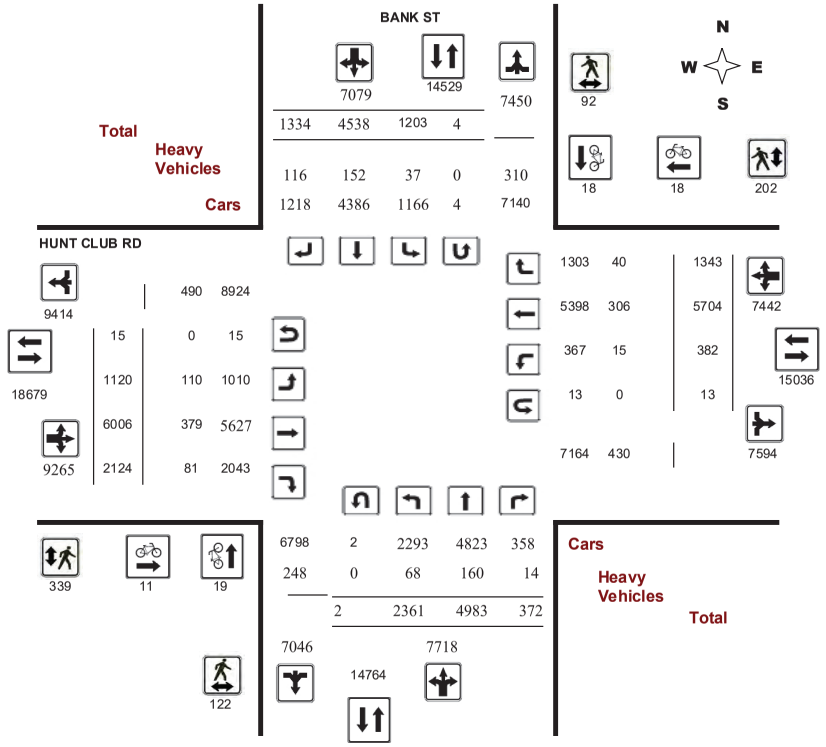
Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

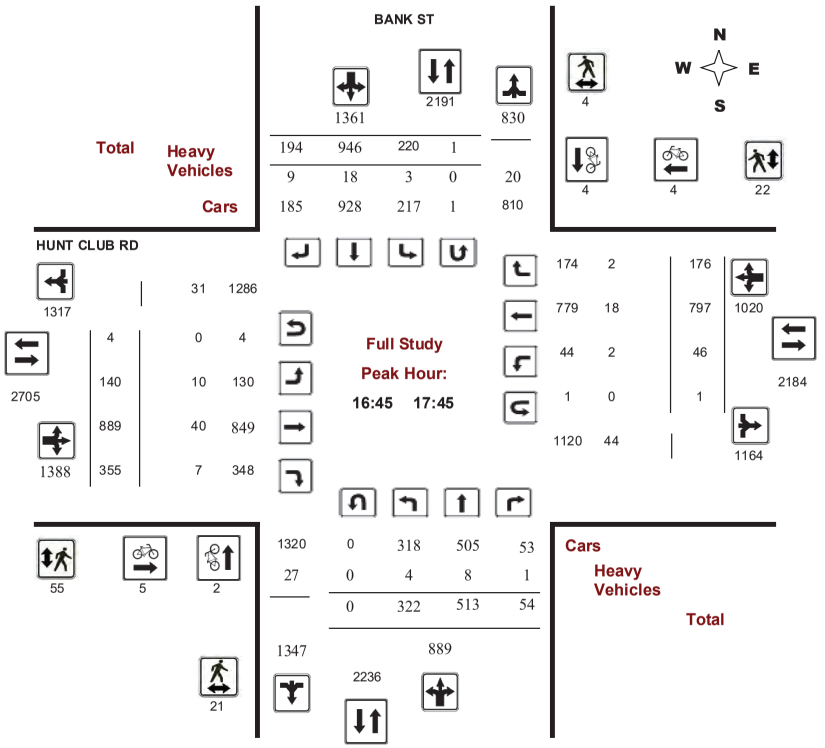
Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



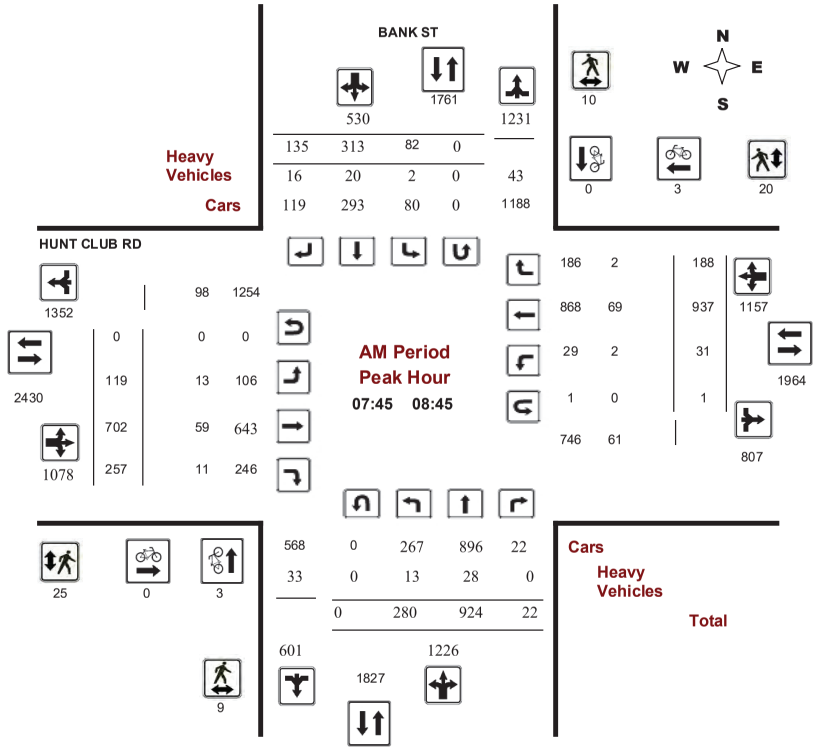
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision



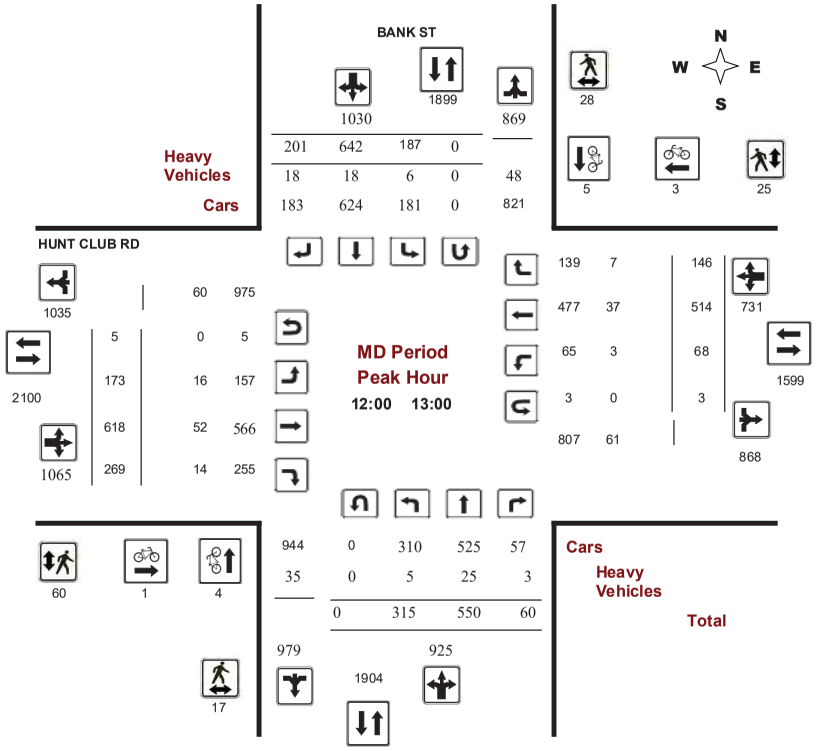
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision



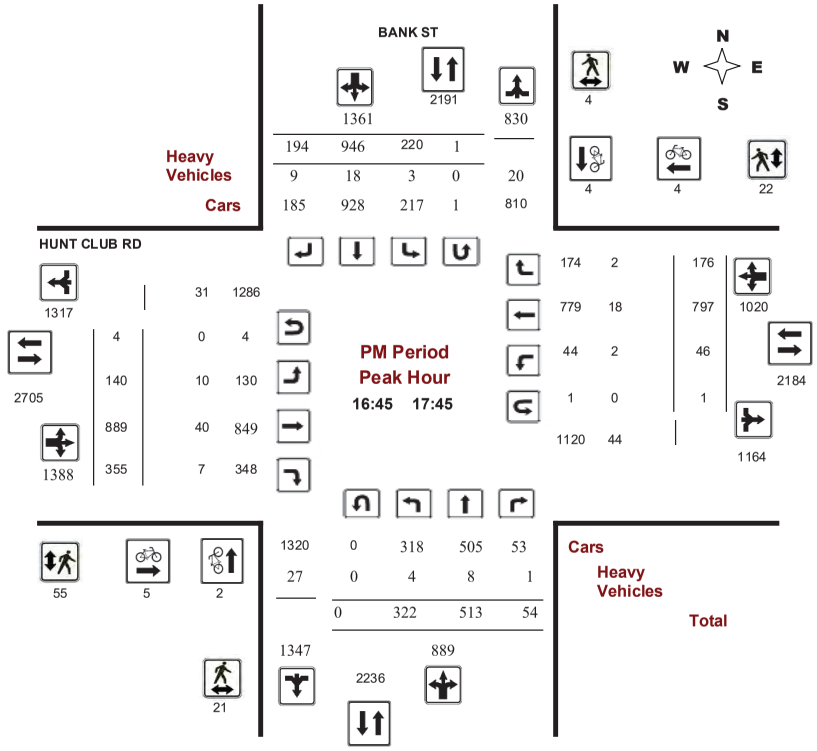
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, June 12, 2019

Total Observed U-Turns

Northbound: 2 Southbound: 4

Eastbound: 15 Westbound: 13

AADT Factor .90

	BANK ST								HUNT CLUB RD									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	236	885	11	**1132**	54	281	114	**449**	**1581**	119	647	248	**1014**	17	935	183	**1135**	**2149**	**3730**
08:00 09:00	292	852	27	**1171**	72	318	135	**525**	**1696**	126	748	257	**1131**	35	881	190	**1106**	**2237**	**3933**
09:00 10:00	272	571	36	**879**	94	364	143	**601**	**1480**	143	602	192	**937**	62	672	183	**917**	**1854**	**3334**
11:30 12:30	316	536	56	**908**	145	571	192	**908**	**1816**	180	591	276	**1047**	58	581	151	**790**	**1837**	**3653**
12:30 13:30	296	567	55	**918**	175	595	185	**955**	**1873**	156	611	251	**1018**	56	567	143	**766**	**1784**	**3657**
15:00 16:00	348	581	63	**992**	211	547	175	**933**	**1925**	121	920	234	**1275**	58	494	157	**709**	**1984**	**3909**
16:00 17:00	291	502	65	**858**	240	945	175	**1360**	**2218**	122	995	312	**1429**	55	773	158	**986**	**2415**	**4633**
17:00 18:00	310	489	59	**858**	212	917	215	**1344**	**2202**	153	892	354	**1399**	41	801	178	**1020**	**2419**	**4621**
Sub Total	2361	4983	372	**7716**	1203	4538	1334	**7075**	**14791**	1120	6006	2124	**9250**	382	5704	1343	**7429**	**16679**	**31470**
U Turns	2			**2**	4			**4**	**6**	**15**			**15**	13			**13**	**28**	**34**
Total	2363	4983	372	**7718**	1207	4538	1334	**7079**	**14797**	1135	6006	2124	**9265**	395	5704	1343	**7442**	**16707**	**31504**
EQ 12Hr	3285	6926	517	**10728**	1678	6308	1854	**9840**	**20568**	1578	8348	2952	**12878**	549	7929	1867	**10345**	**23223**	**43791**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	2956	6233	465	**9654**	1510	5677	1669	**8856**	**18510**	1420	7513	2657	**11590**	494	7136	1680	**9310**	**20900**	**39410**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	3872	8165	609	**12646**	1978	7437	2186	**11601**	**24247**	1860	9842	3481	**15183**	647	9348	2201	**12196**	**27379**	**51626**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		BANK ST									HUNT CLUB RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	58	198	2	258	11	65	34	110	**368**	25	124	60	209	3	208	36	247	**456**	**824**
07:15	07:30	60	217	3	280	8	60	24	92	**372**	20	183	74	277	2	242	40	284	**561**	**933**
07:30	07:45	62	224	2	288	11	81	24	116	**404**	43	174	59	276	4	223	55	282	**558**	**962**
07:45	08:00	56	246	4	306	24	75	32	131	**437**	31	166	55	252	8	262	52	322	**574**	**1011**
08:00	08:15	80	252	7	339	19	82	33	134	**473**	23	150	73	246	7	225	53	285	**531**	**1004**
08:15	08:30	91	203	8	302	15	71	33	119	**421**	37	190	62	289	6	225	45	276	**565**	**986**
08:30	08:45	53	223	3	279	24	85	37	146	**425**	28	196	67	291	11	225	38	274	**565**	**990**
08:45	09:00	68	174	9	251	15	80	32	127	**378**	38	212	55	305	12	206	54	272	**577**	**955**
09:00	09:15	66	144	11	221	23	85	28	136	**357**	30	154	47	231	15	156	66	237	**468**	**825**
09:15	09:30	77	132	12	221	23	108	42	173	**394**	37	159	42	238	11	204	38	253	**491**	**885**
09:30	09:45	54	151	4	209	22	84	37	143	**352**	33	135	49	217	10	169	46	225	**442**	**794**
09:45	10:00	75	144	9	228	26	87	36	149	**377**	43	154	54	251	27	143	33	203	**454**	**831**
11:30	11:45	88	137	8	233	28	131	40	199	**432**	40	140	76	256	11	155	41	207	**463**	**895**
11:45	12:00	69	133	18	220	24	124	53	201	**421**	50	160	59	269	16	175	39	230	**499**	**920**
12:00	12:15	79	128	10	217	54	151	41	246	**463**	48	153	71	272	17	124	38	179	**451**	**914**
12:15	12:30	80	138	20	238	40	165	58	263	**501**	44	138	70	252	17	127	33	177	**429**	**930**
12:30	12:45	72	148	19	239	43	153	52	248	**487**	41	169	63	273	16	145	38	199	**472**	**959**
12:45	13:00	84	136	11	231	50	173	50	273	**504**	45	158	65	268	21	118	37	176	**444**	**948**
13:00	13:15	80	151	14	245	42	132	42	216	**461**	36	135	56	227	15	170	30	215	**442**	**903**
13:15	13:30	60	132	11	203	40	137	41	218	**421**	40	149	67	256	6	134	38	178	**434**	**855**
15:00	15:15	95	139	19	253	33	187	52	272	**525**	36	204	76	316	16	163	39	218	**534**	**1059**
15:15	15:30	96	160	9	265	67	173	38	278	**543**	47	224	80	351	11	199	37	247	**598**	**1141**
15:30	15:45	79	127	20	226	51	187	46	284	**510**	38	265	78	381	21	132	43	196	**577**	**1087**
15:45	16:00	79	155	15	249	60	0	39	99	**348**	0	227	0	227	12	0	38	50	**277**	**625**
16:00	16:15	71	98	13	182	50	276	39	365	**547**	30	287	73	390	15	200	33	248	**638**	**1185**
16:15	16:30	77	143	20	240	71	207	52	330	**570**	36	233	72	341	14	231	40	285	**626**	**1196**
16:30	16:45	52	119	20	191	56	230	47	333	**524**	27	266	76	369	16	169	42	227	**596**	**1120**
16:45	17:00	92	142	12	246	64	232	37	333	**579**	34	209	91	334	13	173	43	229	**563**	**1142**
17:00	17:15	77	111	13	201	49	255	39	343	**544**	42	237	90	369	13	184	50	247	**616**	**1160**
17:15	17:30	83	144	15	242	60	231	57	348	**590**	34	224	87	345	9	243	40	292	**637**	**1227**
17:30	17:45	70	116	14	200	48	228	61	337	**537**	34	219	87	340	12	197	43	252	**592**	**1129**
17:45	18:00	80	118	17	215	56	203	58	317	**532**	45	212	90	347	8	177	45	230	**577**	**1109**
Total:		2363	4983	372	7718	1207	4538	1334	7079	**14797**	1135	6006	2124	9265	395	5704	1343	7442	**14797**	**31,504**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		BANK ST			HUNT CLUB RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	1	**1**	0	0	**0**	**1**
07:30	07:45	2	0	**2**	2	1	**3**	**5**
07:45	08:00	0	0	**0**	0	1	**1**	**1**
08:00	08:15	2	0	**2**	0	2	**2**	**4**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	1	0	**1**	0	0	**0**	**1**
08:45	09:00	1	0	**1**	0	1	**1**	**2**
09:00	09:15	1	0	**1**	0	1	**1**	**2**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	1	**1**	**1**
09:45	10:00	1	0	**1**	0	0	**0**	**1**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	1	0	**1**	**1**
12:15	12:30	2	1	**3**	0	2	**2**	**5**
12:30	12:45	1	0	**1**	0	1	**1**	**2**
12:45	13:00	1	4	**5**	0	0	**0**	**5**
13:00	13:15	1	0	**1**	1	0	**1**	**2**
13:15	13:30	1	3	**4**	0	0	**0**	**4**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	2	0	**2**	0	0	**0**	**2**
15:30	15:45	0	0	**0**	1	0	**1**	**1**
15:45	16:00	1	0	**1**	0	0	**0**	**1**
16:00	16:15	0	0	**0**	0	1	**1**	**1**
16:15	16:30	0	2	**2**	0	0	**0**	**2**
16:30	16:45	0	2	**2**	0	2	**2**	**4**
16:45	17:00	2	4	**6**	2	4	**6**	**12**
17:00	17:15	0	0	**0**	1	0	**1**	**1**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	2	0	**2**	**2**
17:45	18:00	0	1	**1**	1	1	**2**	**3**
Total		19	18	**37**	11	18	**29**	**66**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		BANK ST			HUNT CLUB RD			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	2	**2**	3	1	**4**	**6**
07:15	07:30	0	0	**0**	4	3	**7**	**7**
07:30	07:45	0	3	**3**	3	3	**6**	**9**
07:45	08:00	0	1	**1**	5	3	**8**	**9**
08:00	08:15	1	2	**3**	11	5	**16**	**19**
08:15	08:30	2	4	**6**	4	5	**9**	**15**
08:30	08:45	6	3	**9**	5	7	**12**	**21**
08:45	09:00	1	3	**4**	5	3	**8**	**12**
09:00	09:15	2	2	**4**	9	6	**15**	**19**
09:15	09:30	2	2	**4**	10	6	**16**	**20**
09:30	09:45	3	1	**4**	7	2	**9**	**13**
09:45	10:00	0	1	**1**	11	9	**20**	**21**
11:30	11:45	7	2	**9**	17	2	**19**	**28**
11:45	12:00	7	6	**13**	16	6	**22**	**35**
12:00	12:15	8	12	**20**	17	6	**23**	**43**
12:15	12:30	4	5	**9**	12	3	**15**	**24**
12:30	12:45	2	3	**5**	20	8	**28**	**33**
12:45	13:00	3	8	**11**	11	8	**19**	**30**
13:00	13:15	5	3	**8**	8	3	**11**	**19**
13:15	13:30	5	5	**10**	17	15	**32**	**42**
15:00	15:15	2	1	**3**	23	16	**39**	**42**
15:15	15:30	3	7	**10**	14	9	**23**	**33**
15:30	15:45	11	4	**15**	3	5	**8**	**23**
15:45	16:00	4	0	**4**	0	6	**6**	**10**
16:00	16:15	7	7	**14**	17	15	**32**	**46**
16:15	16:30	5	0	**5**	13	8	**21**	**26**
16:30	16:45	11	1	**12**	13	10	**23**	**35**
16:45	17:00	9	0	**9**	15	7	**22**	**31**
17:00	17:15	6	1	**7**	12	4	**16**	**23**
17:15	17:30	5	2	**7**	17	9	**26**	**33**
17:30	17:45	1	1	**2**	11	2	**13**	**15**
17:45	18:00	0	0	**0**	6	7	**13**	**13**
Total	.....	122	92	**214**	339	202	**541**	**755**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		BANK ST									HUNT CLUB RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	3	7	0	**10**	1	3	7	**11**	**21**	3	6	8	**17**	0	17	4	**21**	**38**	**59**
07:15	07:30	3	8	0	**11**	1	8	2	**11**	**22**	0	5	3	**8**	0	14	2	**16**	**24**	**46**
07:30	07:45	3	6	0	**9**	0	6	3	**9**	**18**	5	10	4	**19**	1	10	2	**13**	**32**	**50**
07:45	08:00	2	3	0	**5**	0	9	2	**11**	**16**	1	11	1	**13**	0	17	1	**18**	**31**	**47**
08:00	08:15	3	9	0	**12**	0	6	5	**11**	**23**	2	9	4	**15**	0	22	0	**22**	**37**	**60**
08:15	08:30	5	4	0	**9**	1	3	4	**8**	**17**	6	20	1	**27**	1	18	0	**19**	**46**	**63**
08:30	08:45	3	12	0	**15**	1	2	5	**8**	**23**	4	19	5	**28**	1	12	1	**14**	**42**	**65**
08:45	09:00	6	5	1	**12**	2	7	1	**10**	**22**	3	15	1	**19**	0	9	4	**13**	**32**	**54**
09:00	09:15	2	9	0	**11**	1	5	5	**11**	**22**	4	14	1	**19**	0	7	3	**10**	**29**	**51**
09:15	09:30	4	9	2	**15**	1	7	6	**14**	**29**	2	16	2	**20**	2	17	0	**19**	**39**	**68**
09:30	09:45	3	8	0	**11**	2	5	4	**11**	**22**	5	11	1	**17**	0	13	2	**15**	**32**	**54**
09:45	10:00	2	10	0	**12**	1	2	6	**9**	**21**	4	14	2	**20**	2	7	1	**10**	**30**	**51**
11:30	11:45	2	3	1	**6**	2	10	2	**14**	**20**	2	16	0	**18**	1	7	2	**10**	**28**	**48**
11:45	12:00	3	4	0	**7**	1	8	6	**15**	**22**	4	13	2	**19**	1	15	0	**16**	**35**	**57**
12:00	12:15	0	6	0	**6**	1	5	4	**10**	**16**	3	9	7	**19**	1	11	1	**13**	**32**	**48**
12:15	12:30	1	5	0	**6**	1	3	4	**8**	**14**	5	16	3	**24**	0	7	2	**9**	**33**	**47**
12:30	12:45	2	8	2	**12**	2	3	7	**12**	**24**	3	15	2	**20**	0	9	3	**12**	**32**	**56**
12:45	13:00	2	6	1	**9**	2	7	3	**12**	**21**	5	12	2	**19**	2	10	1	**13**	**32**	**53**
13:00	13:15	2	2	0	**4**	1	4	3	**8**	**12**	6	12	3	**21**	0	8	2	**10**	**31**	**43**
13:15	13:30	4	3	0	**7**	1	6	3	**10**	**17**	1	12	3	**16**	0	17	0	**17**	**33**	**50**
15:00	15:15	0	2	0	**2**	1	1	4	**6**	**8**	5	14	1	**20**	0	10	1	**11**	**31**	**39**
15:15	15:30	1	4	0	**5**	1	4	4	**9**	**14**	7	6	2	**15**	0	10	0	**10**	**25**	**39**
15:30	15:45	1	4	1	**6**	1	6	4	**11**	**17**	6	11	5	**22**	0	7	0	**7**	**29**	**46**
15:45	16:00	5	3	2	**10**	4	0	4	**8**	**18**	0	13	0	**13**	0	0	2	**2**	**15**	**33**
16:00	16:15	0	4	1	**5**	2	4	3	**9**	**14**	5	9	4	**18**	0	6	1	**7**	**25**	**39**
16:15	16:30	0	6	0	**6**	3	2	1	**6**	**12**	4	12	2	**18**	1	3	0	**4**	**22**	**34**
16:30	16:45	2	2	2	**6**	0	7	1	**8**	**14**	1	11	3	**15**	0	1	2	**3**	**18**	**32**
16:45	17:00	1	2	0	**3**	2	7	3	**12**	**15**	2	14	4	**20**	2	4	2	**8**	**28**	**43**
17:00	17:15	2	2	0	**4**	1	2	3	**6**	**10**	5	12	0	**17**	0	6	0	**6**	**23**	**33**
17:15	17:30	1	2	1	**4**	0	2	1	**3**	**7**	1	9	1	**11**	0	4	0	**4**	**15**	**22**
17:30	17:45	0	2	0	**2**	0	7	2	**9**	**11**	2	5	2	**9**	0	4	0	**4**	**13**	**24**
17:45	18:00	0	0	0	**0**	0	1	4	**5**	**5**	4	8	2	**14**	0	4	1	**5**	**19**	**24**
Total:	None	68	160	14	**242**	37	152	116	**305**	**547**	110	379	81	**570**	15	306	40	**361**	**931**	**1,478**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ HUNT CLUB RD

Survey Date: Wednesday, June 12, 2019 **WO No:** 38656

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		BANK ST Northbound U-Turn Total	BANK ST Southbound U-Turn Total	HUNT CLUB RD Eastbound U-Turn Total	HUNT CLUB RD Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	1	**1**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	1	0	0	**1**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	1	**1**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	1	0	1	**2**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	2	0	**2**
12:15	12:30	0	0	0	2	**2**
12:30	12:45	0	0	1	1	**2**
12:45	13:00	0	0	2	0	**2**
13:00	13:15	0	0	1	0	**1**
13:15	13:30	0	0	2	1	**3**
15:00	15:15	1	0	0	1	**2**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	1	**1**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	1	1	1	1	**4**
16:15	16:30	0	0	1	1	**2**
16:30	16:45	0	0	1	1	**2**
16:45	17:00	0	0	2	0	**2**
17:00	17:15	0	1	0	1	**2**
17:15	17:30	0	0	1	0	**1**
17:30	17:45	0	0	1	0	**1**
17:45	18:00	0	0	0	0	**0**
Total		2	4	15	13	**34**

Transportation Services - Traffic Services

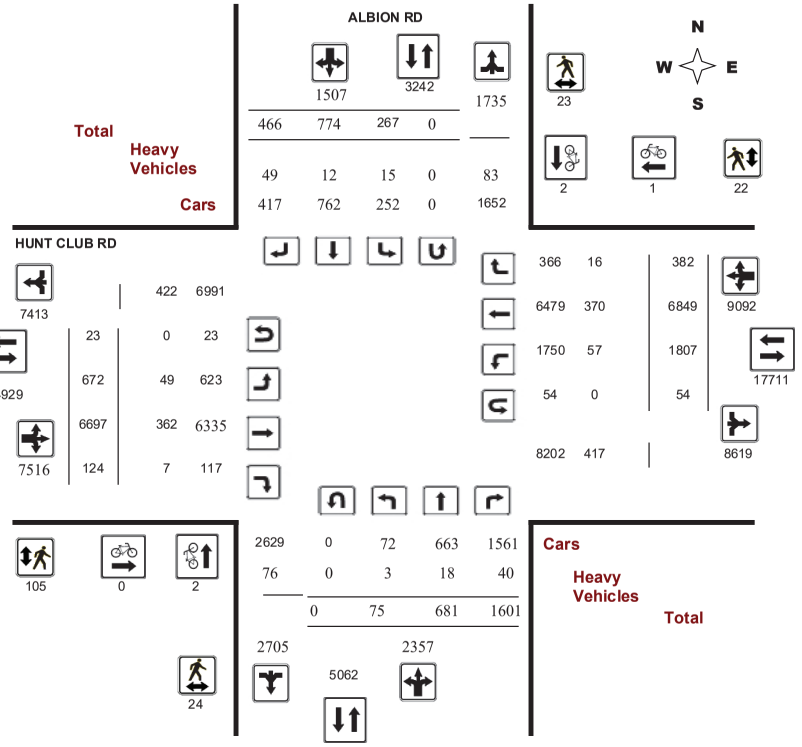
Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

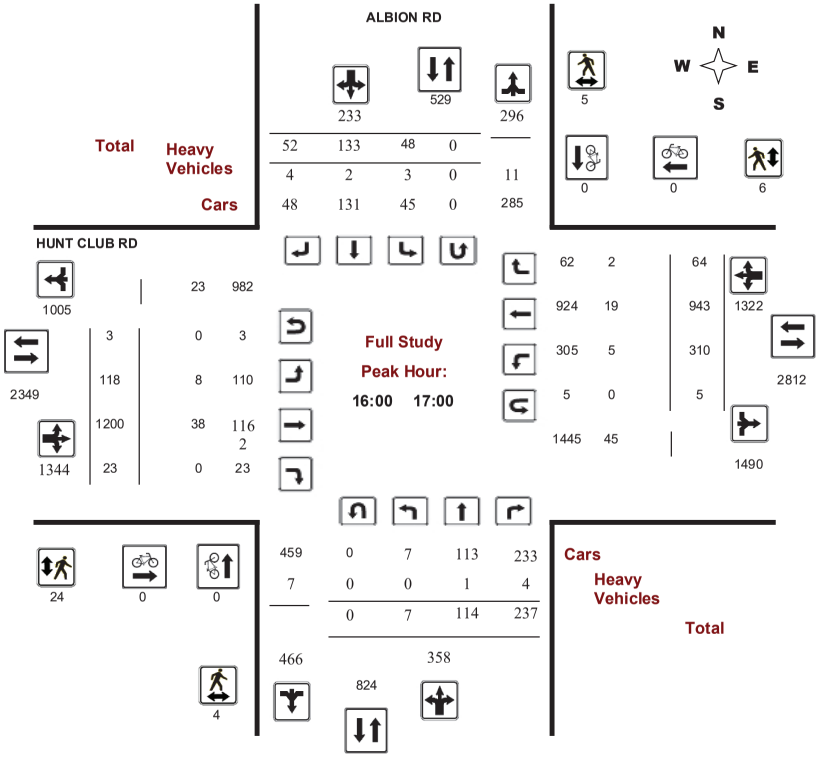
Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



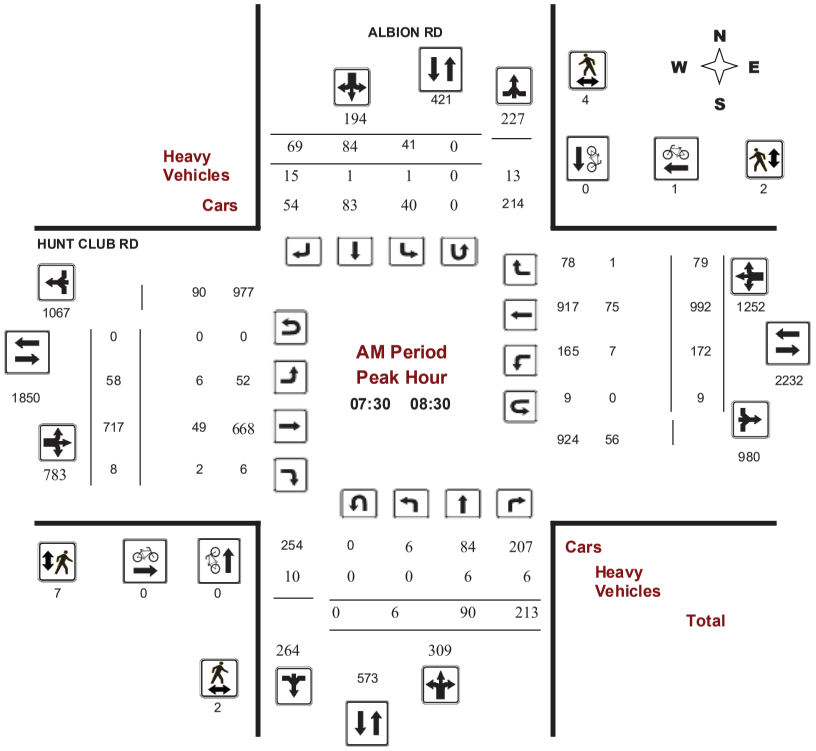
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision



Comments

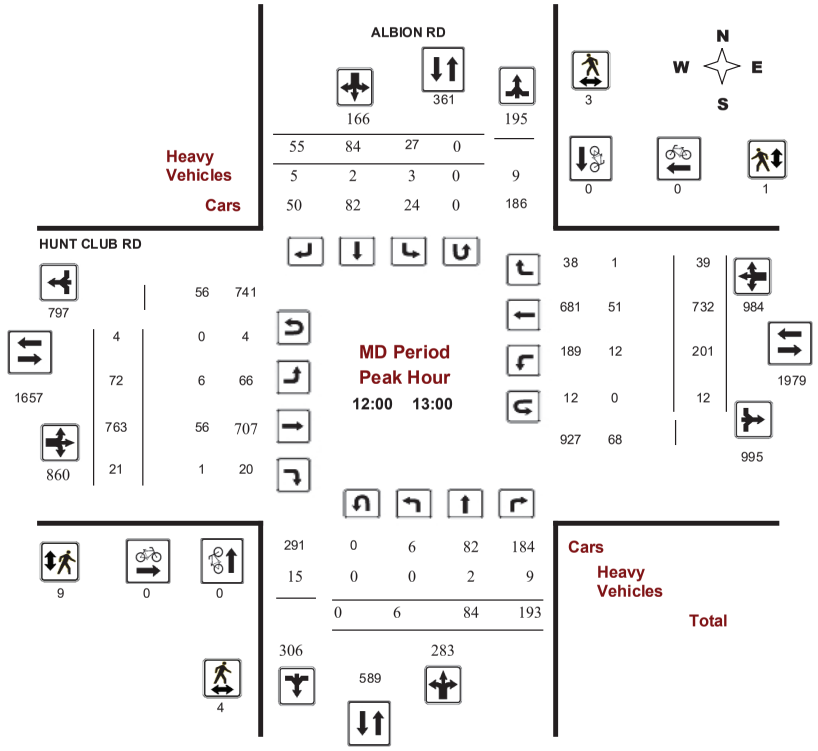
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision



Comments

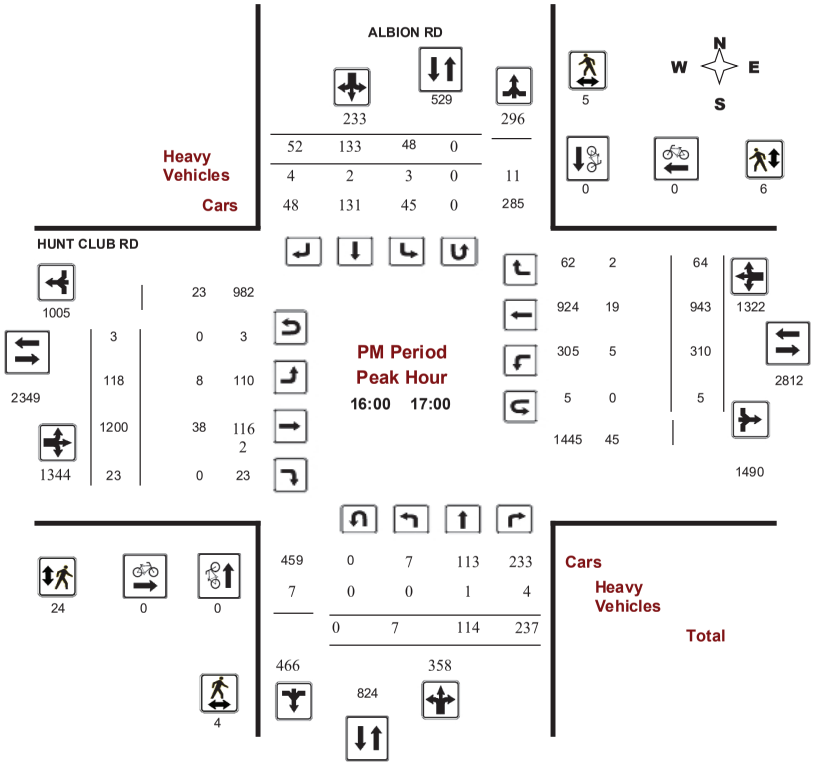
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, April 05, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 23 Westbound: 54

AADT Factor .90

	ALBION RD								HUNT CLUB RD									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	6	76	174	**256**	29	68	69	**166**	**422**	50	635	11	**696**	155	1007	66	**1228**	**1924**	**2346**
08:00 09:00	6	84	211	**301**	43	89	61	**193**	**494**	63	734	7	**804**	189	949	60	**1198**	**2002**	**2496**
09:00 10:00	2	73	139	**214**	23	79	56	**158**	**372**	50	599	8	**657**	184	840	34	**1058**	**1715**	**2087**
11:30 12:30	10	79	186	**275**	26	87	63	**176**	**451**	77	659	16	**752**	192	734	37	**963**	**1715**	**2166**
12:30 13:30	10	74	199	**283**	24	95	57	**176**	**459**	85	779	25	**889**	204	685	30	**919**	**1808**	**2267**
15:00 16:00	21	87	221	**329**	33	131	57	**221**	**550**	106	1045	15	**1166**	288	855	46	**1189**	**2355**	**2905**
16:00 17:00	7	114	237	**358**	48	133	52	**233**	**591**	118	1200	23	**1341**	310	943	64	**1317**	**2658**	**3249**
17:00 18:00	13	94	234	**341**	41	92	51	**184**	**525**	123	1046	19	**1188**	285	836	45	**1166**	**2354**	**2879**
Sub Total	75	681	1601	**2357**	267	774	466	**1507**	**3864**	672	6697	124	**7493**	1807	6849	382	**9038**	**16531**	**20395**
U Turns	0			**0**	0			**0**	**0**	**23**			**23**	54			**54**	**77**	**77**
Total	75	681	1601	**2357**	267	774	466	**1507**	**3864**	695	6697	124	**7516**	1861	6849	382	**9092**	**16608**	**20472**
EQ 12Hr	104	947	2225	**3276**	371	1076	648	**2095**	**5371**	966	9309	172	**10447**	2587	9520	531	**12638**	**23085**	**28456**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	94	852	2002	**2948**	334	968	583	**1885**	**4833**	869	8378	155	**9402**	2328	8568	478	**11374**	**20776**	**25609**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	123	1116	2623	**3862**	438	1268	764	**2470**	**6332**	1138	10975	203	**12316**	3050	11224	626	**14900**	**27216**	**33548**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		ALBION RD									HUNT CLUB RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	12	29	42	5	18	15	38	**80**	9	139	3	151	36	259	7	302	**453**	**533**
07:15	07:30	1	20	43	64	9	13	14	36	**100**	10	146	4	160	34	240	10	284	**444**	**544**
07:30	07:45	2	27	52	81	7	22	24	53	**134**	19	174	2	195	46	264	27	337	**532**	**666**
07:45	08:00	2	17	50	69	8	15	16	39	**108**	13	176	2	191	45	244	22	311	**502**	**610**
08:00	08:15	1	25	59	85	14	28	13	55	**140**	14	182	3	199	50	230	20	300	**499**	**639**
08:15	08:30	1	21	52	74	12	19	16	47	**121**	12	185	1	198	40	254	10	304	**502**	**623**
08:30	08:45	2	21	54	77	14	29	19	62	**139**	23	190	1	214	49	251	9	309	**523**	**662**
08:45	09:00	2	17	46	65	3	13	13	29	**94**	14	177	2	193	59	214	21	294	**487**	**581**
09:00	09:15	1	18	37	56	7	29	13	49	**105**	13	155	1	169	59	213	14	286	**455**	**560**
09:15	09:30	0	19	34	53	4	13	13	30	**83**	11	152	1	164	43	225	7	275	**439**	**522**
09:30	09:45	0	14	33	47	8	17	14	39	**86**	15	130	5	150	37	214	6	257	**407**	**493**
09:45	10:00	1	22	35	58	4	20	16	40	**98**	12	162	1	175	46	188	7	241	**416**	**514**
11:30	11:45	3	16	52	71	7	24	9	40	**111**	25	145	6	176	58	189	6	253	**429**	**540**
11:45	12:00	4	18	37	59	5	27	22	54	**113**	20	146	4	170	45	177	8	230	**400**	**513**
12:00	12:15	3	23	43	69	8	15	14	37	**106**	15	164	5	184	49	207	11	267	**451**	**557**
12:15	12:30	0	22	54	76	6	21	18	45	**121**	20	204	1	225	51	161	12	224	**449**	**570**
12:30	12:45	2	17	54	73	4	19	10	33	**106**	21	190	10	221	52	192	11	255	**476**	**582**
12:45	13:00	1	22	42	65	9	29	13	51	**116**	20	205	5	230	61	172	5	238	**468**	**584**
13:00	13:15	3	22	50	75	6	26	10	42	**117**	30	185	3	218	47	148	7	202	**420**	**537**
13:15	13:30	4	13	53	70	5	21	24	50	**120**	20	199	7	226	52	173	7	232	**458**	**578**
15:00	15:15	8	19	49	76	11	34	15	60	**136**	19	287	4	310	72	212	12	296	**606**	**742**
15:15	15:30	7	22	55	84	9	27	13	49	**133**	28	263	6	297	77	212	12	301	**598**	**731**
15:30	15:45	2	22	48	72	5	28	9	42	**114**	27	248	4	279	74	245	3	322	**601**	**715**
15:45	16:00	4	24	69	97	8	42	20	70	**167**	37	247	1	285	72	186	19	277	**562**	**729**
16:00	16:15	1	33	57	91	11	39	10	60	**151**	27	266	9	302	99	214	27	340	**642**	**793**
16:15	16:30	5	32	53	90	21	32	8	61	**151**	24	307	5	336	76	236	12	324	**660**	**811**
16:30	16:45	0	23	60	83	8	33	17	58	**141**	34	309	4	347	65	264	14	343	**690**	**831**
16:45	17:00	1	26	67	94	8	29	17	54	**148**	36	318	5	359	75	229	11	315	**674**	**822**
17:00	17:15	6	22	71	99	13	18	23	54	**153**	30	259	4	293	88	235	11	334	**627**	**780**
17:15	17:30	3	31	55	89	13	35	13	61	**150**	40	286	3	329	76	196	6	278	**607**	**757**
17:30	17:45	1	18	50	69	9	15	7	31	**100**	33	256	6	295	63	218	10	291	**586**	**686**
17:45	18:00	3	23	58	84	6	24	8	38	**122**	24	245	6	275	65	187	18	270	**545**	**667**
Total:		75	681	1601	2357	267	774	466	1507	**3864**	695	6697	124	7516	1861	6849	382	9092	**3864**	**20,472**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		ALBION RD Northbound	ALBION RD Southbound	ALBION RD Street Total	HUNT CLUB RD Eastbound	HUNT CLUB RD Westbound	HUNT CLUB RD Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	1	0	**1**	0	0	**0**	**1**
07:30	07:45	0	0	**0**	0	1	**1**	**1**
07:45	08:00	0	0	**0**	0	0	**0**	**0**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	1	**1**	0	0	**0**	**1**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	1	**1**	0	0	**0**	**1**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	1	0	**1**	0	0	**0**	**1**
Total		2	2	**4**	0	1	**1**	**5**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		ALBION RD NB Approach (E or W Crossing)	ALBION RD SB Approach (E or W Crossing)	ALBION RD Total	HUNT CLUB RD EB Approach (N or S Crossing)	HUNT CLUB RD WB Approach (N or S Crossing)	HUNT CLUB RD Total	Grand Total
07:00	07:15	1	0	**1**	0	1	**1**	**2**
07:15	07:30	0	0	**0**	1	1	**2**	**2**
07:30	07:45	1	1	**2**	1	0	**1**	**3**
07:45	08:00	0	1	**1**	1	1	**2**	**3**
08:00	08:15	1	1	**2**	2	1	**3**	**5**
08:15	08:30	0	1	**1**	3	0	**3**	**4**
08:30	08:45	0	0	**0**	2	0	**2**	**2**
08:45	09:00	1	0	**1**	2	0	**2**	**3**
09:00	09:15	1	0	**1**	3	0	**3**	**4**
09:15	09:30	1	1	**2**	1	0	**1**	**3**
09:30	09:45	1	0	**1**	3	1	**4**	**5**
09:45	10:00	0	0	**0**	3	0	**3**	**3**
11:30	11:45	0	0	**0**	7	0	**7**	**7**
11:45	12:00	1	0	**1**	2	1	**3**	**4**
12:00	12:15	2	1	**3**	3	1	**4**	**7**
12:15	12:30	1	0	**1**	2	0	**2**	**3**
12:30	12:45	1	2	**3**	3	0	**3**	**6**
12:45	13:00	0	0	**0**	1	0	**1**	**1**
13:00	13:15	1	1	**2**	1	0	**1**	**3**
13:15	13:30	0	0	**0**	6	1	**7**	**7**
15:00	15:15	1	1	**2**	4	1	**5**	**7**
15:15	15:30	2	1	**3**	5	2	**7**	**10**
15:30	15:45	0	1	**1**	4	1	**5**	**6**
15:45	16:00	1	1	**2**	4	1	**5**	**7**
16:00	16:15	0	1	**1**	9	2	**11**	**12**
16:15	16:30	0	1	**1**	4	0	**4**	**5**
16:30	16:45	2	2	**4**	4	2	**6**	**10**
16:45	17:00	2	1	**3**	7	2	**9**	**12**
17:00	17:15	1	2	**3**	6	1	**7**	**10**
17:15	17:30	1	0	**1**	2	1	**3**	**4**
17:30	17:45	0	0	**0**	4	0	**4**	**4**
17:45	18:00	1	3	**4**	5	1	**6**	**10**
Total	.....	24	23	**47**	105	22	**127**	**174**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		ALBION RD									HUNT CLUB RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	1	**1**	0	0	1	**1**	**2**	3	7	0	**10**	3	22	1	**26**	**36**	**38**
07:15	07:30	0	1	2	**3**	0	0	1	**1**	**4**	0	5	0	**5**	2	17	1	**20**	**25**	**29**
07:30	07:45	0	0	1	**1**	0	0	2	**2**	**3**	1	13	1	**15**	2	21	1	**24**	**39**	**42**
07:45	08:00	0	3	0	**3**	0	1	5	**6**	**9**	0	10	0	**10**	0	17	0	**17**	**27**	**36**
08:00	08:15	0	1	3	**4**	1	0	4	**5**	**9**	2	13	0	**15**	3	17	0	**20**	**35**	**44**
08:15	08:30	0	2	2	**4**	0	0	4	**4**	**8**	3	13	1	**17**	2	20	0	**22**	**39**	**47**
08:30	08:45	0	1	1	**2**	2	1	2	**5**	**7**	3	14	1	**18**	1	19	0	**20**	**38**	**45**
08:45	09:00	1	0	1	**2**	0	0	1	**1**	**3**	0	17	0	**17**	2	16	0	**18**	**35**	**38**
09:00	09:15	0	1	3	**4**	0	0	1	**1**	**5**	1	17	0	**18**	8	12	0	**20**	**38**	**43**
09:15	09:30	0	1	0	**1**	0	1	1	**2**	**3**	0	15	0	**15**	2	10	0	**12**	**27**	**30**
09:30	09:45	0	0	0	**0**	2	0	1	**3**	**3**	1	11	2	**14**	1	13	0	**14**	**28**	**31**
09:45	10:00	0	0	0	**0**	0	0	1	**1**	**1**	0	15	0	**15**	2	16	0	**18**	**33**	**34**
11:30	11:45	0	1	0	**1**	0	1	0	**1**	**2**	1	10	1	**12**	0	15	1	**16**	**28**	**30**
11:45	12:00	1	0	0	**1**	1	0	2	**3**	**4**	1	8	0	**9**	2	14	0	**16**	**25**	**29**
12:00	12:15	0	1	0	**1**	0	1	0	**1**	**2**	2	9	0	**11**	3	10	0	**13**	**24**	**26**
12:15	12:30	0	1	1	**2**	1	1	1	**3**	**5**	1	16	0	**17**	5	16	1	**22**	**39**	**44**
12:30	12:45	0	0	4	**4**	0	0	1	**1**	**5**	1	12	1	**14**	1	12	0	**13**	**27**	**32**
12:45	13:00	0	0	4	**4**	2	0	3	**5**	**9**	2	19	0	**21**	3	13	0	**16**	**37**	**46**
13:00	13:15	1	0	2	**3**	1	2	0	**3**	**6**	1	10	0	**11**	0	8	0	**8**	**19**	**25**
13:15	13:30	0	0	4	**4**	1	0	3	**4**	**8**	2	12	0	**14**	3	9	1	**13**	**27**	**35**
15:00	15:15	0	0	2	**2**	0	0	2	**2**	**4**	4	18	0	**22**	1	9	2	**12**	**34**	**38**
15:15	15:30	0	2	1	**3**	1	0	2	**3**	**6**	3	13	0	**16**	1	16	3	**20**	**36**	**42**
15:30	15:45	0	1	2	**3**	0	0	1	**1**	**4**	1	14	0	**15**	0	9	1	**10**	**25**	**29**
15:45	16:00	0	0	0	**0**	0	1	3	**4**	**4**	2	7	0	**9**	2	6	1	**9**	**18**	**22**
16:00	16:15	0	0	0	**0**	0	1	2	**3**	**3**	1	5	0	**6**	1	4	1	**6**	**12**	**15**
16:15	16:30	0	0	1	**1**	2	0	0	**2**	**3**	2	11	0	**13**	1	3	0	**4**	**17**	**20**
16:30	16:45	0	1	1	**2**	0	1	0	**1**	**3**	3	16	0	**19**	2	10	0	**12**	**31**	**34**
16:45	17:00	0	0	2	**2**	1	0	2	**3**	**5**	2	6	0	**8**	1	2	1	**4**	**12**	**17**
17:00	17:15	0	0	1	**1**	0	0	1	**1**	**2**	2	8	0	**10**	1	4	0	**5**	**15**	**17**
17:15	17:30	0	1	1	**2**	0	1	0	**1**	**3**	1	9	0	**10**	0	5	0	**5**	**15**	**18**
17:30	17:45	0	0	0	**0**	0	0	2	**2**	**2**	2	6	0	**8**	1	2	0	**3**	**11**	**13**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	1	3	0	**4**	1	3	1	**5**	**9**	**9**
Total:	None	3	18	40	**61**	15	12	49	**76**	**137**	49	362	7	**418**	57	370	16	**443**	**861**	**998**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37697

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		ALBION RD	ALBION RD	HUNT CLUB RD	HUNT CLUB RD	
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	1	1	**2**
07:30	07:45	0	0	0	2	**2**
07:45	08:00	0	0	0	3	**3**
08:00	08:15	0	0	0	3	**3**
08:15	08:30	0	0	0	1	**1**
08:30	08:45	0	0	0	3	**3**
08:45	09:00	0	0	0	2	**2**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	1	1	**2**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	1	2	**3**
11:45	12:00	0	0	0	2	**2**
12:00	12:15	0	0	1	5	**6**
12:15	12:30	0	0	1	2	**3**
12:30	12:45	0	0	0	3	**3**
12:45	13:00	0	0	2	2	**4**
13:00	13:15	0	0	1	2	**3**
13:15	13:30	0	0	3	1	**4**
15:00	15:15	0	0	0	1	**1**
15:15	15:30	0	0	1	3	**4**
15:30	15:45	0	0	1	1	**2**
15:45	16:00	0	0	3	2	**5**
16:00	16:15	0	0	2	1	**3**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	1	1	**2**
16:45	17:00	0	0	0	3	**3**
17:00	17:15	0	0	1	0	**1**
17:15	17:30	0	0	1	2	**3**
17:30	17:45	0	0	2	5	**7**
17:45	18:00	0	0	0	0	**0**
Total		0	0	23	54	**77**

Transportation Services - Traffic Services

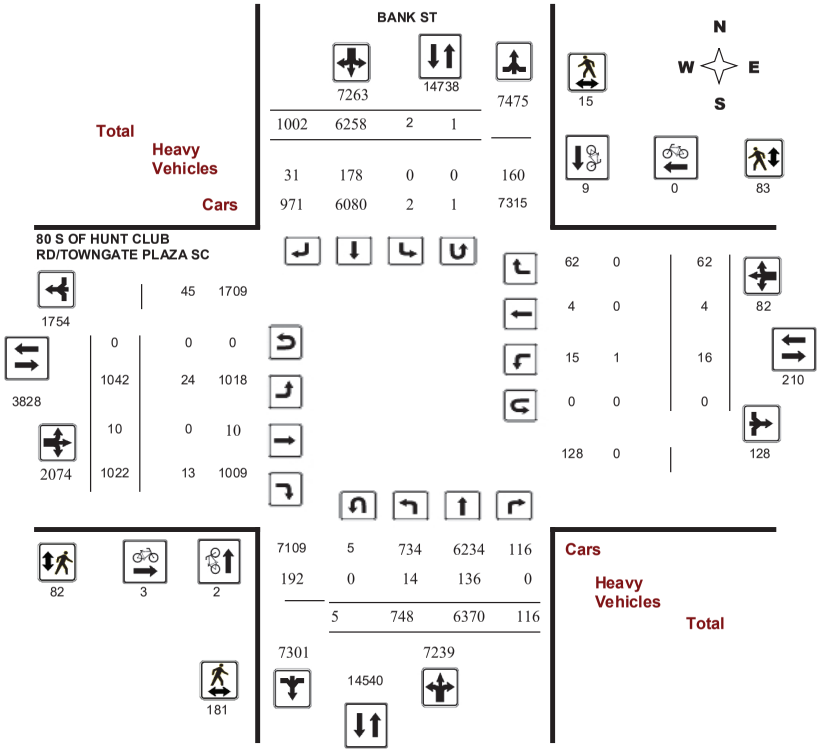
Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

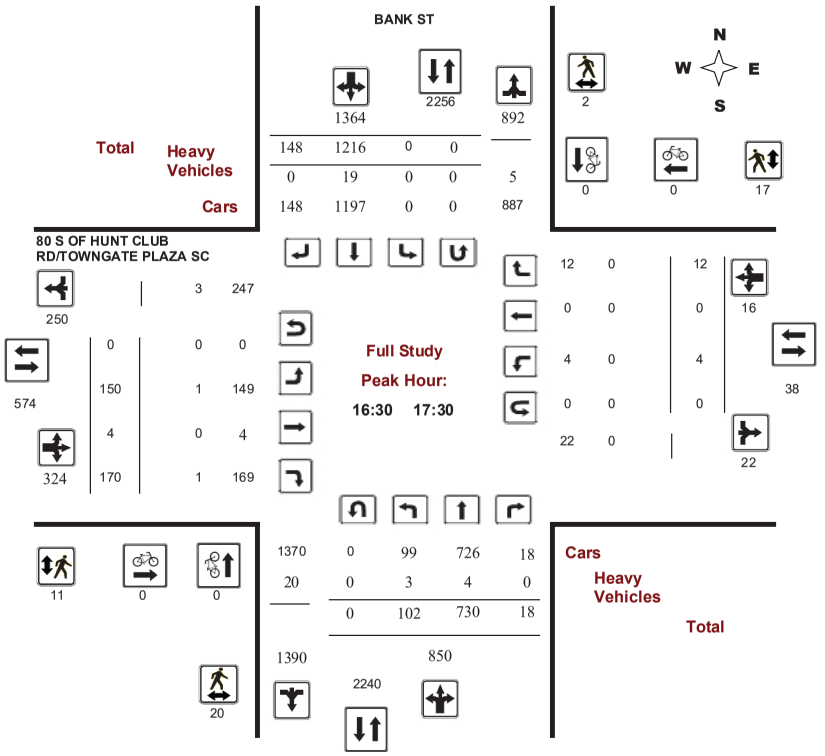
Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



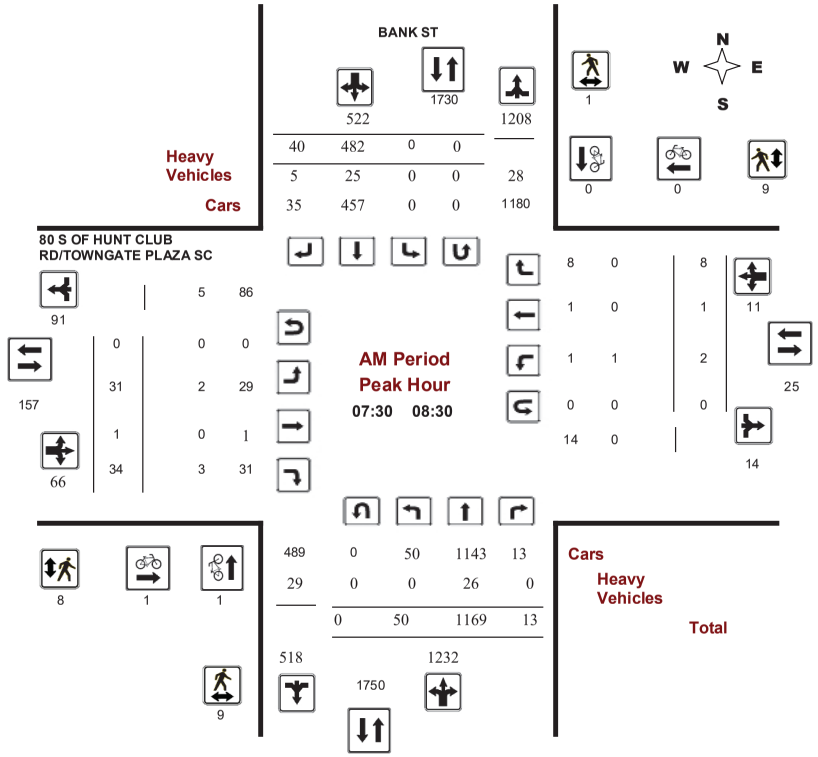
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision



Comments

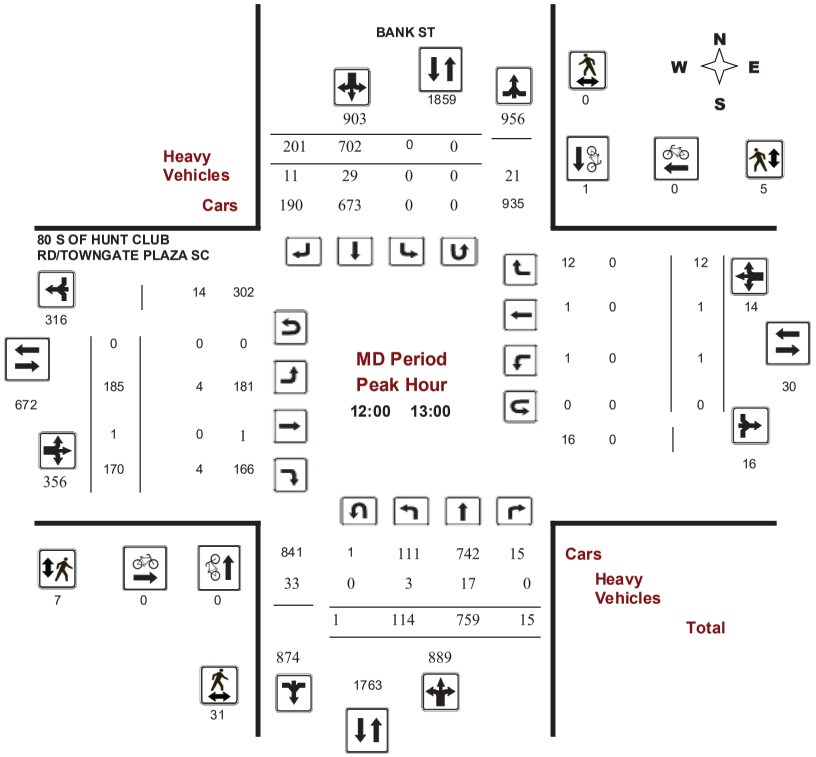
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision



Comments

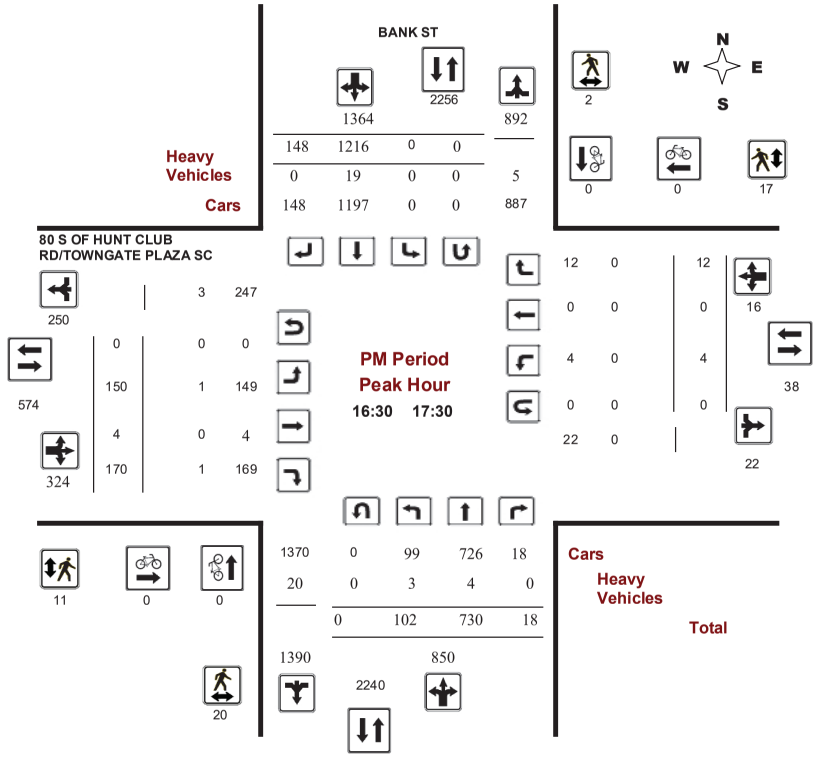
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, April 05, 2018

Total Observed U-Turns

Northbound: 5 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor .90

	BANK ST								80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	40	1120	12	**1172**	0	443	30	**473**	**1645**	18	0	18	**36**	0	1	4	**5**	**41**	**1686**
08:00 09:00	75	1021	15	**1111**	0	449	66	**515**	**1626**	54	2	51	**107**	3	0	9	**12**	**119**	**1745**
09:00 10:00	102	732	6	**840**	1	556	115	**672**	**1512**	115	2	88	**205**	2	1	3	**6**	**211**	**1723**
11:30 12:30	99	741	14	**854**	0	686	192	**878**	**1732**	173	1	172	**346**	2	1	11	**14**	**360**	**2092**
12:30 13:30	113	697	25	**835**	0	728	181	**909**	**1744**	207	0	161	**368**	0	0	10	**10**	**378**	**2122**
15:00 16:00	120	645	15	**780**	0	1041	136	**1177**	**1957**	174	0	196	**370**	5	1	4	**10**	**380**	**2337**
16:00 17:00	106	720	14	**840**	0	1177	142	**1319**	**2159**	154	3	168	**325**	2	0	13	**15**	**340**	**2499**
17:00 18:00	93	694	15	**802**	1	1178	140	**1319**	**2121**	147	2	168	**317**	2	0	8	**10**	**327**	**2448**
Sub Total	748	6370	116	**7234**	2	6258	1002	**7262**	**14496**	1042	10	1022	**2074**	16	4	62	**82**	**2156**	**16652**
U Turns	5			**5**	1			**1**	**6**	**0**			**0**	0			**0**	**0**	**6**
Total	753	6370	116	**7239**	3	6258	1002	**7263**	**14502**	1042	10	1022	**2074**	16	4	62	**82**	**2156**	**16658**
EQ 12Hr	1047	8854	161	**10062**	4	8699	1393	**10096**	**20158**	1448	14	1421	**2883**	22	6	86	**114**	**2997**	**23155**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	942	7969	145	**9056**	4	7829	1254	**9087**	**18143**	1303	13	1279	**2595**	20	5	77	**102**	**2697**	**20840**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	1234	10439	190	**11863**	5	10256	1643	**11904**	**23767**	1707	17	1675	**3399**	26	7	101	**134**	**3533**	**27300**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		BANK ST										80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC									
		Northbound				Southbound						Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	11	239	0	250	0	80	5	85	**335**	4	0	4	8	0	0	0	0	**8**	**343**
07:15	07:30	5	282	4	291	0	103	7	110	**401**	2	0	3	5	0	0	2	2	**7**	**408**
07:30	07:45	6	305	6	317	0	116	6	122	**439**	6	0	6	12	0	0	2	2	**14**	**453**
07:45	08:00	18	294	2	314	0	144	12	156	**470**	6	0	5	11	0	1	0	1	**12**	**482**
08:00	08:15	9	311	4	324	0	114	13	127	**451**	12	0	7	19	0	0	2	2	**21**	**472**
08:15	08:30	17	259	1	277	0	108	9	117	**394**	7	1	16	24	2	0	4	6	**30**	**424**
08:30	08:45	26	254	4	284	0	105	20	125	**409**	17	0	15	32	1	0	0	1	**33**	**442**
08:45	09:00	23	197	6	226	0	122	24	146	**372**	18	1	13	32	0	0	3	3	**35**	**407**
09:00	09:15	27	217	2	246	0	141	24	165	**411**	31	1	13	45	0	1	1	2	**47**	**458**
09:15	09:30	25	198	1	224	0	140	34	174	**398**	22	0	31	53	1	0	0	1	**54**	**452**
09:30	09:45	22	153	2	177	0	128	26	154	**331**	28	1	22	51	1	0	1	2	**53**	**384**
09:45	10:00	28	164	1	193	1	147	31	179	**372**	34	0	22	56	0	0	1	1	**57**	**429**
11:30	11:45	21	176	5	202	0	186	48	234	**436**	41	0	45	86	1	0	0	1	**87**	**523**
11:45	12:00	27	175	4	206	0	173	46	219	**425**	42	0	36	78	0	0	3	3	**81**	**506**
12:00	12:15	25	181	4	210	0	168	49	217	**427**	42	1	46	89	1	0	7	8	**97**	**524**
12:15	12:30	29	209	1	239	0	159	49	208	**447**	48	0	45	93	0	1	1	2	**95**	**542**
12:30	12:45	27	212	3	242	0	177	54	231	**473**	49	0	39	88	0	0	0	0	**88**	**561**
12:45	13:00	34	157	7	198	0	198	49	247	**445**	46	0	40	86	0	0	4	4	**90**	**535**
13:00	13:15	29	159	8	196	0	184	41	225	**421**	55	0	33	88	0	0	3	3	**91**	**512**
13:15	13:30	23	169	7	199	0	169	37	206	**405**	57	0	49	106	0	0	3	3	**109**	**514**
15:00	15:15	27	182	3	212	0	242	34	276	**488**	44	0	39	83	1	1	0	2	**85**	**573**
15:15	15:30	26	172	8	206	0	262	29	291	**497**	44	0	60	104	2	0	2	4	**108**	**605**
15:30	15:45	31	146	2	179	0	256	40	296	**475**	46	0	31	77	1	0	0	1	**78**	**553**
15:45	16:00	38	145	2	185	0	281	33	314	**499**	40	0	66	106	1	0	2	3	**109**	**608**
16:00	16:15	23	160	4	187	0	278	29	307	**494**	35	0	53	88	0	0	4	4	**92**	**586**
16:15	16:30	28	174	4	206	0	287	31	318	**524**	39	1	36	76	0	0	1	1	**77**	**601**
16:30	16:45	26	186	4	216	0	330	43	373	**589**	38	1	34	73	1	0	5	6	**79**	**668**
16:45	17:00	29	200	2	231	0	282	39	321	**552**	42	1	45	88	1	0	3	4	**92**	**644**
17:00	17:15	30	172	7	209	0	305	32	337	**546**	38	1	46	85	1	0	3	4	**89**	**635**
17:15	17:30	17	172	5	194	0	299	34	333	**527**	32	1	45	78	1	0	1	2	**80**	**607**
17:30	17:45	18	176	2	196	2	303	38	343	**539**	31	0	37	68	0	0	2	2	**70**	**609**
17:45	18:00	28	174	1	203	0	271	36	307	**510**	46	0	40	86	0	0	2	2	**88**	**598**
Total:		753	6370	116	7239	3	6258	1002	7263	**14502**	1042	10	1022	2074	16	4	62	82	**14502**	**16,658**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		BANK ST			80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	1	0	**1**	0	0	**0**	**1**
07:45	08:00	0	0	**0**	1	0	**1**	**1**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	1	**1**	0	0	**0**	**1**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	4	**4**	0	0	**0**	**4**
13:15	13:30	0	3	**3**	0	0	**0**	**3**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	1	0	**1**	0	0	**0**	**1**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	1	**1**	0	0	**0**	**1**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	2	0	**2**	**2**
Total		2	9	**11**	3	0	**3**	**14**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	BANK ST NB Approach (E or W Crossing)	BANK ST SB Approach (E or W Crossing)	BANK ST Total	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC EB Approach (N or S Crossing)	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC WB Approach (N or S Crossing)	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC Total	Grand Total
07:00 07:15	2	0	**2**	0	1	**1**	**3**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	2	0	**2**	0	3	**3**	**5**
07:45 08:00	1	0	**1**	4	1	**5**	**6**
08:00 08:15	3	1	**4**	1	2	**3**	**7**
08:15 08:30	3	0	**3**	3	3	**6**	**9**
08:30 08:45	9	0	**9**	5	8	**13**	**22**
08:45 09:00	3	0	**3**	3	1	**4**	**7**
09:00 09:15	2	0	**2**	0	2	**2**	**4**
09:15 09:30	3	1	**4**	3	0	**3**	**7**
09:30 09:45	8	0	**8**	4	3	**7**	**15**
09:45 10:00	4	1	**5**	1	3	**4**	**9**
11:30 11:45	6	0	**6**	3	3	**6**	**12**
11:45 12:00	10	0	**10**	7	1	**8**	**18**
12:00 12:15	7	0	**7**	1	4	**5**	**12**
12:15 12:30	6	0	**6**	0	0	**0**	**6**
12:30 12:45	4	0	**4**	3	1	**4**	**8**
12:45 13:00	14	0	**14**	3	0	**3**	**17**
13:00 13:15	8	0	**8**	4	4	**8**	**16**
13:15 13:30	10	0	**10**	7	5	**12**	**22**
15:00 15:15	8	0	**8**	1	2	**3**	**11**
15:15 15:30	10	0	**10**	1	1	**2**	**12**
15:30 15:45	8	0	**8**	0	3	**3**	**11**
15:45 16:00	7	0	**7**	2	2	**4**	**11**
16:00 16:15	6	6	**12**	6	3	**9**	**21**
16:15 16:30	4	4	**8**	4	1	**5**	**13**
16:30 16:45	4	2	**6**	2	3	**5**	**11**
16:45 17:00	7	0	**7**	2	7	**9**	**16**
17:00 17:15	6	0	**6**	3	3	**6**	**12**
17:15 17:30	3	0	**3**	4	4	**8**	**11**
17:30 17:45	1	0	**1**	1	4	**5**	**6**
17:45 18:00	12	0	**12**	4	5	**9**	**21**
Total	181	15	**196**	82	83	**165**	**361**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

Time Period		BANK ST Northbound LT	ST	RT	N TOT	BANK ST Southbound LT	ST	RT	S TOT	STR TOT	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC Eastbound LT	ST	RT	E TOT	Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	7	0	**7**	0	4	0	**4**	**11**	2	0	0	**2**	0	0	0	**0**	**2**	**13**
07:15	07:30	2	9	0	**11**	0	8	1	**9**	**20**	0	0	0	**0**	0	0	0	**0**	**0**	**20**
07:30	07:45	0	6	0	**6**	0	7	0	**7**	**13**	1	0	2	**3**	0	0	0	**0**	**3**	**16**
07:45	08:00	0	6	0	**6**	0	2	2	**4**	**10**	1	0	0	**1**	0	0	0	**0**	**1**	**11**
08:00	08:15	0	5	0	**5**	0	11	1	**12**	**17**	0	0	0	**0**	0	0	0	**0**	**0**	**17**
08:15	08:30	0	9	0	**9**	0	5	2	**7**	**16**	0	0	1	**1**	1	0	0	**1**	**2**	**18**
08:30	08:45	1	5	0	**6**	0	3	3	**6**	**12**	1	0	1	**2**	0	0	0	**0**	**2**	**14**
08:45	09:00	0	8	0	**8**	0	4	0	**4**	**12**	1	0	0	**1**	0	0	0	**0**	**1**	**13**
09:00	09:15	1	4	0	**5**	0	8	0	**8**	**13**	2	0	0	**2**	0	0	0	**0**	**2**	**15**
09:15	09:30	1	4	0	**5**	0	8	2	**10**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
09:30	09:45	0	5	0	**5**	0	5	0	**5**	**10**	2	0	1	**3**	0	0	0	**0**	**3**	**13**
09:45	10:00	1	3	0	**4**	0	9	1	**10**	**14**	1	0	0	**1**	0	0	0	**0**	**1**	**15**
11:30	11:45	0	8	0	**8**	0	8	3	**11**	**19**	1	0	0	**1**	0	0	0	**0**	**1**	**20**
11:45	12:00	1	6	0	**7**	0	9	0	**9**	**16**	2	0	1	**3**	0	0	0	**0**	**3**	**19**
12:00	12:15	0	1	0	**1**	0	9	3	**12**	**13**	0	0	1	**1**	0	0	0	**0**	**1**	**14**
12:15	12:30	1	8	0	**9**	0	8	4	**12**	**21**	2	0	0	**2**	0	0	0	**0**	**2**	**23**
12:30	12:45	0	5	0	**5**	0	6	0	**6**	**11**	1	0	2	**3**	0	0	0	**0**	**3**	**14**
12:45	13:00	2	3	0	**5**	0	6	4	**10**	**15**	1	0	1	**2**	0	0	0	**0**	**2**	**17**
13:00	13:15	0	8	0	**8**	0	6	3	**9**	**17**	2	0	0	**2**	0	0	0	**0**	**2**	**19**
13:15	13:30	0	8	0	**8**	0	3	0	**3**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
15:00	15:15	0	2	0	**2**	0	4	1	**5**	**7**	1	0	0	**1**	0	0	0	**0**	**1**	**8**
15:15	15:30	0	4	0	**4**	0	3	0	**3**	**7**	1	0	1	**2**	0	0	0	**0**	**2**	**9**
15:30	15:45	0	0	0	**0**	0	5	0	**5**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
15:45	16:00	0	1	0	**1**	0	6	0	**6**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
16:00	16:15	0	2	0	**2**	0	7	0	**7**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
16:15	16:30	0	3	0	**3**	0	3	1	**4**	**7**	0	0	1	**1**	0	0	0	**0**	**1**	**8**
16:30	16:45	0	1	0	**1**	0	5	0	**5**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
16:45	17:00	0	0	0	**0**	0	5	0	**5**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
17:00	17:15	2	2	0	**4**	0	3	0	**3**	**7**	1	0	0	**1**	0	0	0	**0**	**1**	**8**
17:15	17:30	1	1	0	**2**	0	6	0	**6**	**8**	0	0	1	**1**	0	0	0	**0**	**1**	**9**
17:30	17:45	0	1	0	**1**	0	1	0	**1**	**2**	1	0	0	**1**	0	0	0	**0**	**1**	**3**
17:45	18:00	1	1	0	**2**	0	1	0	**1**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
Total:	None	14	136	0	**150**	0	178	31	**209**	**359**	24	0	13	**37**	1	0	0	**1**	**38**	**397**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ 80 S OF HUNT CLUB RD/TOWNGATE PLAZA

Survey Date: Thursday, April 05, 2018 **WO No:** 37698

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		BANK ST Northbound U-Turn Total	BANK ST Southbound U-Turn Total	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC Eastbound U-Turn Total	80 S OF HUNT CLUB RD/TOWNGATE PLAZA SC Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	1	0	0	0	**1**
11:45	12:00	1	0	0	0	**1**
12:00	12:15	1	0	0	0	**1**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	1	0	0	0	**1**
15:45	16:00	1	0	0	0	**1**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	1	0	0	**1**
17:45	18:00	0	0	0	0	**0**
Total		5	1	0	0	**6**

Transportation Services - Traffic Services

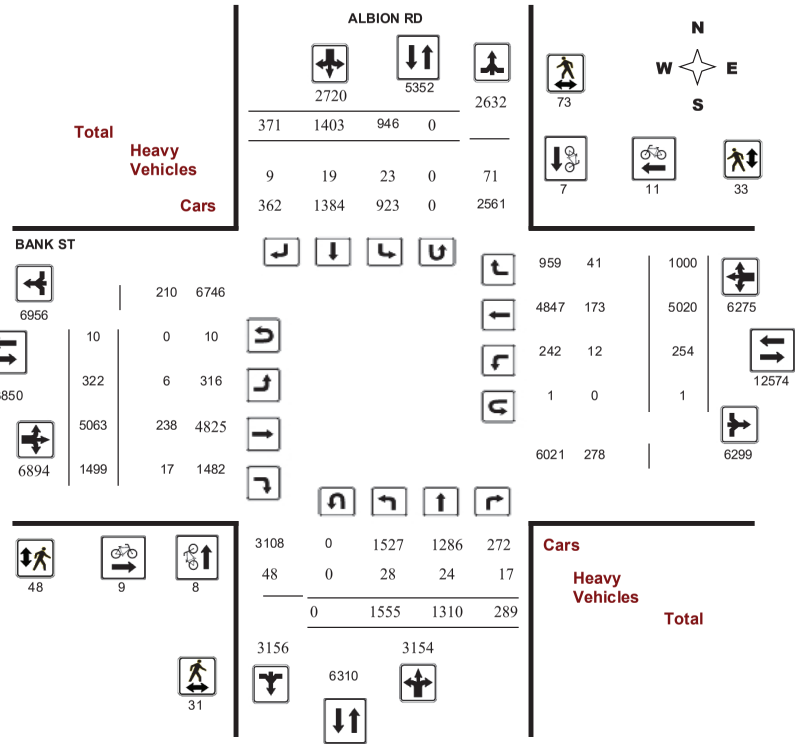
Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

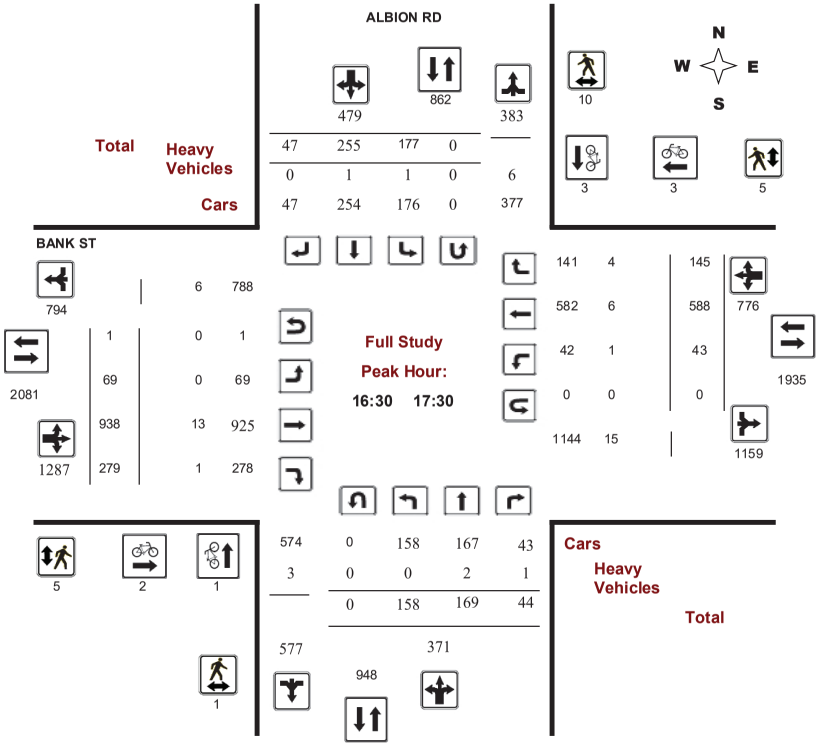
Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



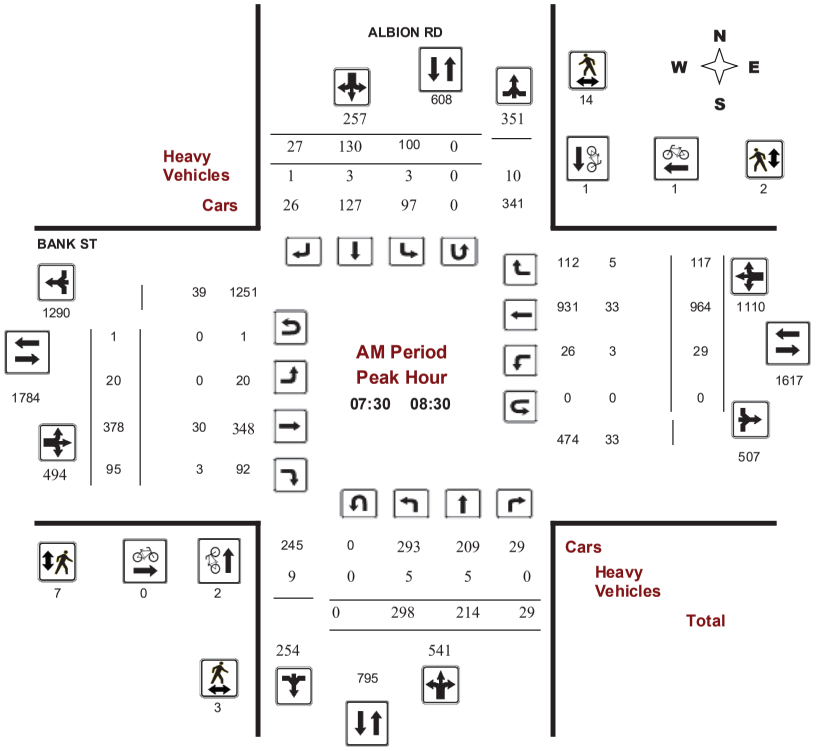
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision



Comments

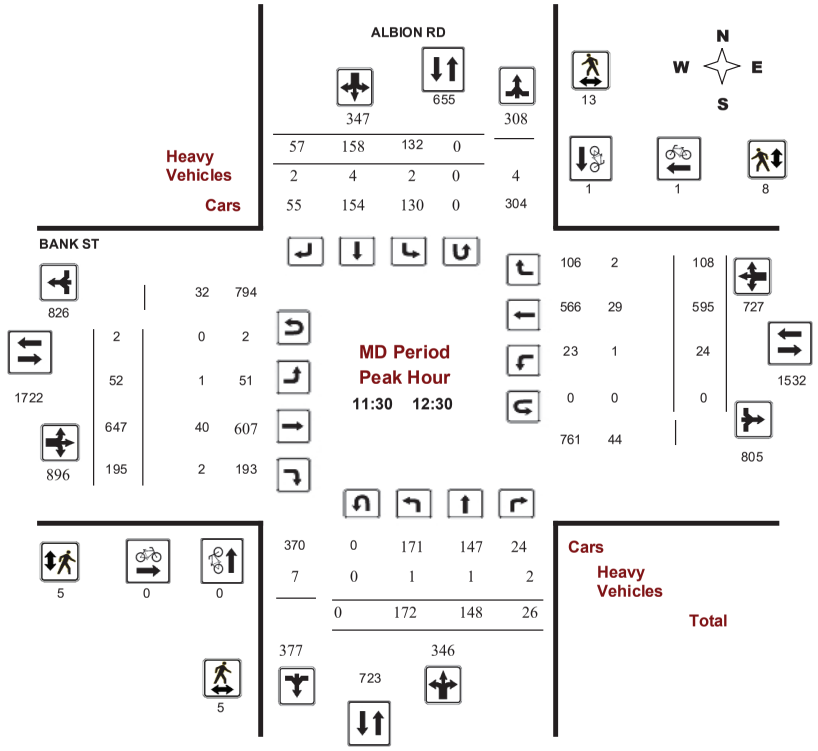
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision



Comments

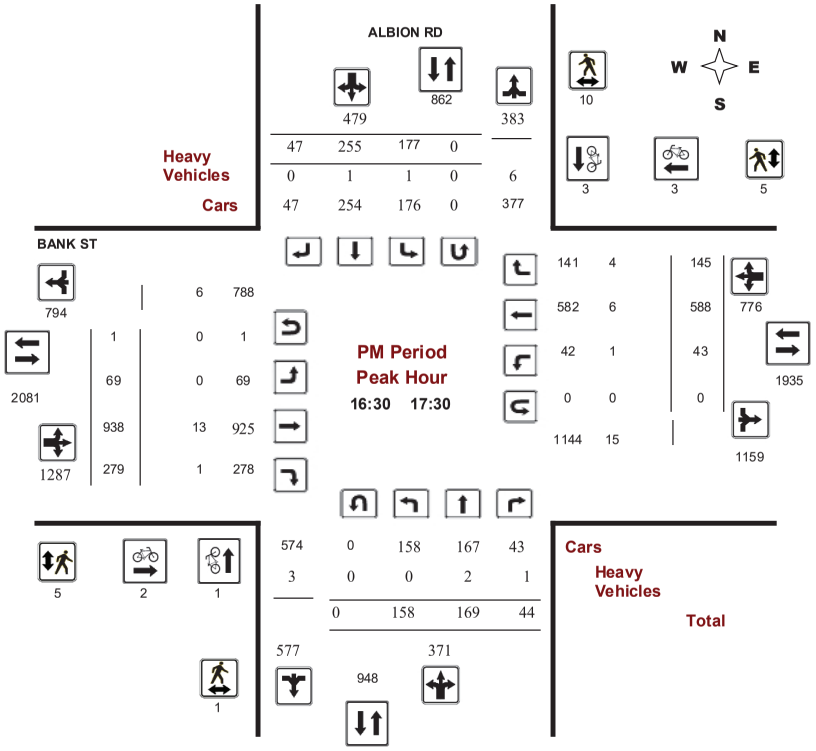
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, June 20, 2019

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 10 Westbound: 1

AADT Factor .90

	ALBION RD								BANK ST									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	259	189	27	**475**	69	120	24	**213**	**688**	14	380	81	**475**	22	883	97	**1002**	**1477**	**2165**
08:00 09:00	281	201	29	**511**	97	118	41	**256**	**767**	27	397	108	**532**	29	857	108	**994**	**1526**	**2293**
09:00 10:00	177	140	47	**364**	83	108	47	**238**	**602**	21	419	126	**566**	23	623	110	**756**	**1322**	**1924**
11:30 12:30	172	148	26	**346**	132	158	57	**347**	**693**	52	647	195	**894**	24	595	108	**727**	**1621**	**2314**
12:30 13:30	178	144	39	**361**	111	157	54	**322**	**683**	44	565	185	**794**	25	462	125	**612**	**1406**	**2089**
15:00 16:00	178	149	43	**370**	141	246	52	**439**	**809**	56	834	260	**1150**	41	495	141	**677**	**1827**	**2636**
16:00 17:00	159	173	38	**370**	150	233	49	**432**	**802**	54	931	258	**1243**	46	517	149	**712**	**1955**	**2757**
17:00 18:00	151	166	40	**357**	163	263	47	**473**	**830**	54	890	286	**1230**	44	588	162	**794**	**2024**	**2854**
Sub Total	1555	1310	289	**3154**	946	1403	371	**2720**	**5874**	322	5063	1499	**6884**	254	5020	1000	**6274**	**13158**	**19032**
U Turns	0			**0**	0			**0**	**0**	**10**			**10**	1			**1**	**11**	**11**
Total	1555	1310	289	**3154**	946	1403	371	**2720**	**5874**	332	5063	1499	**6894**	255	5020	1000	**6275**	**13169**	**19043**
EQ 12Hr	2161	1821	402	**4384**	1315	1950	516	**3781**	**8165**	461	7038	2084	**9583**	354	6978	1390	**8722**	**18305**	**26470**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1945	1639	362	**3946**	1184	1755	464	**3403**	**7349**	415	6334	1876	**8625**	319	6280	1251	**7850**	**16475**	**23824**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	2548	2147	474	**5169**	1551	2299	608	**4458**	**9627**	544	8298	2458	**11300**	418	8227	1639	**10284**	**21584**	**31211**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		ALBION RD									BANK ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	45	32	6	83	12	27	7	46	**129**	3	91	19	113	5	216	9	230	**343**	**472**
07:15	07:30	74	46	7	127	12	28	5	45	**172**	2	100	21	123	2	201	25	228	**351**	**523**
07:30	07:45	59	50	4	113	14	26	7	47	**160**	6	100	18	124	9	223	35	267	**391**	**551**
07:45	08:00	81	61	10	152	31	39	5	75	**227**	4	89	23	116	6	243	28	277	**393**	**620**
08:00	08:15	84	44	9	137	25	31	7	63	**200**	3	101	22	126	5	256	28	289	**415**	**615**
08:15	08:30	74	59	6	139	30	34	8	72	**211**	8	88	32	128	9	242	26	277	**405**	**616**
08:30	08:45	50	46	9	105	14	23	11	48	**153**	7	107	18	132	10	192	31	233	**365**	**518**
08:45	09:00	73	52	5	130	28	30	15	73	**203**	9	101	36	146	5	167	23	195	**341**	**544**
09:00	09:15	51	34	13	98	17	23	9	49	**147**	6	94	26	126	6	192	39	237	**363**	**510**
09:15	09:30	49	40	9	98	18	36	15	69	**167**	5	99	34	138	5	169	10	184	**322**	**489**
09:30	09:45	43	29	12	84	23	29	11	63	**147**	7	104	30	141	5	133	36	174	**315**	**462**
09:45	10:00	34	37	13	84	25	20	12	57	**141**	5	122	36	163	7	129	25	161	**324**	**465**
11:30	11:45	49	40	5	94	35	46	18	99	**193**	18	151	53	222	6	146	27	179	**401**	**594**
11:45	12:00	41	31	5	77	27	37	14	78	**155**	12	152	40	204	5	148	23	176	**380**	**535**
12:00	12:15	45	36	8	89	38	34	15	87	**176**	12	170	48	230	9	146	34	189	**419**	**595**
12:15	12:30	37	41	8	86	32	41	10	83	**169**	12	174	54	240	4	155	24	183	**423**	**592**
12:30	12:45	43	42	13	98	26	42	17	85	**183**	8	155	49	212	7	130	39	176	**388**	**571**
12:45	13:00	47	41	12	100	28	47	11	86	**186**	12	139	43	194	7	114	36	157	**351**	**537**
13:00	13:15	49	34	6	89	29	34	16	79	**168**	9	135	51	195	7	99	29	135	**330**	**498**
13:15	13:30	39	27	8	74	28	34	10	72	**146**	15	136	42	193	5	119	21	145	**338**	**484**
15:00	15:15	46	33	11	90	34	57	10	101	**191**	10	172	62	244	8	142	38	188	**432**	**623**
15:15	15:30	49	38	11	98	33	71	15	119	**217**	11	176	59	246	8	88	26	122	**368**	**585**
15:30	15:45	45	40	5	90	34	59	9	102	**192**	19	253	77	349	12	133	32	177	**526**	**718**
15:45	16:00	38	38	16	92	40	59	18	117	**209**	18	233	62	313	13	132	45	190	**503**	**712**
16:00	16:15	31	42	6	79	35	46	9	90	**169**	5	252	54	311	13	119	34	166	**477**	**646**
16:15	16:30	33	45	12	90	28	73	17	118	**208**	12	214	66	292	11	123	48	182	**474**	**682**
16:30	16:45	50	43	11	104	38	62	7	107	**211**	20	244	62	326	11	148	37	196	**522**	**733**
16:45	17:00	45	43	9	97	49	52	16	117	**214**	17	221	76	314	11	127	30	168	**482**	**696**
17:00	17:15	33	36	17	86	41	70	11	122	**208**	16	233	75	324	10	150	40	200	**524**	**732**
17:15	17:30	30	47	7	84	49	71	13	133	**217**	17	240	66	323	11	163	38	212	**535**	**752**
17:30	17:45	37	38	9	84	35	64	13	112	**196**	11	241	69	321	13	127	41	181	**502**	**698**
17:45	18:00	51	45	7	103	38	58	10	106	**209**	13	176	76	265	10	148	43	201	**466**	**675**
Total:		1555	1310	289	3154	946	1403	371	2720	**5874**	332	5063	1499	6894	255	5020	1000	6275	**5874**	**19,043**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		ALBION RD Northbound	ALBION RD Southbound	ALBION RD Street Total	BANK ST Eastbound	BANK ST Westbound	BANK ST Street Total	Grand Total
07:00	07:15	2	0	**2**	0	0	**0**	**2**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	2	0	**2**	0	0	**0**	**2**
07:45	08:00	0	1	**1**	0	1	**1**	**2**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	1	0	**1**	0	0	**0**	**1**
08:45	09:00	0	0	**0**	0	1	**1**	**1**
09:00	09:15	0	0	**0**	0	3	**3**	**3**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	3	0	**3**	**3**
11:30	11:45	0	1	**1**	0	0	**0**	**1**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	1	**1**	**1**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	1	0	**1**	**1**
15:30	15:45	1	0	**1**	0	0	**0**	**1**
15:45	16:00	0	1	**1**	0	0	**0**	**1**
16:00	16:15	1	0	**1**	3	0	**3**	**4**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	1	**1**	1	0	**1**	**2**
16:45	17:00	1	1	**2**	0	0	**0**	**2**
17:00	17:15	0	0	**0**	1	1	**2**	**2**
17:15	17:30	0	1	**1**	0	2	**2**	**3**
17:30	17:45	0	1	**1**	0	2	**2**	**3**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		8	7	**15**	9	11	**20**	**35**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		ALBION RD NB Approach (E or W Crossing)	ALBION RD SB Approach (E or W Crossing)	ALBION RD Total	BANK ST EB Approach (N or S Crossing)	BANK ST WB Approach (N or S Crossing)	BANK ST Total	Grand Total
07:00	07:15	0	2	**2**	1	0	**1**	**3**
07:15	07:30	0	0	**0**	0	1	**1**	**1**
07:30	07:45	0	1	**1**	2	0	**2**	**3**
07:45	08:00	0	2	**2**	2	1	**3**	**5**
08:00	08:15	2	1	**3**	0	1	**1**	**4**
08:15	08:30	1	10	**11**	3	0	**3**	**14**
08:30	08:45	1	2	**3**	1	1	**2**	**5**
08:45	09:00	5	0	**5**	3	1	**4**	**9**
09:00	09:15	1	1	**2**	1	0	**1**	**3**
09:15	09:30	2	3	**5**	1	2	**3**	**8**
09:30	09:45	1	3	**4**	1	1	**2**	**6**
09:45	10:00	1	1	**2**	5	0	**5**	**7**
11:30	11:45	0	5	**5**	1	4	**5**	**10**
11:45	12:00	3	2	**5**	4	1	**5**	**10**
12:00	12:15	1	3	**4**	0	0	**0**	**4**
12:15	12:30	1	3	**4**	0	3	**3**	**7**
12:30	12:45	0	2	**2**	0	1	**1**	**3**
12:45	13:00	1	1	**2**	2	1	**3**	**5**
13:00	13:15	1	0	**1**	0	0	**0**	**1**
13:15	13:30	0	1	**1**	2	0	**2**	**3**
15:00	15:15	0	1	**1**	3	1	**4**	**5**
15:15	15:30	2	3	**5**	5	1	**6**	**11**
15:30	15:45	0	1	**1**	1	0	**1**	**2**
15:45	16:00	1	5	**6**	2	1	**3**	**9**
16:00	16:15	1	2	**3**	2	1	**3**	**6**
16:15	16:30	4	3	**7**	0	3	**3**	**10**
16:30	16:45	1	5	**6**	0	1	**1**	**7**
16:45	17:00	0	1	**1**	5	0	**5**	**6**
17:00	17:15	0	1	**1**	0	2	**2**	**3**
17:15	17:30	0	3	**3**	0	2	**2**	**5**
17:30	17:45	0	2	**2**	0	1	**1**	**3**
17:45	18:00	1	3	**4**	1	2	**3**	**7**
Total		31	73	**104**	48	33	**81**	**185**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

Time Period		ALBION RD Northbound				ALBION RD Southbound					BANK ST Eastbound				BANK ST Westbound					
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	1	0	**1**	2	2	0	**4**	**5**	0	4	1	**5**	0	13	1	**14**	**19**	**24**
07:15	07:30	3	0	2	**5**	0	0	0	**0**	**5**	0	17	1	**18**	1	9	1	**11**	**29**	**34**
07:30	07:45	0	1	0	**1**	0	0	1	**1**	**2**	0	7	1	**8**	1	8	0	**9**	**17**	**19**
07:45	08:00	2	3	0	**5**	2	2	0	**4**	**9**	0	4	1	**5**	0	8	1	**9**	**14**	**23**
08:00	08:15	0	0	0	**0**	1	0	0	**1**	**1**	0	11	0	**11**	1	8	4	**13**	**24**	**25**
08:15	08:30	3	1	0	**4**	0	1	0	**1**	**5**	0	8	1	**9**	1	9	0	**10**	**19**	**24**
08:30	08:45	2	2	0	**4**	1	1	2	**4**	**8**	0	10	0	**10**	0	4	1	**5**	**15**	**23**
08:45	09:00	2	0	1	**3**	2	1	0	**3**	**6**	0	9	0	**9**	0	4	1	**5**	**14**	**20**
09:00	09:15	2	1	2	**5**	0	0	0	**0**	**5**	0	7	4	**11**	0	14	2	**16**	**27**	**32**
09:15	09:30	2	1	0	**3**	0	1	0	**1**	**4**	0	7	0	**7**	0	5	0	**5**	**12**	**16**
09:30	09:45	1	1	2	**4**	2	1	1	**4**	**8**	1	8	0	**9**	0	9	2	**11**	**20**	**28**
09:45	10:00	1	0	1	**2**	2	0	1	**3**	**5**	0	13	0	**13**	0	6	4	**10**	**23**	**28**
11:30	11:45	0	0	0	**0**	2	2	1	**5**	**5**	0	7	0	**7**	0	7	0	**7**	**14**	**19**
11:45	12:00	0	0	0	**0**	0	0	1	**1**	**1**	0	11	1	**12**	1	6	0	**7**	**19**	**20**
12:00	12:15	0	0	1	**1**	0	1	0	**1**	**2**	1	12	1	**14**	0	6	2	**8**	**22**	**24**
12:15	12:30	1	1	1	**3**	0	1	0	**1**	**4**	0	10	0	**10**	0	10	0	**10**	**20**	**24**
12:30	12:45	2	0	0	**2**	3	0	0	**3**	**5**	0	7	0	**7**	0	9	1	**10**	**17**	**22**
12:45	13:00	0	1	0	**1**	1	2	1	**4**	**5**	1	7	1	**9**	0	6	3	**9**	**18**	**23**
13:00	13:15	1	0	0	**1**	0	0	0	**0**	**1**	0	11	0	**11**	1	4	1	**6**	**17**	**18**
13:15	13:30	1	3	0	**4**	1	0	0	**1**	**5**	1	7	1	**9**	0	7	0	**7**	**16**	**21**
15:00	15:15	2	1	1	**4**	0	0	0	**0**	**4**	0	9	0	**9**	1	3	4	**8**	**17**	**21**
15:15	15:30	0	1	0	**1**	0	1	0	**1**	**2**	0	4	0	**4**	1	3	3	**7**	**11**	**13**
15:30	15:45	2	0	0	**2**	2	1	0	**3**	**5**	0	9	0	**9**	0	2	0	**2**	**11**	**16**
15:45	16:00	0	1	2	**3**	0	1	1	**2**	**5**	1	6	1	**8**	1	3	0	**4**	**12**	**17**
16:00	16:15	1	0	1	**2**	0	0	0	**0**	**2**	1	9	1	**11**	2	2	4	**8**	**19**	**21**
16:15	16:30	0	1	2	**3**	1	0	0	**1**	**4**	0	5	1	**6**	0	1	2	**3**	**9**	**13**
16:30	16:45	0	2	1	**3**	0	0	0	**0**	**3**	0	5	0	**5**	0	3	3	**6**	**11**	**14**
16:45	17:00	0	0	0	**0**	0	1	0	**1**	**1**	0	4	0	**4**	0	3	1	**4**	**8**	**9**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	1	**3**	1	0	0	**1**	**4**	**4**
17:15	17:30	0	0	0	**0**	1	0	0	**1**	**1**	0	2	0	**2**	0	0	0	**0**	**2**	**3**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	0	0	**0**	**3**	**3**
17:45	18:00	0	2	0	**2**	0	0	0	**0**	**2**	0	3	0	**3**	0	1	0	**1**	**4**	**6**
Total:	None	28	24	17	**69**	23	19	9	**51**	**120**	6	238	17	**261**	12	173	41	**226**	**487**	**607**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019 **WO No:** 38667

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		ALBION RD Northbound U-Turn Total	ALBION RD Southbound U-Turn Total	BANK ST Eastbound U-Turn Total	BANK ST Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	1	0	**1**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	2	0	**2**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	2	0	**2**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	1	**1**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	1	0	**1**
15:45	16:00	0	0	1	0	**1**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	1	0	**1**
17:30	17:45	0	0	1	0	**1**
17:45	18:00	0	0	1	0	**1**
Total		0	0	10	1	**11**

Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	702	219	25	884	177	286	944	22	82	267	135
Future Volume (vph)	119	702	219	25	884	177	286	944	22	82	267	135
Lane Group Flow (vph)	132	780	243	28	982	197	318	1049	24	91	297	150
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	21.0	45.0	45.0	13.0	37.0	37.0	25.0	48.0	48.0	14.0	37.0	37.0
Total Split (%)	17.5%	37.5%	37.5%	10.8%	30.8%	30.8%	20.8%	40.0%	40.0%	11.7%	30.8%	30.8%
Maximum Green (s)	14.5	38.3	38.3	6.5	30.3	30.3	17.9	41.5	41.5	6.9	30.5	30.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		9	9		10	10		20	20		25	25
Act Effct Green (s)	10.7	43.5	43.5	6.3	34.1	34.1	16.3	41.6	41.6	6.8	32.1	32.1
Actuated g/C Ratio	0.09	0.36	0.36	0.05	0.28	0.28	0.14	0.35	0.35	0.06	0.27	0.27
v/c Ratio	0.50	0.69	0.36	0.34	1.09	0.32	0.75	0.92	0.04	0.50	0.35	0.27
Control Delay	58.3	37.5	5.3	53.2	114.7	16.5	66.4	43.9	0.1	64.9	37.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0
Total Delay	58.3	37.5	5.3	53.2	114.7	16.5	66.4	57.2	0.1	64.9	37.4	1.2
LOS	E	D	A	D	F	B	E	E	A	E	D	A
Approach Delay		33.1			97.3			58.3			31.9	
Approach LOS		C			F			E			C	
Queue Length 50th (m)	15.5	87.4	0.0	6.6	~142.1	12.1	36.7	129.4	0.0	10.9	30.2	0.0
Queue Length 95th (m)	24.8	111.1	17.6	m11.7	#194.8	29.7	55.9	#159.2	0.0	19.4	43.2	0.0
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	357	1135	669	86	898	609	465	1138	635	184	854	551
Starvation Cap Reductn	0	0	0	0	0	0	0	101	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.69	0.36	0.33	1.09	0.32	0.68	1.01	0.04	0.49	0.35	0.27

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 65 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 105

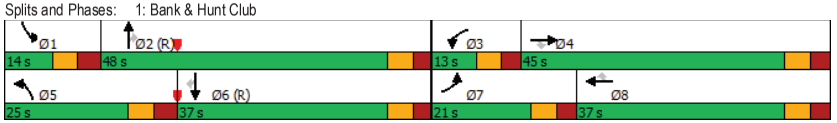
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 59.2 Intersection LOS: E
Intersection Capacity Utilization 84.2% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	717	8	181	992	79	6	99	41	84
Future Volume (vph)	58	717	8	181	992	79	6	99	41	84
Lane Group Flow (vph)	64	797	9	201	1102	88	7	370	46	170
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	65.0	65.0	30.0	30.0	30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	54.2%	54.2%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	59.5	59.5	23.8	23.8	23.8	23.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		2	2		4	4	2	2	7	7
Act Effct Green (s)	75.7	68.6	68.6	83.4	74.3	74.3	23.8	23.8	23.8	23.8
Actuated g/C Ratio	0.63	0.57	0.57	0.70	0.62	0.62	0.20	0.20	0.20	0.20
v/c Ratio	0.22	0.44	0.01	0.46	0.57	0.10	0.04	1.00	0.79	0.54
Control Delay	3.3	4.6	0.0	9.6	15.5	3.1	62.0	102.2	117.7	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.3	4.6	0.0	9.6	15.5	3.1	62.0	102.2	117.7	42.1
LOS	A	A	A	A	B	A	E	F	F	D
Approach Delay		4.4			13.9			101.4		58.2
Approach LOS		A			B			F		E
Queue Length 50th (m)	0.2	1.3	0.0	14.2	79.2	0.9	1.4	~66.9	10.4	29.5
Queue Length 95th (m)	m0.3	2.4	m0.0	22.5	101.6	7.6	m5.0	#129.0	#32.8	51.9
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	437	1806	707	525	1938	918	187	370	58	317
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	0.15	0.44	0.01	0.38	0.57	0.10	0.04	1.00	0.79	0.54

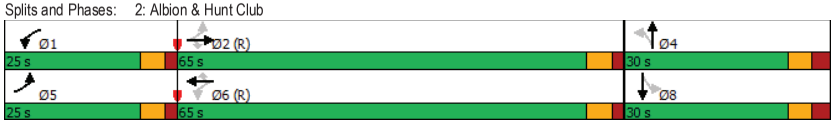
Intersection Summary

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: 1.00
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 2: Albion & Hunt Club



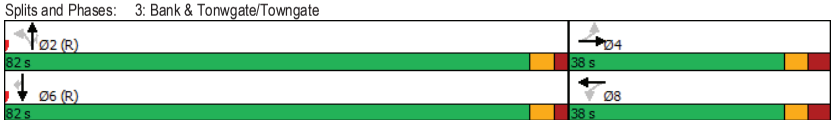
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	31	1	2	1	51	1213	13	471	40
Future Volume (vph)	31	1	2	1	51	1213	13	471	40
Lane Group Flow (vph)	0	72	0	12	0	1405	14	523	44
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			1	1	9	9	9	8	8
Act Effct Green (s)		14.4		14.4		97.6	97.6	97.6	97.6
Actuated g/C Ratio		0.12		0.12		0.81	0.81	0.81	0.81
v/c Ratio		0.39		0.07		0.33	0.01	0.20	0.04
Control Delay		30.6		24.5		2.6	0.0	3.7	1.7
Queue Delay		0.0		0.0		0.0	0.0	0.2	0.0
Total Delay		30.6		24.5		2.7	0.0	3.9	1.7
LOS		C		C		A	A	A	A
Approach Delay		30.6		24.5		2.6		3.7	
Approach LOS		C		C		A		A	
Queue Length 50th (m)		7.9		0.7		14.2	0.0	8.2	0.0
Queue Length 95th (m)		18.3		5.4		m23.6	m0.0	24.6	0.9
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		362		362		4292	1172	2621	1062
Starvation Cap Reductn		0		0		0	0	1253	0
Spillback Cap Reductn		2		0		382	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.20		0.03		0.36	0.01	0.38	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 4.0 Intersection LOS: A
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank & Tonwgate/Towngate



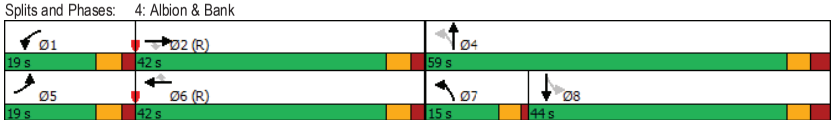
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	378	95	29	964	117	298	214	100	130
Future Volume (vph)	21	378	95	29	964	117	298	214	100	130
Lane Group Flow (vph)	23	420	106	32	1071	130	331	270	111	174
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0	44.0	44.0
Total Split (%)	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%	36.7%	36.7%
Maximum Green (s)	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6	37.6	37.6
Yellow Time (s)	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	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		3	3		14	14		2	2	2
Act Effct Green (s)	7.3	63.3	63.3	8.0	64.0	64.0	37.7	35.6	20.6	20.6
Actuated g/C Ratio	0.06	0.53	0.53	0.07	0.53	0.53	0.31	0.30	0.17	0.17
v/c Ratio	0.23	0.25	0.13	0.31	0.61	0.16	1.06	0.53	0.63	0.59
Control Delay	66.0	20.4	5.9	60.6	24.9	5.5	103.0	36.7	60.1	50.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	20.4	5.9	60.6	24.9	5.5	103.0	36.7	60.1	50.3
LOS	E	C	A	E	C	A	F	D	E	D
Approach Delay		19.5			23.7			73.2		54.1
Approach LOS		B			C			E		D
Queue Length 50th (m)	5.5	26.3	0.0	7.3	92.4	0.9	~77.5	53.1	27.3	41.0
Queue Length 95th (m)	14.2	52.1	9.2	17.2	#173.3	14.5	#87.0	61.8	30.7	39.1
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	183	1652	813	170	1750	796	313	753	320	535
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	0.13	0.25	0.13	0.19	0.61	0.16	1.06	0.36	0.35	0.33

Intersection Summary

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: 1.06
Intersection Signal Delay: 37.3 Intersection LOS: D
Intersection Capacity Utilization 72.8% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	441	972	24	30	114
Future Vol, veh/h	40	441	972	24	30	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	350	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	490	1080	27	33	127

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1107	0	-	0	1427	554
Stage 1	-	-	-	-	1094	-
Stage 2	-	-	-	-	333	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	626	-	-	-	126	476
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	626	-	-	-	117	476
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	17.3
HCM LOS			C

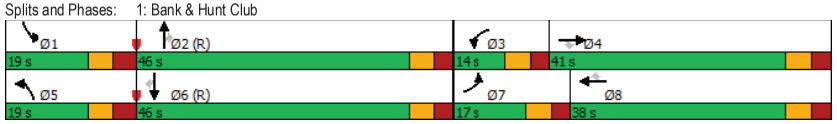
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	626	-	-	-	213	476
HCM Lane V/C Ratio	0.071	-	-	-	0.156	0.266
HCM Control Delay (s)	11.2	-	-	-	25	15.3
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	1.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1015	339	45	797	176	307	490	60	251	905	194
Future Volume (vph)	144	1015	339	45	797	176	307	490	60	251	905	194
Lane Group Flow (vph)	160	1128	377	50	886	196	341	544	67	279	1006	216
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	17.0	41.0	41.0	14.0	38.0	38.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.2%	34.2%	34.2%	11.7%	31.7%	31.7%	15.8%	38.3%	38.3%	15.8%	38.3%	38.3%
Maximum Green (s)	10.5	34.3	34.3	7.5	31.3	31.3	11.9	39.5	39.5	11.9	39.5	39.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	10.0	37.1	37.1	7.1	31.8	31.8	11.9	39.5	39.5	11.9	39.5	39.5
Actuated g/C Ratio	0.08	0.31	0.31	0.06	0.26	0.26	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.63	1.12	0.60	0.52	1.01	0.37	1.07	0.50	0.12	0.88	0.92	0.39
Control Delay	64.6	107.5	14.6	74.2	83.4	21.6	126.3	37.5	4.5	80.8	53.2	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Total Delay	64.6	107.5	14.6	74.2	83.4	21.6	126.3	38.9	4.5	80.8	53.2	10.1
LOS	E	F	B	E	F	C	F	D	A	F	D	B
Approach Delay		82.3			72.3			67.8			52.1	
Approach LOS		F			E			E			D	
Queue Length 50th (m)	19.0	~171.0	18.5	12.5	~90.4	10.4	~45.4	49.4	0.5	33.9	119.5	7.5
Queue Length 95th (m)	30.2	#212.3	51.9	m21.7	#150.7	35.5	m#71.4	m87.8	m6.1	#57.2	#159.2	26.7
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	268	1005	629	101	879	529	318	1091	573	318	1091	548
Starvation Cap Reductn	0	0	0	0	0	0	0	347	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	1.12	0.60	0.50	1.01	0.37	1.07	0.73	0.12	0.88	0.92	0.39

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 135

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 68.9 Intersection LOS: E
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 1: Bank & Hunt Club

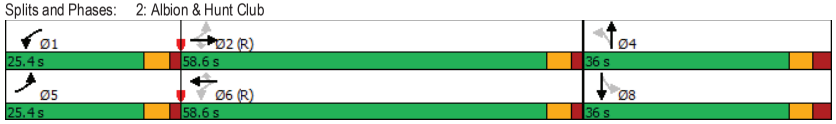


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	121	1200	23	315	943	64	7	117	48	133
Future Volume (vph)	121	1200	23	315	943	64	7	117	48	133
Lane Group Flow (vph)	134	1333	26	350	1048	71	8	401	53	206
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.4	58.6	58.6	25.4	58.6	58.6	36.0	36.0	36.0	36.0
Total Split (%)	21.2%	48.8%	48.8%	21.2%	48.8%	48.8%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	53.1	53.1	20.0	53.1	53.1	29.8	29.8	29.8	29.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		4	4		5	5	6	6	24	24
Act Effct Green (s)	62.5	53.1	53.1	80.1	65.3	65.3	28.3	28.3	28.3	28.3
Actuated g/C Ratio	0.52	0.44	0.44	0.67	0.54	0.54	0.24	0.24	0.24	0.24
v/c Ratio	0.45	0.92	0.04	0.99	0.58	0.09	0.04	0.94	0.88	0.52
Control Delay	10.2	14.2	0.1	81.1	20.5	3.1	30.6	63.3	133.6	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	14.2	0.1	81.1	20.5	3.1	30.6	63.3	133.6	41.6
LOS	B	B	A	F	C	A	C	E	F	D
Approach Delay		13.6			34.1			62.6		60.5
Approach LOS		B			C			E		E
Queue Length 50th (m)	4.6	29.0	0.0	~75.0	85.5	0.0	1.5	82.4	11.9	38.5
Queue Length 95th (m)	m4.9	m26.6	m0.0	#133.3	111.4	6.3	m4.0	#129.5	#36.9	62.2
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	439	1452	679	355	1805	807	212	446	63	414
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	0.31	0.92	0.04	0.99	0.58	0.09	0.04	0.90	0.84	0.50

Intersection Summary
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: 0.99
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 103.9% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 2: Albion & Hunt Club



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	4	4	0	97	695	17	1141	148
Future Volume (vph)	150	4	4	0	97	695	17	1141	148
Lane Group Flow (vph)	0	348	0	17	0	880	19	1268	164
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			20	20	17	17	17	11	11
Act Effct Green (s)		30.1		30.1		77.4	77.4	77.4	77.4
Actuated g/C Ratio		0.25		0.25		0.64	0.64	0.64	0.64
v/c Ratio		0.95		0.05		0.32	0.02	0.59	0.17
Control Delay		74.5		8.8		7.2	0.4	5.0	0.3
Queue Delay		3.8		0.0		0.0	0.0	0.7	0.5
Total Delay		78.3		8.8		7.2	0.4	5.6	0.8
LOS		E		A		A	A	A	A
Approach Delay		78.3		8.8		7.1		5.1	
Approach LOS		E		A		A		A	
Queue Length 50th (m)		71.5		0.0		18.9	0.0	23.9	0.0
Queue Length 95th (m)		#127.1		4.3		18.1	m0.3	m32.8	m0.0
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		380		388		2762	924	2137	979
Starvation Cap Reductn		0		0		0	0	473	518
Spillback Cap Reductn		12		12		123	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.95		0.05		0.33	0.02	0.76	0.36

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 108.0% 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.

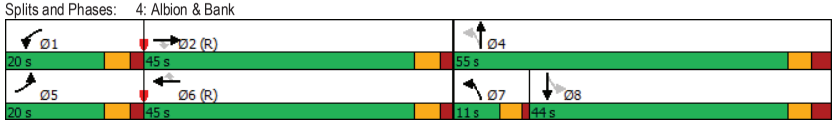
Splits and Phases: 3: Bank & Tonwgate/Towngate

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	70	938	279	43	588	145	158	169	177	255
Future Volume (vph)	70	938	279	43	588	145	158	169	177	255
Lane Group Flow (vph)	78	1042	310	48	653	161	176	237	197	335
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0	44.0	44.0
Total Split (%)	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	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	3.3	3.3	3.3	3.3
All-Red Time (s)	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		1	1		10	10		5	5	5
Act Effct Green (s)	10.8	56.0	56.0	8.9	54.3	54.3	41.7	39.6	28.6	28.6
Actuated g/C Ratio	0.09	0.47	0.47	0.07	0.45	0.45	0.35	0.33	0.24	0.24
v/c Ratio	0.53	0.67	0.37	0.39	0.44	0.22	0.83	0.42	0.78	0.82
Control Delay	74.9	14.4	1.5	61.5	26.3	5.0	59.8	30.7	45.2	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	14.4	1.5	61.5	26.3	5.0	59.8	30.7	45.2	41.7
LOS	E	B	A	E	C	A	E	C	D	D
Approach Delay		14.9			24.3			43.1		43.0
Approach LOS		B			C			D		D
Queue Length 50th (m)	0.0	44.5	0.0	11.0	56.4	0.0	30.0	40.8	47.8	80.2
Queue Length 95th (m)	m26.4	m#155.6	m6.4	22.6	86.7	14.6	#48.1	56.0	m54.6	m88.7
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	197	1547	841	197	1501	725	213	690	333	538
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	0.40	0.67	0.37	0.24	0.44	0.22	0.83	0.34	0.59	0.62

Intersection Summary
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: 0.83
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 78.7% 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: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.4

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	1	100	1025	652	26	23	99
Future Vol, veh/h	1	100	1025	652	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	-	10	-	-	-	350	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1	111	1139	724	29	26	110

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	753	753	0	-	0	1533	377
Stage 1	-	-	-	-	-	739	-
Stage 2	-	-	-	-	-	794	-
Critical Hdwy	6.44	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.52	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	478	853	-	-	-	107	621
Stage 1	-	-	-	-	-	433	-
Stage 2	-	-	-	-	-	406	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	844	844	-	-	-	93	621
Mov Cap-2 Maneuver	-	-	-	-	-	220	-
Stage 1	-	-	-	-	-	375	-
Stage 2	-	-	-	-	-	406	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	844	-	-	-	220	621
HCM Lane V/C Ratio	0.133	-	-	-	0.116	0.177
HCM Control Delay (s)	9.9	-	-	-	23.5	12
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.6

Appendix D

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2015-08-24	2015	13:31	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	02 - Wet
2015-09-19	2015	14:47	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-09-17	2015	15:13	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry
2015-12-14	2015	13:14	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2015-09-05	2015	12:09	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-01-09	2015	17:06	ALBION RD @ BANK ST	03 - Snow	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	03 - Loose snow
2015-06-05	2015	14:18	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-08-01	2015	14:14	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-06-18	2016	19:37	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2016-12-15	2016	17:32	ALBION RD @ BANK ST	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2016-02-21	2016	16:46	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-05-09	2016	21:35	ALBION RD @ BANK ST	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-05-04	2016	19:00	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-10-31	2016	13:03	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-12-22	2016	7:56	ALBION RD @ BANK ST	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	03 - Loose snow
2016-12-07	2016	19:29	ALBION RD @ BANK ST	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-06-12	2017	17:48	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-07-22	2017	11:11	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-11-19	2017	17:27	ALBION RD @ BANK ST	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2017-01-12	2017	17:34	ALBION RD @ BANK ST	02 - Rain	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-02-14	2017	8:39	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2017-03-16	2017	13:10	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
2017-04-13	2017	17:55	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-04-13	2017	16:10	ALBION RD @ BANK ST	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-01-20	2018	12:52	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-01-30	2018	8:04	ALBION RD @ BANK ST (0012409)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2018-03-27	2018	14:52	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2018-06-08	2018	22:31	ALBION RD @ BANK ST (0012409)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-06-23	2018	3:26	ALBION RD @ BANK ST (0012409)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-07-07	2018	23:00	ALBION RD @ BANK ST (0012409)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-11-09	2018	14:05	ALBION RD @ BANK ST (0012409)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2018-11-17	2018	20:00	ALBION RD @ BANK ST (0012409)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2018-12-11	2018	10:31	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2019-02-13	2019	12:10	ALBION RD @ BANK ST (0012409)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	06 - SMV unattended vehicle	03 - Loose snow
2019-03-31	2019	23:20	ALBION RD @ BANK ST (0012409)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-08-09	2019	9:02	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2019-10-15	2019	13:00	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-11-09	2019	16:04	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2019-12-17	2019	14:38	ALBION RD @ BANK ST (0012409)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	02 - Wet
2017-08-11	2017	18:08	ALBION RD btwn ALBION RD S & BANK ST	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	02 - Angle	01 - Dry
2019-03-08	2019	19:35	ALBION RD btwn ALBION RD S & BANK ST (__3ZA2PX)	01 - Clear	07 - Dark	10 - No control		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-10-31	2015	19:26	BANK ST @ SIEVERIGHT AVE	01 - Clear	07 - Dark	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-11-11	2017	11:01	BANK ST @ SIEVERIGHT AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-02-17	2017	17:54	BANK ST @ SIEVERIGHT AVE	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2019-02-26	2019	9:45	BANK ST @ SIEVERIGHT AVE (0012408)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2019-04-26	2019	20:19	BANK ST @ SIEVERIGHT AVE (0012408)	02 - Rain	07 - Dark	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	02 - Wet
2019-05-29	2019	17:30	BANK ST @ SIEVERIGHT AVE (0012408)	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2019-10-10	2019	21:00	BANK ST @ SIEVERIGHT AVE (0012408)	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2015-10-07	2015	17:15	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2016-06-25	2016	5:56	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	07 - SMV other	01 - Dry
2016-04-21	2016	20:25	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	03 - Rear end	01 - Dry
2017-02-17	2017	14:04	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	05 - Turning movement	01 - Dry
2017-02-28	2017	18:29	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2017-04-09	2017	17:09	BANK ST btwn ALBION RD & SIEVERIGHT AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-03-28	2018	16:40	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	03 - Rear end	01 - Dry
2018-06-15	2018	23:06	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2018-11-02	2018	7:55	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	02 - Rain	01 - Daylight	10 - No control		02 - Non-fatal injury	05 - Turning movement	02 - Wet
2019-01-06	2019	17:30	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	05 - Dusk	10 - No control		03 - P.D. only	03 - Rear end	06 - Ice
2019-02-28	2019	7:57	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2019-04-06	2019	20:17	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	07 - Dark	10 - No control		02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2019-05-29	2019	19:30	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	06 - SMV unattended vehicle	01 - Dry
2019-11-14	2019	12:09	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	07 - SMV other	01 - Dry
2019-12-28	2019	17:20	BANK ST btwn ALBION RD & SIEVERIGHT AVE (__3ZA29S)	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2015-02-09	2015	7:56	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE	03 - Snow	01 - Daylight	10 - No control		03 - P.D. only	03 - Rear end	03 - Loose snow
2015-08-17	2015	17:07	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	01 - Dry
2017-06-09	2017	18:30	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-03-08	2018	1:31	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE (__3ZAYF2)	03 - Snow	07 - Dark	10 - No control		03 - P.D. only	07 - SMV other	03 - Loose snow
2018-05-29	2018	19:20	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE (__3ZAYF2)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-05-31	2018	15:32	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE (__3ZAYF2)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2018-08-22	2018	20:55	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE (__3ZAYF2)	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	05 - Turning movement	01 - Dry
2019-11-13	2019	14:45	BANK ST btwn SIEVERIGHT AVE & ATHANS AVE (__3ZAYF2)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	03 - Rear end	02 - Wet

Appendix E

TRANS Model Plots

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

2600 Bank Street

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: Feb 2, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Mooney's Bay

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: Feb 2, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

200 400 600 800

N

Appendix F

Background Development Traffic

Figure 12: 2022 Site-Generated Traffic

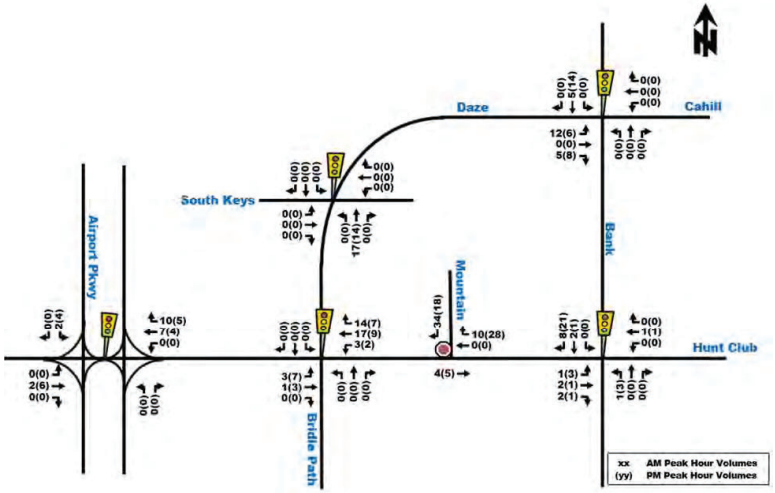


Figure 13: 2027 Site-Generated Traffic

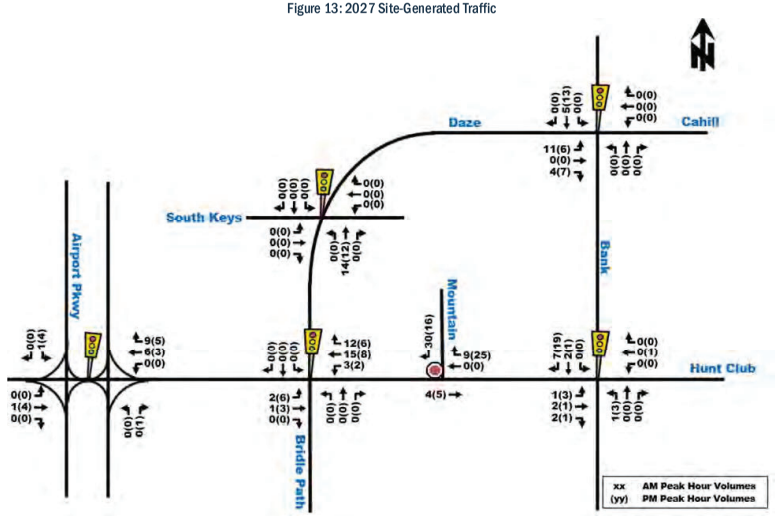
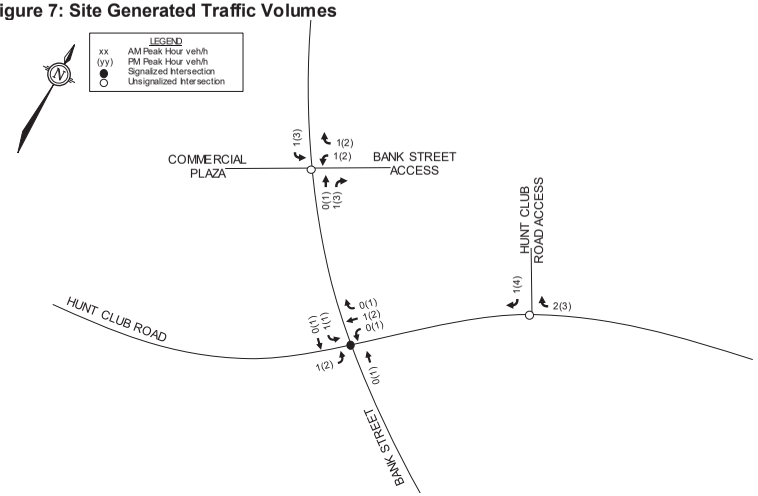


Figure 7: Site Generated Traffic Volumes



Appendix G

Synchro Intersection Worksheets – 2025 Future Background Conditions

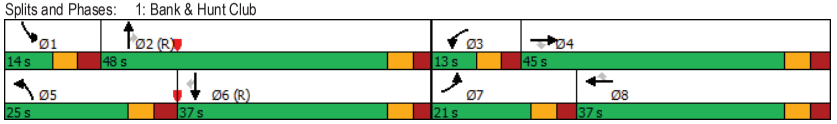
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	704	221	25	886	177	287	1017	22	83	269	143
Future Volume (vph)	121	704	221	25	886	177	287	1017	22	83	269	143
Lane Group Flow (vph)	121	704	221	25	886	177	287	1017	22	83	269	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	21.0	45.0	45.0	13.0	37.0	37.0	25.0	48.0	48.0	14.0	37.0	37.0
Total Split (%)	17.5%	37.5%	37.5%	10.8%	30.8%	30.8%	20.8%	40.0%	40.0%	11.7%	30.8%	30.8%
Maximum Green (s)	14.5	38.3	38.3	6.5	30.3	30.3	17.9	41.5	41.5	6.9	30.5	30.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		9	9		10	10		20	20		25	25
Act Effct Green (s)	10.2	43.5	43.5	6.3	34.6	34.6	15.6	44.3	44.3	6.7	32.8	32.8
Actuated g/C Ratio	0.08	0.36	0.36	0.05	0.29	0.29	0.13	0.37	0.37	0.06	0.27	0.27
v/c Ratio	0.48	0.62	0.34	0.30	0.97	0.29	0.71	0.84	0.03	0.46	0.31	0.26
Control Delay	58.3	35.6	5.4	53.1	85.1	14.3	59.9	36.9	0.1	63.4	36.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0
Total Delay	58.3	35.6	5.4	53.1	85.1	14.3	59.9	40.2	0.1	63.4	36.4	1.1
LOS	E	D	A	D	F	B	E	D	A	E	D	A
Approach Delay		31.8			72.9			43.8			30.7	
Approach LOS		C			E			D			C	
Queue Length 50th (m)	14.2	76.3	0.0	5.9	117.8	9.8	27.0	124.1	0.0	9.8	26.7	0.0
Queue Length 95th (m)	23.2	98.0	17.0	m11.5	#166.6	24.7	51.2	#121.4	0.0	18.1	39.4	0.0
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	357	1135	655	86	910	613	465	1212	662	184	871	556
Starvation Cap Reductn	0	0	0	0	0	0	0	117	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.62	0.34	0.29	0.97	0.29	0.62	0.93	0.03	0.45	0.31	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 65 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 47.0 — Intersection LOS: D
Intersection Capacity Utilization 86.2% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	719	8	181	995	79	6	99	41	84
Future Volume (vph)	58	719	8	181	995	79	6	99	41	84
Lane Group Flow (vph)	58	719	8	181	995	79	6	333	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	65.0	65.0	30.0	30.0	30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	54.2%	54.2%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	59.5	59.5	23.8	23.8	23.8	23.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		2	2		4	4	2	2	7	7
Act Effct Green (s)	77.3	70.3	70.3	84.2	75.6	75.6	22.7	22.7	22.7	22.7
Actuated g/C Ratio	0.64	0.59	0.59	0.70	0.63	0.63	0.19	0.19	0.19	0.19
v/c Ratio	0.18	0.39	0.01	0.39	0.50	0.08	0.03	0.94	0.72	0.50
Control Delay	1.9	3.4	0.0	8.2	14.1	2.6	61.3	89.5	103.5	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	3.4	0.0	8.2	14.1	2.6	61.3	89.5	103.5	40.4
LOS	A	A	A	A	B	A	E	F	F	D
Approach Delay		3.2			12.5			89.0		53.7
Approach LOS		A			B			F		D
Queue Length 50th (m)	0.1	0.7	0.0	12.7	67.6	0.1	1.3	56.4	9.0	25.5
Queue Length 95th (m)	m0.3	2.3	m0.0	20.3	87.2	6.2	m4.3	#107.7	#28.7	46.6
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	474	1852	723	564	1971	933	198	370	60	318
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	0.32	0.50	0.08	0.03	0.90	0.68	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 81.8% 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: 2: Albion & Hunt Club

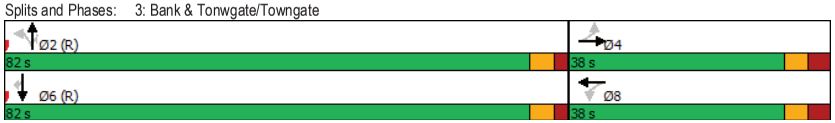
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	31	1	2	1	51	1308	13	475	40
Future Volume (vph)	31	1	2	1	51	1308	13	475	40
Lane Group Flow (vph)	0	65	0	11	0	1359	13	475	40
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			1	1	9	9	9	8	8
Act Effct Green (s)		14.3		14.3		97.7	97.7	97.7	97.7
Actuated g/C Ratio		0.12		0.12		0.81	0.81	0.81	0.81
v/c Ratio		0.36		0.07		0.31	0.01	0.18	0.04
Control Delay		30.5		25.9		2.6	0.0	3.6	1.8
Queue Delay		0.0		0.0		0.0	0.0	0.2	0.0
Total Delay		30.5		25.9		2.6	0.0	3.8	1.8
LOS		C		C		A	A	A	A
Approach Delay		30.5		25.9		2.6		3.7	
Approach LOS		C		C		A		A	
Queue Length 50th (m)		7.2		0.7		13.1	0.0	7.3	0.0
Queue Length 95th (m)		17.2		5.2		m22.8	m0.0	22.7	0.7
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		359		359		4340	1173	2623	1062
Starvation Cap Reductn		0		0		0	0	1322	0
Spillback Cap Reductn		3		0		540	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.18		0.03		0.36	0.01	0.37	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 3.9 — Intersection LOS: A
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank & Tonwgate/Towngate



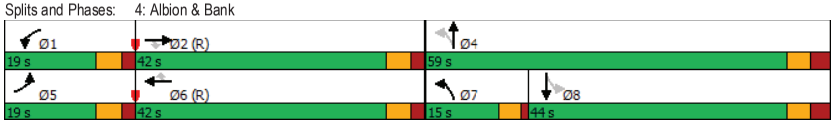
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	382	95	29	1040	117	298	214	100	130
Future Volume (vph)	21	382	95	29	1040	117	298	214	100	130
Lane Group Flow (vph)	21	382	95	29	1040	117	298	243	100	157
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0	44.0	44.0
Total Split (%)	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%	36.7%	36.7%
Maximum Green (s)	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6	37.6	37.6
Yellow Time (s)	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	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		3	3		14	14		2	2	2
Act Effct Green (s)	7.1	64.6	64.6	7.8	67.7	67.7	36.6	34.5	19.5	19.5
Actuated g/C Ratio	0.06	0.54	0.54	0.06	0.56	0.56	0.30	0.29	0.16	0.16
v/c Ratio	0.21	0.23	0.12	0.29	0.56	0.14	0.94	0.49	0.59	0.56
Control Delay	67.1	17.9	4.3	60.1	21.9	4.4	74.8	36.3	58.2	49.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	17.9	4.3	60.1	21.9	4.4	74.8	36.3	58.2	49.8
LOS	E	B	A	E	C	A	E	D	E	D
Approach Delay		17.4			21.1			57.5		53.1
Approach LOS		B			C			E		D
Queue Length 50th (m)	0.0	19.3	0.0	6.6	64.2	0.0	61.4	47.6	24.7	36.9
Queue Length 95th (m)	13.6	46.4	7.3	16.0	#164.3	11.5	68.7	55.3	28.4	0.0
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	183	1684	826	170	1852	836	316	753	328	535
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	0.11	0.23	0.12	0.17	0.56	0.14	0.94	0.32	0.30	0.29

Intersection Summary

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: 0.94
Intersection Signal Delay: 31.6 — Intersection LOS: C
Intersection Capacity Utilization 75.0% — 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.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	445	1048	24	30	114
Future Vol, veh/h	40	445	1048	24	30	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	350	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	445	1048	24	30	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1072	0	-	0	1363	536
Stage 1	-	-	-	-	1060	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	646	-	-	-	139	489
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	646	-	-	-	130	489
Mov Cap-2 Maneuver	-	-	-	-	226	-
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	16.4
HCM LOS			C

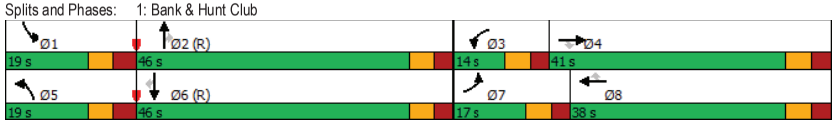
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	646	-	-	-	226	489
HCM Lane V/C Ratio	0.062	-	-	-	0.133	0.233
HCM Control Delay (s)	10.9	-	-	-	23.4	14.6
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	1016	340	46	800	177	310	491	60	252	977	215
Future Volume (vph)	149	1016	340	46	800	177	310	491	60	252	977	215
Lane Group Flow (vph)	149	1016	340	46	800	177	310	491	60	252	977	215
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	17.0	41.0	41.0	14.0	38.0	38.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.2%	34.2%	34.2%	11.7%	31.7%	31.7%	15.8%	38.3%	38.3%	15.8%	38.3%	38.3%
Maximum Green (s)	10.5	34.3	34.3	7.5	31.3	31.3	11.9	39.5	39.5	11.9	39.5	39.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	9.8	37.1	37.1	7.1	32.0	32.0	11.9	39.7	39.7	11.7	39.5	39.5
Actuated g/C Ratio	0.08	0.31	0.31	0.06	0.27	0.27	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.59	1.01	0.54	0.48	0.91	0.34	0.97	0.45	0.10	0.81	0.90	0.39
Control Delay	63.2	72.9	10.7	74.5	61.6	19.1	101.9	34.1	3.8	72.7	50.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
Total Delay	63.2	72.9	10.7	74.5	61.6	19.1	101.9	35.3	3.8	72.7	50.1	9.4
LOS	E	E	B	E	E	B	F	D	A	E	D	A
Approach Delay		57.9			54.8			57.1			48.0	
Approach LOS		E			D			E			D	
Queue Length 50th (m)	17.6	~142.1	10.2	11.5	71.4	4.4	38.0	38.5	0.3	30.3	114.6	6.5
Queue Length 95th (m)	28.4	#182.6	37.6	m22.7	#126.6	31.1	m#64.4	m81.4	m5.4	#49.6	#151.4	25.4
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	268	1006	633	101	882	516	318	1096	575	318	1091	551
Starvation Cap Reductn	0	0	0	0	0	0	0	372	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.01	0.54	0.46	0.91	0.34	0.97	0.68	0.10	0.79	0.90	0.39

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 54.1 Intersection LOS: D
Intersection Capacity Utilization 94.0% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	121	1201	23	315	947	64	7	117	48	133
Future Volume (vph)	121	1201	23	315	947	64	7	117	48	133
Lane Group Flow (vph)	121	1201	23	315	947	64	7	361	48	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.4	58.6	58.6	25.4	58.6	58.6	36.0	36.0	36.0	36.0
Total Split (%)	21.2%	48.8%	48.8%	21.2%	48.8%	48.8%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	53.1	53.1	20.0	53.1	53.1	29.8	29.8	29.8	29.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		4	4		5	5	6	6	24	24
Act Effct Green (s)	66.0	57.1	57.1	82.2	67.9	67.9	26.2	26.2	26.2	26.2
Actuated g/C Ratio	0.55	0.48	0.48	0.68	0.57	0.57	0.22	0.22	0.22	0.22
v/c Ratio	0.36	0.77	0.03	0.86	0.50	0.08	0.04	0.90	0.72	0.51
Control Delay	6.6	11.0	0.1	47.2	18.0	2.5	30.7	56.9	93.2	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	11.0	0.1	47.2	18.0	2.5	30.7	56.9	93.2	41.8
LOS	A	B	A	D	B	A	C	E	F	D
Approach Delay		10.4			24.2			56.4		52.4
Approach LOS		B			C			E		D
Queue Length 50th (m)	4.0	25.0	0.0	47.7	71.6	0.0	1.5	71.7	10.2	34.1
Queue Length 95th (m)	m4.8	m26.1	m0.0	#97.0	95.9	5.0	m4.0	#108.4	#29.7	55.8
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	487	1563	725	377	1876	836	223	446	76	414
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	0.25	0.77	0.03	0.84	0.50	0.08	0.03	0.81	0.63	0.45

Intersection Summary
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: 24.1 Intersection LOS: C
Intersection Capacity Utilization 104.0% 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: 2: Albion & Hunt Club

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	4	4	0	97	699	17	1232	148
Future Volume (vph)	150	4	4	0	97	699	17	1232	148
Lane Group Flow (vph)	0	313	0	16	0	796	17	1232	148
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			20	20	17	17	17	11	11
Act Effct Green (s)		28.2		28.2		79.3	79.3	79.3	79.3
Actuated g/C Ratio		0.24		0.24		0.66	0.66	0.66	0.66
v/c Ratio		0.90		0.05		0.28	0.02	0.56	0.15
Control Delay		67.7		8.2		6.8	0.3	4.1	0.3
Queue Delay		0.1		0.0		0.0	0.0	0.4	0.4
Total Delay		67.8		8.2		6.8	0.3	4.6	0.7
LOS		E		A		A	A	A	A
Approach Delay		67.8		8.2		6.7		4.2	
Approach LOS		E		A		A		A	
Queue Length 50th (m)		61.2		0.0		17.3	0.0	19.7	0.1
Queue Length 95th (m)		#107.6		3.9		16.9	m0.0	m29.4	m0.0
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		380		389		2873	947	2192	994
Starvation Cap Reductn		0		0		0	0	461	524
Spillback Cap Reductn		1		0		119	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.83		0.04		0.29	0.02	0.71	0.31

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 110.6% ICU Level of Service H
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.

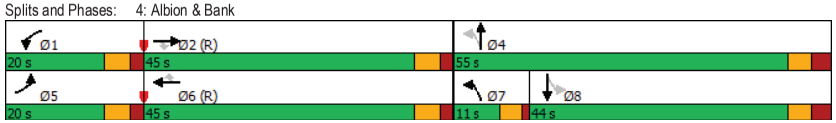
Splits and Phases: 3: Bank & Tonwgate/Towngate

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	70	1014	279	43	592	145	158	169	177	255
Future Volume (vph)	70	1014	279	43	592	145	158	169	177	255
Lane Group Flow (vph)	70	1014	279	43	592	145	158	213	177	302
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0	44.0	44.0
Total Split (%)	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	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	3.3	3.3	3.3	3.3
All-Red Time (s)	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		1	1		10	10		5	5	5
Act Effct Green (s)	10.4	58.2	58.2	8.5	56.5	56.5	39.8	37.7	26.7	26.7
Actuated g/C Ratio	0.09	0.48	0.48	0.07	0.47	0.47	0.33	0.31	0.22	0.22
v/c Ratio	0.49	0.63	0.33	0.37	0.38	0.20	0.72	0.40	0.73	0.79
Control Delay	75.0	12.3	1.3	61.1	24.2	5.0	48.3	31.1	48.3	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.0	12.3	1.3	61.1	24.2	5.0	48.3	31.1	48.3	45.8
LOS	E	B	A	E	C	A	D	C	D	D
Approach Delay		13.3			22.6			38.4		46.8
Approach LOS		B			C			D		D
Queue Length 50th (m)	17.5	38.2	0.0	9.8	47.6	0.0	27.5	36.9	42.4	71.0
Queue Length 95th (m)	m25.7	102.4	m4.6	21.1	77.3	13.9	38.6	50.6	m54.2	m87.9
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	198	1608	846	197	1560	739	220	690	340	538
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	0.35	0.63	0.33	0.22	0.38	0.20	0.72	0.31	0.52	0.56

Intersection Summary
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: 0.79
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 80.8% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	1	100	1107	656	26	23	99
Future Vol, veh/h	1	100	1107	656	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	-	10	-	-	-	350	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1	100	1107	656	26	23	99

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	682	682	0	-	0	1425	341
Stage 1	-	-	-	-	-	669	-
Stage 2	-	-	-	-	-	756	-
Critical Hdwy	6.44	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.52	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	530	907	-	-	-	126	655
Stage 1	-	-	-	-	-	471	-
Stage 2	-	-	-	-	-	424	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	898	898	-	-	-	112	655
Mov Cap-2 Maneuver	-	-	-	-	-	243	-
Stage 1	-	-	-	-	-	418	-
Stage 2	-	-	-	-	-	424	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	898	-	-	-	243	655
HCM Lane V/C Ratio	0.112	-	-	-	0.095	0.151
HCM Control Delay (s)	9.5	-	-	-	21.4	11.5
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.3	0.5

Appendix H

Synchro Intersection Worksheets – 2030 Future Background Conditions

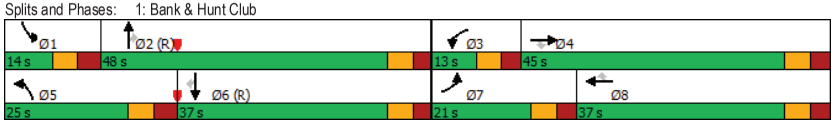
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	704	221	25	885	177	287	1082	22	83	269	142
Future Volume (vph)	121	704	221	25	885	177	287	1082	22	83	269	142
Lane Group Flow (vph)	121	704	221	25	885	177	287	1082	22	83	269	142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	21.0	45.0	45.0	13.0	37.0	37.0	25.0	48.0	48.0	14.0	37.0	37.0
Total Split (%)	17.5%	37.5%	37.5%	10.8%	30.8%	30.8%	20.8%	40.0%	40.0%	11.7%	30.8%	30.8%
Maximum Green (s)	14.5	38.3	38.3	6.5	30.3	30.3	17.9	41.5	41.5	6.9	30.5	30.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		9	9		10	10		20	20		25	25
Act Effct Green (s)	10.2	43.5	43.5	6.3	34.6	34.6	15.6	44.3	44.3	6.7	32.8	32.8
Actuated g/C Ratio	0.08	0.36	0.36	0.05	0.29	0.29	0.13	0.37	0.37	0.06	0.27	0.27
v/c Ratio	0.48	0.62	0.34	0.30	0.97	0.29	0.71	0.89	0.03	0.46	0.31	0.26
Control Delay	58.3	35.6	5.4	53.0	84.9	14.3	60.5	40.7	0.1	63.4	36.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0
Total Delay	58.3	35.6	5.4	53.0	84.9	14.3	60.5	45.7	0.1	63.4	36.4	1.1
LOS	E	D	A	D	F	B	E	D	A	E	D	A
Approach Delay		31.8			72.7			48.1			30.8	
Approach LOS		C			E			D			C	
Queue Length 50th (m)	14.2	76.3	0.0	5.9	117.8	9.7	27.7	134.5	0.0	9.8	26.7	0.0
Queue Length 95th (m)	23.2	98.0	17.0	m11.5	#166.3	24.7	51.2	#167.3	0.0	18.1	39.4	0.0
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	357	1135	655	86	910	613	465	1212	662	184	871	556
Starvation Cap Reductn	0	0	0	0	0	0	0	90	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.62	0.34	0.29	0.97	0.29	0.62	0.96	0.03	0.45	0.31	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 65 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 48.4 — Intersection LOS: D
Intersection Capacity Utilization 88.1% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	719	8	181	994	79	6	99	41	84
Future Volume (vph)	58	719	8	181	994	79	6	99	41	84
Lane Group Flow (vph)	58	719	8	181	994	79	6	333	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	65.0	65.0	30.0	30.0	30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	54.2%	54.2%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	59.5	59.5	23.8	23.8	23.8	23.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		2	2		4	4	2	2	7	7
Act Effct Green (s)	77.3	70.3	70.3	84.2	75.6	75.6	22.7	22.7	22.7	22.7
Actuated g/C Ratio	0.64	0.59	0.59	0.70	0.63	0.63	0.19	0.19	0.19	0.19
v/c Ratio	0.18	0.39	0.01	0.39	0.50	0.08	0.03	0.94	0.72	0.50
Control Delay	1.9	3.4	0.0	8.2	14.1	2.6	61.3	89.5	103.5	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	3.4	0.0	8.2	14.1	2.6	61.3	89.5	103.5	40.4
LOS	A	A	A	A	B	A	E	F	F	D
Approach Delay		3.3			12.5			89.0		53.7
Approach LOS		A			B			F		D
Queue Length 50th (m)	0.1	0.7	0.0	12.7	67.5	0.1	1.3	56.4	9.0	25.5
Queue Length 95th (m)	m0.3	2.3	m0.0	20.3	87.2	6.2	m4.3	#107.7	#28.7	46.6
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	475	1852	723	564	1971	933	198	370	60	318
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	0.32	0.50	0.08	0.03	0.90	0.68	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 22.9 — Intersection LOS: C
Intersection Capacity Utilization 81.8% — 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: 2: Albion & Hunt Club

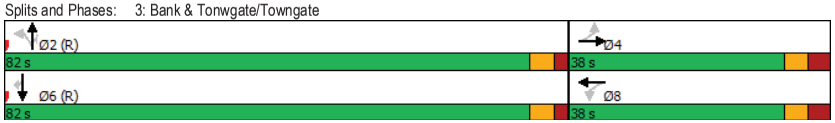
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	31	1	2	1	51	1392	13	475	40
Future Volume (vph)	31	1	2	1	51	1392	13	475	40
Lane Group Flow (vph)	0	65	0	11	0	1443	13	475	40
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			1	1	9	9	9	8	8
Act Effct Green (s)		14.3		14.3		97.7	97.7	97.7	97.7
Actuated g/C Ratio		0.12		0.12		0.81	0.81	0.81	0.81
v/c Ratio		0.36		0.07		0.33	0.01	0.18	0.04
Control Delay		30.5		25.9		2.5	0.0	3.6	1.8
Queue Delay		0.0		0.0		0.0	0.0	0.2	0.0
Total Delay		30.5		25.9		2.5	0.0	3.8	1.8
LOS		C		C		A	A	A	A
Approach Delay		30.5		25.9		2.5		3.7	
Approach LOS		C		C		A		A	
Queue Length 50th (m)		7.2		0.7		13.4	0.0	7.3	0.0
Queue Length 95th (m)		17.2		5.2		m23.5	m0.0	22.7	0.7
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		359		359		4350	1173	2623	1062
Starvation Cap Reductn		0		0		0	0	1322	0
Spillback Cap Reductn		3		0		556	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.18		0.03		0.38	0.01	0.37	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 3.8 — Intersection LOS: A
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank & Tonwgate/Towngate



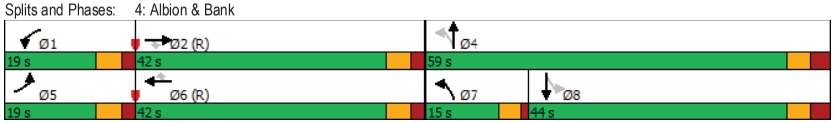
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	382	95	29	1106	117	298	214	100	130
Future Volume (vph)	21	382	95	29	1106	117	298	214	100	130
Lane Group Flow (vph)	21	382	95	29	1106	117	298	243	100	157
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0	44.0	44.0
Total Split (%)	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%	36.7%	36.7%
Maximum Green (s)	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6	37.6	37.6
Yellow Time (s)	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	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		3	3		14	14		2	2	2
Act Effct Green (s)	7.1	64.6	64.6	7.8	67.7	67.7	36.6	34.5	19.5	19.5
Actuated g/C Ratio	0.06	0.54	0.54	0.06	0.56	0.56	0.30	0.29	0.16	0.16
v/c Ratio	0.21	0.23	0.12	0.29	0.60	0.14	0.94	0.49	0.59	0.56
Control Delay	67.1	17.9	4.3	60.1	22.6	4.4	74.8	36.3	58.1	49.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	17.9	4.3	60.1	22.6	4.4	74.8	36.3	58.1	49.8
LOS	E	B	A	E	C	A	E	D	E	D
Approach Delay		17.4			21.7			57.5		53.1
Approach LOS		B			C			E		D
Queue Length 50th (m)	0.0	19.3	0.0	6.6	70.3	0.0	61.4	47.6	24.6	36.7
Queue Length 95th (m)	13.6	46.4	7.3	16.0	#181.5	11.5	68.7	55.3	28.4	0.0
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	183	1684	826	170	1852	836	316	753	328	535
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	0.11	0.23	0.12	0.17	0.60	0.14	0.94	0.32	0.30	0.29

Intersection Summary

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: 0.94
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 77.0% 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.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	445	1115	24	30	114
Future Vol, veh/h	40	445	1115	24	30	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	350	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	445	1115	24	30	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1139	0	-	0	1430	570
Stage 1	-	-	-	-	1127	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	609	-	-	-	125	465
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	609	-	-	-	117	465
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	17.3
HCM LOS			C

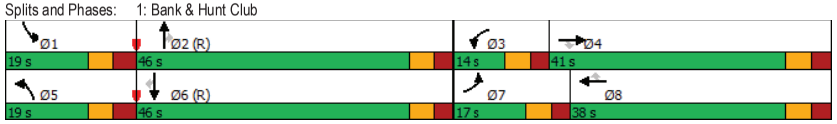
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	609	-	-	-	208	465
HCM Lane V/C Ratio	0.066	-	-	-	0.144	0.245
HCM Control Delay (s)	11.3	-	-	-	25.2	15.2
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	1016	340	46	800	177	310	491	60	252	1040	213
Future Volume (vph)	149	1016	340	46	800	177	310	491	60	252	1040	213
Lane Group Flow (vph)	149	1016	340	46	800	177	310	491	60	252	1040	213
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	17.0	41.0	41.0	14.0	38.0	38.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.2%	34.2%	34.2%	11.7%	31.7%	31.7%	15.8%	38.3%	38.3%	15.8%	38.3%	38.3%
Maximum Green (s)	10.5	34.3	34.3	7.5	31.3	31.3	11.9	39.5	39.5	11.9	39.5	39.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	9.8	37.1	37.1	7.1	32.0	32.0	11.9	39.7	39.7	11.7	39.5	39.5
Actuated g/C Ratio	0.08	0.31	0.31	0.06	0.27	0.27	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.59	1.01	0.54	0.48	0.91	0.34	0.97	0.45	0.10	0.81	0.95	0.39
Control Delay	63.2	72.9	10.9	74.5	61.6	19.1	101.9	34.1	3.8	72.7	57.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
Total Delay	63.2	72.9	10.9	74.5	61.6	19.1	101.9	35.3	3.8	72.7	57.8	9.3
LOS	E	E	B	E	E	B	F	D	A	E	E	A
Approach Delay		57.9			54.8			57.1			53.4	
Approach LOS		E			D			E			D	
Queue Length 50th (m)	17.6	~142.1	10.6	11.5	71.4	4.4	38.0	38.4	0.3	30.3	125.4	6.2
Queue Length 95th (m)	28.4	#182.6	38.1	m22.7	#126.6	31.1	m#64.4	m81.4	m5.4	#49.6	#168.2	24.9
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	268	1006	632	101	882	516	318	1096	575	318	1091	551
Starvation Cap Reductn	0	0	0	0	0	0	0	372	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.01	0.54	0.46	0.91	0.34	0.97	0.68	0.10	0.79	0.95	0.39

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 55.8 Intersection LOS: E
Intersection Capacity Utilization 95.8% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	121	1201	23	315	947	64	7	117	48	133
Future Volume (vph)	121	1201	23	315	947	64	7	117	48	133
Lane Group Flow (vph)	121	1201	23	315	947	64	7	361	48	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.4	58.6	58.6	25.4	58.6	58.6	36.0	36.0	36.0	36.0
Total Split (%)	21.2%	48.8%	48.8%	21.2%	48.8%	48.8%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	53.1	53.1	20.0	53.1	53.1	29.8	29.8	29.8	29.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		4	4		5	5	6	6	24	24
Act Effct Green (s)	66.0	57.1	57.1	82.2	67.9	67.9	26.2	26.2	26.2	26.2
Actuated g/C Ratio	0.55	0.48	0.48	0.68	0.57	0.57	0.22	0.22	0.22	0.22
v/c Ratio	0.36	0.77	0.03	0.86	0.50	0.08	0.04	0.90	0.72	0.51
Control Delay	6.6	11.0	0.1	47.2	18.0	2.5	30.7	56.9	93.2	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	11.0	0.1	47.2	18.0	2.5	30.7	56.9	93.2	41.8
LOS	A	B	A	D	B	A	C	E	F	D
Approach Delay		10.4			24.2			56.4		52.4
Approach LOS		B			C			E		D
Queue Length 50th (m)	4.0	25.0	0.0	47.7	71.6	0.0	1.5	71.7	10.2	34.1
Queue Length 95th (m)	m4.8	m26.1	m0.0	#97.0	95.9	5.0	m4.0	#108.5	#29.7	55.8
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	487	1563	725	377	1876	836	223	446	76	414
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	0.25	0.77	0.03	0.84	0.50	0.08	0.03	0.81	0.63	0.45

Intersection Summary
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: 24.1 Intersection LOS: C
Intersection Capacity Utilization 104.0% 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: 2: Albion & Hunt Club

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	4	4	0	97	699	17	1311	148
Future Volume (vph)	150	4	4	0	97	699	17	1311	148
Lane Group Flow (vph)	0	313	0	16	0	796	17	1311	148
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			20	20	17	17	17	11	11
Act Effct Green (s)		28.2		28.2		79.3	79.3	79.3	79.3
Actuated g/C Ratio		0.24		0.24		0.66	0.66	0.66	0.66
v/c Ratio		0.90		0.05		0.28	0.02	0.60	0.15
Control Delay		67.7		8.2		6.8	0.3	4.4	0.2
Queue Delay		0.1		0.0		0.0	0.0	0.6	0.5
Total Delay		67.8		8.2		6.8	0.3	5.0	0.7
LOS		E		A		A	A	A	A
Approach Delay		67.8		8.2		6.7		4.5	
Approach LOS		E		A		A		A	
Queue Length 50th (m)		61.2		0.0		17.3	0.0	20.7	0.0
Queue Length 95th (m)		#107.6		3.9		16.9	m0.0	m29.1	m0.0
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		380		389		2853	947	2192	994
Starvation Cap Reductn		0		0		0	0	446	532
Spillback Cap Reductn		1		0		119	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.83		0.04		0.29	0.02	0.75	0.32

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 112.9% ICU Level of Service H
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.

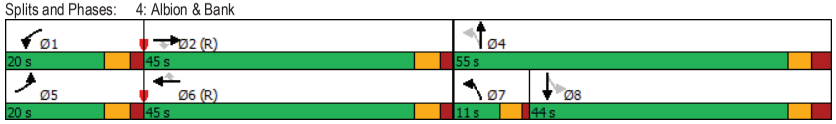
Splits and Phases: 3: Bank & Tonwgate/Towngate

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	70	1078	279	43	592	145	158	169	177	255
Future Volume (vph)	70	1078	279	43	592	145	158	169	177	255
Lane Group Flow (vph)	70	1078	279	43	592	145	158	213	177	302
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0	44.0	44.0
Total Split (%)	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	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	3.3	3.3	3.3	3.3
All-Red Time (s)	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		1	1		10	10		5	5	5
Act Effct Green (s)	10.4	58.2	58.2	8.5	56.5	56.5	39.8	37.7	26.7	26.7
Actuated g/C Ratio	0.09	0.48	0.48	0.07	0.47	0.47	0.33	0.31	0.22	0.22
v/c Ratio	0.49	0.67	0.33	0.37	0.38	0.20	0.72	0.40	0.73	0.79
Control Delay	74.7	13.9	1.4	61.1	24.2	5.0	48.3	31.1	48.3	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.7	13.9	1.4	61.1	24.2	5.0	48.3	31.1	48.3	45.8
LOS	E	B	A	E	C	A	D	C	D	D
Approach Delay		14.4			22.6			38.4		46.8
Approach LOS		B			C			D		D
Queue Length 50th (m)	17.5	41.1	0.0	9.8	47.6	0.0	27.5	36.9	42.4	71.0
Queue Length 95th (m)	m24.2	#162.6	m4.5	21.1	77.3	13.9	38.6	50.6	m54.2	m87.9
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	198	1608	846	197	1560	739	220	690	340	538
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	0.35	0.67	0.33	0.22	0.38	0.20	0.72	0.31	0.52	0.56

Intersection Summary
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: 0.79
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 82.6% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	1.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	1	100	1178	656	26	23	99
Future Vol, veh/h	1	100	1178	656	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	-	10	-	-	-	350	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1	100	1178	656	26	23	99

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	682	682	0	-	0	1460	341
Stage 1	-	-	-	-	-	669	-
Stage 2	-	-	-	-	-	791	-
Critical Hdwy	6.44	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.52	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	530	907	-	-	-	120	655
Stage 1	-	-	-	-	-	471	-
Stage 2	-	-	-	-	-	407	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	898	898	-	-	-	107	655
Mov Cap-2 Maneuver	-	-	-	-	-	237	-
Stage 1	-	-	-	-	-	418	-
Stage 2	-	-	-	-	-	407	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	898	-	-	-	237	655
HCM Lane V/C Ratio	0.112	-	-	-	0.097	0.151
HCM Control Delay (s)	9.5	-	-	-	21.8	11.5
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.3	0.5

Appendix I

Sightline Analysis

REV:	DESCRIPTION:	BY:	DATE:
	AMENDMENTS		

SITE: 2600 Bank Street	001 DRAWING NO.		2021-010 PROJECT NO.	21/06/09 DATE.
TITLE: West Access Sightlines	NTS SCALE AT A4.	JK DRAWN.	AH CHECKED.	01 REVISION.

CGH Transportation Inc.
13 Markham Drive, Ottawa
ON K2G 3Z1

SITE: 2600 Bank Street	002 DRAWING NO.		2021-010 PROJECT NO.	21/06/09 DATE.
TITLE: Sieveright Avenue Stopping Sight Distance	NTS SCALE AT A4.	JK DRAWN.	AH CHECKED.	01 REVISION.

CGH Transportation Inc.
13 Markham Drive, Ottawa
ON K2G 3Z1

Appendix J

MMLOS Analysis

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation Inc.**	**Project**	**2021-010**
Scenario	**Existing/Future Conditions**	**Date**	**2021-03-18**
Comments			

	INTERSECTIONS	**Bank St (N-S) @ Hunt Club Rd**				**Albion Rd @ Hunt Club Rd**				**Bank St (N-S) @ Towngate Mall**				**Bank St (E-W) @ Albion Rd**			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	8	7	8	3	3	6	6		8	3	5	3	5	6	8
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected	Protected	Protected	Protected	Protected/ Permissive	Protected/ Permissive	Permissive	Permissive		Permissive	No left turn / Prohib.	Permissive	Protected	Protected	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No		No	No	No	No	No	No	No
	Right Turn Channel	Conventional with Receiving Lane	Conventional with Receiving Lane	Conventional with Receiving Lane	Conventional with Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane		Conv'tl without Receiving Lane	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane
	Corner Radius	>25m	15-25m	15-25m	15-25m	15-25m	15-25m	15-25m	15-25m		15-25m	3-5m	10-15m	10-15m	15-25m	15-25m	15-25m
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
	PETSI Score	**10**	**-5**	**11**	**-5**	**72**	**72**	**22**	**22**		**-10**	**80**	**37**	**82**	**43**	**22**	**-10**
	Ped. Exposure to Traffic LoS	**F**	**F**	**F**	**F**	**C**	**C**	**F**	**F**	**-**	**F**	**B**	**E**	**B**	**E**	**F**	**F**
	Cycle Length																
	Effective Walk Time																
	Average Pedestrian Delay																
	Pedestrian Delay LoS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Level of Service	**F**	**F**	**F**	**F**	**C**	**C**	**F**	**F**	**-**	**F**	**B**	**E**	**B**	**E**	**F**	**F**
		F				**F**				**F**				**F**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic			Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic					Mixed Traffic	Mixed Traffic
	Right Turn Lane Configuration	> 50 m	> 50 m	> 50 m	> 50 m			≤ 50 m	≤ 50 m	> 50 m	≤ 50 m					> 50 m	> 50 m
	Right Turning Speed	>25 km/h	>25 km/h	>25 km/h	>25 km/h			≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h					≤ 25 km/h	≤ 25 km/h
	Cyclist relative to RT motorists	**F**	**F**	**F**	**F**	-	-	**D**	**D**	**F**	**D**	-	-	-	-	**F**	**F**
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	-	-	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	-	-	-	-	**Mixed Traffic**	**Mixed Traffic**
	Left Turn Approach	One lane crossed	One lane crossed	One lane crossed	≥ 2 lanes crossed			One lane crossed	One lane crossed		≥ 2 lanes crossed			No lane crossed	No lane crossed	One lane crossed	One lane crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h			≥ 60 km/h	≥ 60 km/h		≥ 60 km/h			> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**F**	**F**	**F**	**F**	-	-	**F**	**F**	-	**F**	-	-	**C**	**C**	**F**	**F**
	Level of Service	**F**	**F**	**F**	**F**	**-**	**-**	**F**	**F**	**-**	**F**	**-**	**-**	**-**	**-**	**F**	**F**
		F				**F**				**F**				**F**			
Transit	Average Signal Delay	≤ 20 sec		> 40 sec	> 40 sec	> 40 sec			≤ 20 sec								
	Level of Service	**C**	**-**	**F**	**F**	**F**	**-**	**-**	**C**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		F				**F**				**-**				**-**			
Truck	Effective Corner Radius	> 15 m	> 15 m	> 15 m	> 15 m			> 15 m	> 15 m	> 15 m	< 10 m					10 - 15 m	> 15 m
	Number of Receiving Lanes on Departure from Intersection	≥ 2	≥ 2	≥ 2	≥ 2			1	1	1	1					1	1
	Level of Service	**A**	**A**	**A**	**A**	-	-	**C**	**C**	**C**	**F**	-	-	-	-	**E**	**C**
		A				**C**				**F**				**E**			
Auto	Volume to Capacity Ratio	> 1.00				0.91 - 1.00				0.61 - 0.70				0.81 - 0.90			
	Level of Service	**F**				**E**				**B**				**D**			

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation Inc.**	**Project**	**2021-010**
Scenario	**Existing/Future Conditions**	**Date**	**2021-03-18**
Comments			

SEGMENTS			Bank St Ex/Fut	Section 2	Section 3
Pedestrian	Sidewalk Width Boulevard Width	**F**	≥ 2 m < 0.5		
	Avg Daily Curb Lane Traffic Volume		> 3000		
	Operating Speed On-Street Parking		> 60 km/h no		
	Exposure to Traffic PLoS		**F**	**-**	**-**
	Effective Sidewalk Width				
	Pedestrian Volume				
	Crowding PLoS		**A**	**-**	**-**
	Level of Service		**F**	**-**	**-**
Bicycle	Type of Cycling Facility	**F**	Mixed Traffic		
	Number of Travel Lanes		4-5 lanes total		
	Operating Speed		≥ 60 km/h		
	# of Lanes & Operating Speed LoS		**F**	**-**	**-**
	Bike Lane (+ Parking Lane) Width				
	Bike Lane Width LoS		**-**	**-**	**-**
	Bike Lane Blockages				
	Blockage LoS		**-**	**-**	**-**
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge		
	No. of Lanes at Unsignalized Crossing		4-5 lanes		
	Sidestreet Operating Speed		≤ 40 km/h		
	Unsignalized Crossing - Lowest LoS		**B**	**-**	**-**
	Level of Service		**F**	**-**	**-**
Transit	Facility Type	**-**			
	Friction or Ratio Transit:Posted Speed				
	Level of Service		**-**	**-**	**-**
Truck	Truck Lane Width	**A**	≤ 3.5 m		
	Travel Lanes per Direction		> 1		
	Level of Service		**A**	**-**	**-**

Appendix K

Synchro Intersection Worksheets – 2025 Future Total Conditions

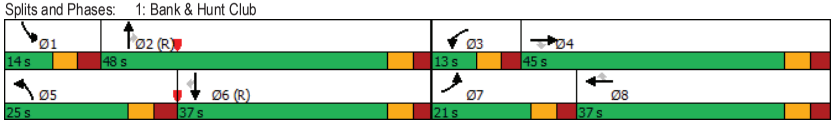
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	704	250	30	886	177	290	1027	22	83	313	143
Future Volume (vph)	121	704	250	30	886	177	290	1027	22	83	313	143
Lane Group Flow (vph)	121	704	250	30	886	177	290	1027	22	83	313	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	21.0	45.0	45.0	13.0	37.0	37.0	25.0	48.0	48.0	14.0	37.0	37.0
Total Split (%)	17.5%	37.5%	37.5%	10.8%	30.8%	30.8%	20.8%	40.0%	40.0%	11.7%	30.8%	30.8%
Maximum Green (s)	14.5	38.3	38.3	6.5	30.3	30.3	17.9	41.5	41.5	6.9	30.5	30.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		9	9		10	10		20	20		25	25
Act Effct Green (s)	10.2	43.5	43.5	6.3	34.6	34.6	15.7	44.3	44.3	6.7	32.7	32.7
Actuated g/C Ratio	0.08	0.36	0.36	0.05	0.29	0.29	0.13	0.37	0.37	0.06	0.27	0.27
v/c Ratio	0.48	0.62	0.37	0.36	0.97	0.29	0.71	0.85	0.03	0.46	0.36	0.26
Control Delay	58.3	35.6	5.3	55.4	85.1	14.2	61.0	37.0	0.1	63.4	37.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0
Total Delay	58.3	35.6	5.3	55.4	85.1	14.2	61.0	40.4	0.1	63.4	37.2	1.1
LOS	E	D	A	E	F	B	E	D	A	E	D	A
Approach Delay		31.1			72.8			44.2			31.7	
Approach LOS		C			E			D			C	
Queue Length 50th (m)	14.2	76.3	0.0	7.1	117.8	9.7	27.4	125.4	0.0	9.8	31.5	0.0
Queue Length 95th (m)	23.2	98.0	17.8	m14.1	#166.8	24.7	51.7	#153.1	0.0	18.1	45.4	0.0
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	357	1135	674	86	910	613	465	1212	662	184	870	556
Starvation Cap Reductn	0	0	0	0	0	0	0	112	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.62	0.37	0.35	0.97	0.29	0.62	0.93	0.03	0.45	0.36	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 65 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 46.8 — Intersection LOS: D
Intersection Capacity Utilization 86.5% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	719	8	191	1000	79	6	99	41	84
Future Volume (vph)	58	719	8	191	1000	79	6	99	41	84
Lane Group Flow (vph)	58	719	8	191	1000	79	6	336	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	65.0	65.0	30.0	30.0	30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	54.2%	54.2%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	59.5	59.5	23.8	23.8	23.8	23.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		2	2		4	4	2	2	7	7
Act Effct Green (s)	76.9	70.0	70.0	84.4	75.5	75.5	22.7	22.7	22.7	22.7
Actuated g/C Ratio	0.64	0.58	0.58	0.70	0.63	0.63	0.19	0.19	0.19	0.19
v/c Ratio	0.18	0.39	0.01	0.40	0.51	0.08	0.03	0.94	0.72	0.50
Control Delay	2.0	3.6	0.0	8.5	14.2	2.6	61.3	89.5	102.9	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	3.6	0.0	8.5	14.2	2.6	61.3	89.5	102.9	40.4
LOS	A	A	A	A	B	A	E	F	F	D
Approach Delay		3.5			12.6			89.0		53.6
Approach LOS		A			B			F		D
Queue Length 50th (m)	0.1	0.7	0.0	13.5	68.0	0.1	1.3	57.0	9.0	25.5
Queue Length 95th (m)	m0.3	2.3	m0.0	21.4	87.8	6.2	m4.4	#108.6	#28.7	46.6
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	474	1843	720	563	1970	932	198	371	60	318
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	0.91	0.68	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.0 — Intersection LOS: C
Intersection Capacity Utilization 82.1% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Albion & Hunt Club

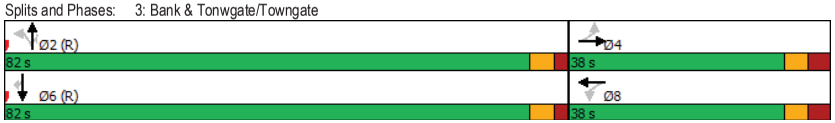
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	31	1	2	1	51	1321	13	553	40
Future Volume (vph)	31	1	2	1	51	1321	13	553	40
Lane Group Flow (vph)	0	65	0	11	0	1372	13	553	40
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			1	1	9	9	9	8	8
Act Effct Green (s)		14.3		14.3		97.7	97.7	97.7	97.7
Actuated g/C Ratio		0.12		0.12		0.81	0.81	0.81	0.81
v/c Ratio		0.36		0.07		0.32	0.01	0.21	0.04
Control Delay		30.5		25.9		2.6	0.0	3.7	1.7
Queue Delay		0.0		0.0		0.0	0.0	0.2	0.0
Total Delay		30.5		25.9		2.6	0.0	3.8	1.7
LOS		C		C		A	A	A	A
Approach Delay		30.5		25.9		2.6		3.7	
Approach LOS		C		C		A		A	
Queue Length 50th (m)		7.2		0.7		13.1	0.0	8.6	0.0
Queue Length 95th (m)		17.2		5.2		m23.1	m0.0	25.7	0.9
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		359		359		4311	1173	2623	1062
Starvation Cap Reductn		0		0		0	0	1208	0
Spillback Cap Reductn		3		0		524	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.18		0.03		0.36	0.01	0.39	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 3.9 Intersection LOS: A
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank & Tonwgate/Towngate



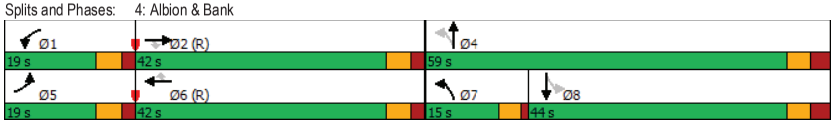
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	460	95	32	1053	120	298	214	110	130
Future Volume (vph)	21	460	95	32	1053	120	298	214	110	130
Lane Group Flow (vph)	21	460	95	32	1053	120	298	243	110	157
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0	44.0	44.0
Total Split (%)	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%	36.7%	36.7%
Maximum Green (s)	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6	37.6	37.6
Yellow Time (s)	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	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		3	3		14	14		2	2	2
Act Effct Green (s)	7.1	63.7	63.7	8.0	67.0	67.0	37.3	35.2	20.2	20.2
Actuated g/C Ratio	0.06	0.53	0.53	0.07	0.56	0.56	0.31	0.29	0.17	0.17
v/c Ratio	0.21	0.28	0.12	0.31	0.57	0.14	0.92	0.48	0.62	0.54
Control Delay	66.0	20.5	5.4	60.5	22.5	4.6	69.3	35.5	60.6	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	20.5	5.4	60.5	22.5	4.6	69.3	35.5	60.6	49.3
LOS	E	C	A	E	C	A	E	D	E	D
Approach Delay		19.7			21.7			54.1		53.9
Approach LOS		B			C			D		D
Queue Length 50th (m)	5.2	26.6	0.0	7.3	67.3	0.0	60.6	46.9	27.2	36.8
Queue Length 95th (m)	13.7	57.0	8.6	17.2	#167.6	12.2	68.7	55.3	31.3	36.0
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	183	1661	817	170	1833	828	324	753	328	535
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	0.11	0.28	0.12	0.19	0.57	0.14	0.92	0.32	0.34	0.29

Intersection Summary

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: 0.92
Intersection Signal Delay: 31.4 — Intersection LOS: C
Intersection Capacity Utilization 75.4% — 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.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	492	81	0	1182	0	1
Future Vol, veh/h	492	81	0	1182	0	1
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, %	7	2	2	4	2	2
Mvmt Flow	492	81	0	1182	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	287
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	710
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	710
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	710	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-
HCM Control Delay (s)	10.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	11	16	1066	26	4
Future Vol, veh/h	472	11	16	1066	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	472	11	16	1066	26	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	483	0	1037	236
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	565	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1076	-	227	766
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1076	-	224	766
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	524	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	383	-	-	1076	-
HCM Lane V/C Ratio	0.078	-	-	0.015	-
HCM Control Delay (s)	15.2	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	453	1068	24	30	114
Future Vol, veh/h	40	453	1068	24	30	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	350	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	453	1068	24	30	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1092	0	-	0	1387	546
Stage 1	-	-	-	-	1080	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	635	-	-	-	134	482
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	635	-	-	-	126	482
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	16.7
HCM LOS			C

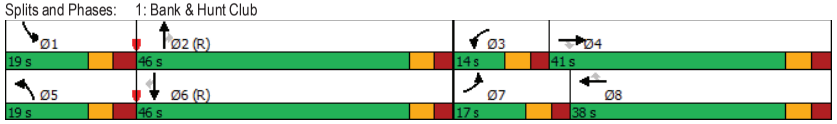
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	635	-	-	-	220	482
HCM Lane V/C Ratio	0.063	-	-	-	0.136	0.237
HCM Control Delay (s)	11.1	-	-	-	23.9	14.8
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1004	215
Future Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1004	215
Lane Group Flow (vph)	149	1016	358	49	800	177	328	546	60	252	1004	215
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	17.0	41.0	41.0	14.0	38.0	38.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.2%	34.2%	34.2%	11.7%	31.7%	31.7%	15.8%	38.3%	38.3%	15.8%	38.3%	38.3%
Maximum Green (s)	10.5	34.3	34.3	7.5	31.3	31.3	11.9	39.5	39.5	11.9	39.5	39.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	9.8	37.1	37.1	7.1	32.0	32.0	11.9	39.7	39.7	11.7	39.5	39.5
Actuated g/C Ratio	0.08	0.31	0.31	0.06	0.27	0.27	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.59	1.01	0.57	0.51	0.91	0.34	1.03	0.50	0.10	0.81	0.92	0.39
Control Delay	63.2	73.2	12.7	75.8	62.9	19.7	114.7	36.0	3.9	72.7	52.9	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
Total Delay	63.2	73.2	12.7	75.8	62.9	19.7	114.7	37.3	3.9	72.7	52.9	9.5
LOS	E	E	B	E	E	B	F	D	A	E	D	A
Approach Delay		58.0			56.1			62.3			50.0	
Approach LOS		E			E			E			D	
Queue Length 50th (m)	17.6	~142.1	14.3	12.3	75.1	6.5	~41.7	43.4	0.3	30.3	119.2	6.7
Queue Length 95th (m)	28.4	#182.6	44.5	m23.9	#127.0	31.1	m#69.8	m89.5	m5.7	#49.6	#158.4	25.6
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	268	1005	631	101	882	516	318	1096	575	318	1091	551
Starvation Cap Reductn	0	0	0	0	0	0	0	342	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.01	0.57	0.49	0.91	0.34	1.03	0.72	0.10	0.79	0.92	0.39

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 56.0 Intersection LOS: E
Intersection Capacity Utilization 95.3% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	121	1201	23	321	950	64	7	117	48	133
Future Volume (vph)	121	1201	23	321	950	64	7	117	48	133
Lane Group Flow (vph)	121	1201	23	321	950	64	7	379	48	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.4	58.6	58.6	25.4	58.6	58.6	36.0	36.0	36.0	36.0
Total Split (%)	21.2%	48.8%	48.8%	21.2%	48.8%	48.8%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	53.1	53.1	20.0	53.1	53.1	29.8	29.8	29.8	29.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		4	4		5	5	6	6	24	24
Act Effct Green (s)	65.2	56.3	56.3	81.5	67.1	67.1	26.9	26.9	26.9	26.9
Actuated g/C Ratio	0.54	0.47	0.47	0.68	0.56	0.56	0.22	0.22	0.22	0.22
v/c Ratio	0.36	0.78	0.03	0.88	0.51	0.08	0.03	0.92	0.79	0.49
Control Delay	6.7	11.2	0.1	51.6	18.4	2.5	30.6	58.8	109.2	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	6.7	11.2	0.1	51.6	18.4	2.5	30.6	58.8	109.2	41.0
LOS	A	B	A	D	B	A	C	E	F	D
Approach Delay		10.6			25.6			58.3		55.0
Approach LOS		B			C			E		E
Queue Length 50th (m)	4.0	25.1	0.0	51.3	73.7	0.0	1.5	74.9	10.3	33.7
Queue Length 95th (m)	m4.8	m26.0	m0.0	#101.5	96.3	5.0	m3.9	#115.3	#31.7	55.8
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	481	1539	715	373	1854	828	225	449	68	414
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	0.25	0.78	0.03	0.86	0.51	0.08	0.03	0.84	0.71	0.45

Intersection Summary
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: 0.92
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 105.5% 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: 2: Albion & Hunt Club

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	4	4	0	97	772	17	1279	148
Future Volume (vph)	150	4	4	0	97	772	17	1279	148
Lane Group Flow (vph)	0	313	0	16	0	869	17	1279	148
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			20	20	17	17	17	11	11
Act Effct Green (s)		28.2		28.2		79.3	79.3	79.3	79.3
Actuated g/C Ratio		0.24		0.24		0.66	0.66	0.66	0.66
v/c Ratio		0.90		0.05		0.30	0.02	0.58	0.15
Control Delay		67.7		8.2		6.6	0.2	4.6	0.3
Queue Delay		1.9		0.0		0.0	0.0	0.5	0.4
Total Delay		69.7		8.2		6.6	0.2	5.1	0.7
LOS		E		A		A	A	A	A
Approach Delay		69.7		8.2		6.5		4.6	
Approach LOS		E		A		A		A	
Queue Length 50th (m)		61.2		0.0		17.9	0.0	22.3	0.0
Queue Length 95th (m)		#107.6		3.9		17.4	m0.2	m31.5	m0.0
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		380		389		2869	947	2192	994
Starvation Cap Reductn		0		0		0	0	454	529
Spillback Cap Reductn		16		16		124	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.86		0.04		0.32	0.02	0.74	0.32

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 112.0% ICU Level of Service H
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.

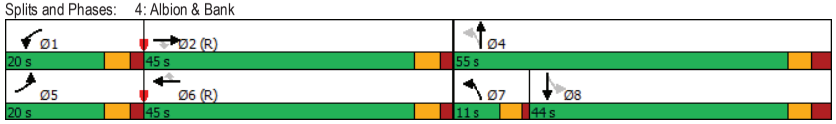
Splits and Phases: 3: Bank & Tonwgate/Towngate

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	70	1061	279	61	665	163	158	169	183	255
Future Volume (vph)	70	1061	279	61	665	163	158	169	183	255
Lane Group Flow (vph)	70	1061	279	61	665	163	158	213	183	302
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0	44.0	44.0
Total Split (%)	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	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	3.3	3.3	3.3	3.3
All-Red Time (s)	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		1	1		10	10		5	5	5
Act Effct Green (s)	10.4	57.0	57.0	9.8	56.5	56.5	39.8	37.7	26.7	26.7
Actuated g/C Ratio	0.09	0.48	0.48	0.08	0.47	0.47	0.33	0.31	0.22	0.22
v/c Ratio	0.49	0.67	0.33	0.46	0.43	0.22	0.72	0.40	0.76	0.79
Control Delay	74.9	14.4	1.4	62.4	24.9	4.8	48.3	31.1	49.1	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	14.4	1.4	62.4	24.9	4.8	48.3	31.1	49.1	44.8
LOS	E	B	A	E	C	A	D	C	D	D
Approach Delay		14.8			23.8			38.4		46.4
Approach LOS		B			C			D		D
Queue Length 50th (m)	17.6	42.7	0.0	14.0	55.0	0.0	27.5	36.9	44.0	71.2
Queue Length 95th (m)	m24.3	#164.8	m5.5	27.0	88.2	14.6	38.6	50.6	m55.1	m86.1
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	198	1576	834	197	1560	748	220	690	340	538
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	0.35	0.67	0.33	0.31	0.43	0.22	0.72	0.31	0.54	0.56

Intersection Summary
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: 0.79
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 82.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1194	66	0	865	0	26
Future Vol, veh/h	1194	66	0	865	0	26
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, %	2	2	2	2	2	2
Mvmt Flow	1194	66	0	865	0	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	630
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	424
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	424
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	424	-	-	-
HCM Lane V/C Ratio	0.061	-	-	-
HCM Control Delay (s)	14	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1125	11	21	667	119	16
Future Vol, veh/h	1125	11	21	667	119	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1125	11	21	667	119	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1136	0	1501	563
Stage 1	-	-	-	-	1125	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	611	-	~ 113	470
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	611	-	~ 109	470
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	41.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	228	-	-	611	-
HCM Lane V/C Ratio	0.592	-	-	0.034	-
HCM Control Delay (s)	41.4	-	-	11.1	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	3.4	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	7	100	1113	760	26	23	99
Future Vol, veh/h	7	100	1113	760	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	-	10	-	-	-	350	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	7	100	1113	760	26	23	99

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	786	786	0	-	0	1544	393
Stage 1	-	-	-	-	-	773	-
Stage 2	-	-	-	-	-	771	-
Critical Hdwy	6.44	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.52	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	455	829	-	-	-	105	606
Stage 1	-	-	-	-	-	416	-
Stage 2	-	-	-	-	-	417	-
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	770	770	-	-	-	90	606
Mov Cap-2 Maneuver	-	-	-	-	-	217	-
Stage 1	-	-	-	-	-	358	-
Stage 2	-	-	-	-	-	417	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	770	-	-	-	217	606
HCM Lane V/C Ratio	0.139	-	-	-	0.106	0.163
HCM Control Delay (s)	10.4	-	-	-	23.5	12.1
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.6

Appendix L

Synchro Intersection Worksheets – 2030 Future Total Conditions

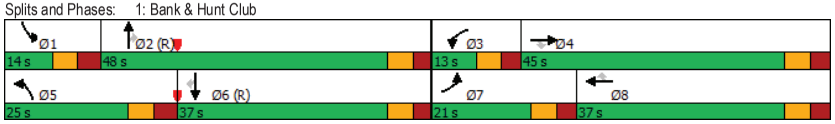
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	704	250	30	885	177	290	1092	22	83	313	142
Future Volume (vph)	121	704	250	30	885	177	290	1092	22	83	313	142
Lane Group Flow (vph)	121	704	250	30	885	177	290	1092	22	83	313	142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	21.0	45.0	45.0	13.0	37.0	37.0	25.0	48.0	48.0	14.0	37.0	37.0
Total Split (%)	17.5%	37.5%	37.5%	10.8%	30.8%	30.8%	20.8%	40.0%	40.0%	11.7%	30.8%	30.8%
Maximum Green (s)	14.5	38.3	38.3	6.5	30.3	30.3	17.9	41.5	41.5	6.9	30.5	30.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		9	9		10	10		20	20		25	25
Act Effct Green (s)	10.2	43.5	43.5	6.3	34.6	34.6	15.7	44.3	44.3	6.7	32.7	32.7
Actuated g/C Ratio	0.08	0.36	0.36	0.05	0.29	0.29	0.13	0.37	0.37	0.06	0.27	0.27
v/c Ratio	0.48	0.62	0.37	0.36	0.97	0.29	0.71	0.90	0.03	0.46	0.36	0.26
Control Delay	58.3	35.6	5.3	55.6	84.9	14.2	61.6	41.0	0.1	63.4	37.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0
Total Delay	58.3	35.6	5.3	55.6	84.9	14.2	61.6	46.5	0.1	63.4	37.2	1.1
LOS	E	D	A	E	F	B	E	D	A	E	D	A
Approach Delay		31.1			72.6			48.9			31.7	
Approach LOS		C			E			D			C	
Queue Length 50th (m)	14.2	76.3	0.0	7.0	117.6	9.7	28.1	136.0	0.0	9.8	31.5	0.0
Queue Length 95th (m)	23.2	98.0	17.8	m14.1	#166.5	24.7	51.6	#170.2	0.0	18.1	45.4	0.0
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	357	1135	674	86	910	613	465	1212	662	184	870	556
Starvation Cap Reductn	0	0	0	0	0	0	0	86	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.62	0.37	0.35	0.97	0.29	0.62	0.97	0.03	0.45	0.36	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 65 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 48.3 — Intersection LOS: D
Intersection Capacity Utilization 88.4% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	719	8	191	999	79	6	99	41	84
Future Volume (vph)	58	719	8	191	999	79	6	99	41	84
Lane Group Flow (vph)	58	719	8	191	999	79	6	336	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	65.0	65.0	30.0	30.0	30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	54.2%	54.2%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	59.5	59.5	23.8	23.8	23.8	23.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		2	2		4	4	2	2	7	7
Act Effct Green (s)	76.9	70.0	70.0	84.4	75.5	75.5	22.7	22.7	22.7	22.7
Actuated g/C Ratio	0.64	0.58	0.58	0.70	0.63	0.63	0.19	0.19	0.19	0.19
v/c Ratio	0.18	0.39	0.01	0.40	0.51	0.08	0.03	0.94	0.72	0.50
Control Delay	2.0	3.7	0.0	8.5	14.1	2.6	61.3	89.5	102.9	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	3.7	0.0	8.5	14.1	2.6	61.3	89.5	102.9	40.4
LOS	A	A	A	A	B	A	E	F	F	D
Approach Delay		3.5			12.6			89.0		53.6
Approach LOS		A			B			F		D
Queue Length 50th (m)	0.1	0.7	0.0	13.5	68.0	0.1	1.3	57.0	9.0	25.5
Queue Length 95th (m)	m0.3	2.3	m0.0	21.4	87.7	6.2	m4.4	#108.6	#28.7	46.6
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	474	1843	720	563	1970	932	198	371	60	318
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	0.91	0.68	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.0 — Intersection LOS: C
Intersection Capacity Utilization 82.1% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Albion & Hunt Club

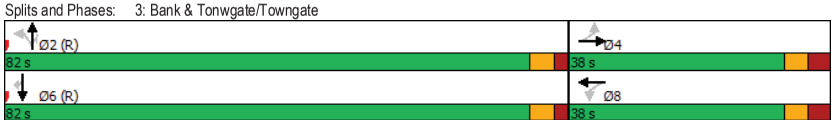
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	31	1	2	1	51	1405	13	553	40
Future Volume (vph)	31	1	2	1	51	1405	13	553	40
Lane Group Flow (vph)	0	65	0	11	0	1456	13	553	40
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			1	1	9	9	9	8	8
Act Effct Green (s)		14.3		14.3		97.7	97.7	97.7	97.7
Actuated g/C Ratio		0.12		0.12		0.81	0.81	0.81	0.81
v/c Ratio		0.36		0.07		0.34	0.01	0.21	0.04
Control Delay		30.5		25.9		2.5	0.0	3.7	1.7
Queue Delay		0.0		0.0		0.0	0.0	0.2	0.0
Total Delay		30.5		25.9		2.5	0.0	3.8	1.7
LOS		C		C		A	A	A	A
Approach Delay		30.5		25.9		2.5		3.7	
Approach LOS		C		C		A		A	
Queue Length 50th (m)		7.2		0.7		13.4	0.0	8.7	0.0
Queue Length 95th (m)		17.2		5.2		m23.8	m0.0	25.7	0.9
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		359		359		4321	1173	2623	1062
Starvation Cap Reductn		0		0		0	0	1208	0
Spillback Cap Reductn		3		0		540	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.18		0.03		0.39	0.01	0.39	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 3.8 — Intersection LOS: A
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank & Tonwgate/Towngate



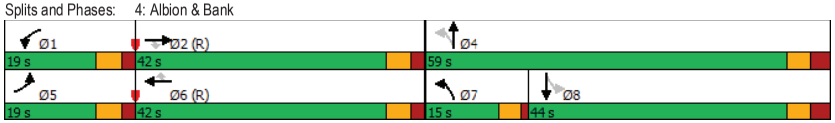
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	460	95	32	1119	120	298	214	110	130
Future Volume (vph)	21	460	95	32	1119	120	298	214	110	130
Lane Group Flow (vph)	21	460	95	32	1119	120	298	243	110	157
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0	44.0	44.0
Total Split (%)	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%	36.7%	36.7%
Maximum Green (s)	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6	37.6	37.6
Yellow Time (s)	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	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		3	3		14	14		2	2	2
Act Effct Green (s)	7.1	63.7	63.7	8.0	67.0	67.0	37.3	35.2	20.2	20.2
Actuated g/C Ratio	0.06	0.53	0.53	0.07	0.56	0.56	0.31	0.29	0.17	0.17
v/c Ratio	0.21	0.28	0.12	0.31	0.61	0.14	0.92	0.48	0.62	0.54
Control Delay	66.0	20.5	5.4	60.5	23.2	4.6	69.3	35.5	60.5	49.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	20.5	5.4	60.5	23.2	4.6	69.3	35.5	60.5	49.4
LOS	E	C	A	E	C	A	E	D	E	D
Approach Delay		19.7			22.4			54.1		54.0
Approach LOS		B			C			D		D
Queue Length 50th (m)	5.2	26.7	0.0	7.3	73.7	0.0	60.6	46.9	27.4	36.9
Queue Length 95th (m)	13.7	57.0	8.6	17.2	#184.9	12.2	68.7	55.3	31.3	36.0
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	183	1661	817	170	1833	828	324	753	328	535
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	0.11	0.28	0.12	0.19	0.61	0.14	0.92	0.32	0.34	0.29

Intersection Summary

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: 0.92
Intersection Signal Delay: 31.4 — Intersection LOS: C
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.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	492	81	0	1249	0	1
Future Vol, veh/h	492	81	0	1249	0	1
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, %	7	2	2	4	2	2
Mvmt Flow	492	81	0	1249	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	287
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	710
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	710
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	710	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-
HCM Control Delay (s)	10.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	11	16	1133	26	4
Future Vol, veh/h	472	11	16	1133	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	472	11	16	1133	26	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	483	0	1071	236
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	599	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1076	-	216	766
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	511	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1076	-	213	766
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	503	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	372	-	-	1076	-
HCM Lane V/C Ratio	0.081	-	-	0.015	-
HCM Control Delay (s)	15.5	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	453	1135	24	30	114
Future Vol, veh/h	40	453	1135	24	30	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	350	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	453	1135	24	30	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1159	0	-	0	1454	580
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	599	-	-	-	121	458
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	599	-	-	-	113	458
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	17.6
HCM LOS			C

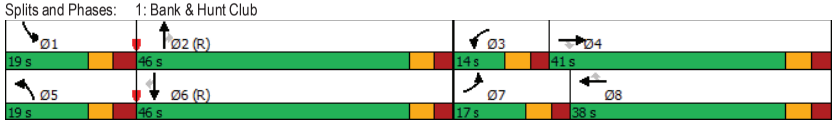
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	599	-	-	-	203	458
HCM Lane V/C Ratio	0.067	-	-	-	0.148	0.249
HCM Control Delay (s)	11.4	-	-	-	25.8	15.4
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Future Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Lane Group Flow (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	17.0	41.0	41.0	14.0	38.0	38.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.2%	34.2%	34.2%	11.7%	31.7%	31.7%	15.8%	38.3%	38.3%	15.8%	38.3%	38.3%
Maximum Green (s)	10.5	34.3	34.3	7.5	31.3	31.3	11.9	39.5	39.5	11.9	39.5	39.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	9.8	37.1	37.1	7.1	32.0	32.0	11.9	39.7	39.7	11.7	39.5	39.5
Actuated g/C Ratio	0.08	0.31	0.31	0.06	0.27	0.27	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.59	1.01	0.57	0.51	0.91	0.34	1.03	0.50	0.10	0.81	0.98	0.39
Control Delay	63.2	73.2	12.9	75.8	62.9	19.7	114.7	36.0	3.9	72.7	62.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
Total Delay	63.2	73.2	12.9	75.8	62.9	19.7	114.7	37.3	3.9	72.7	62.6	9.3
LOS	E	E	B	E	E	B	F	D	A	E	E	A
Approach Delay		58.0			56.1			62.3			56.8	
Approach LOS		E			E			E			E	
Queue Length 50th (m)	17.6	~142.1	14.7	12.3	75.1	6.5	~41.8	43.4	0.3	30.3	130.2	6.3
Queue Length 95th (m)	28.4	#182.6	45.1	m23.9	#127.0	31.1	m#69.8	m89.5	m5.7	#49.6	#175.1	25.1
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	268	1005	629	101	882	516	318	1096	575	318	1091	551
Starvation Cap Reductn	0	0	0	0	0	0	0	342	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.01	0.57	0.49	0.91	0.34	1.03	0.72	0.10	0.79	0.98	0.39

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 58.1 Intersection LOS: E
Intersection Capacity Utilization 97.2% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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: 1: Bank & Hunt Club



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	121	1201	23	321	950	64	7	117	48	133
Future Volume (vph)	121	1201	23	321	950	64	7	117	48	133
Lane Group Flow (vph)	121	1201	23	321	950	64	7	379	48	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.4	26.5	26.5	10.4	26.5	26.5	29.2	29.2	29.2	29.2
Total Split (s)	25.4	58.6	58.6	25.4	58.6	58.6	36.0	36.0	36.0	36.0
Total Split (%)	21.2%	48.8%	48.8%	21.2%	48.8%	48.8%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	53.1	53.1	20.0	53.1	53.1	29.8	29.8	29.8	29.8
Yellow Time (s)	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	1.8	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	Lag	Lag				
Lead-Lag Optimize?	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	C-Max	C-Max	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)		4	4		5	5	6	6	24	24
Act Effct Green (s)	65.2	56.3	56.3	81.5	67.1	67.1	26.9	26.9	26.9	26.9
Actuated g/C Ratio	0.54	0.47	0.47	0.68	0.56	0.56	0.22	0.22	0.22	0.22
v/c Ratio	0.36	0.78	0.03	0.88	0.51	0.08	0.03	0.92	0.79	0.49
Control Delay	6.7	11.2	0.1	51.6	18.4	2.5	30.6	58.8	109.2	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	6.7	11.2	0.1	51.6	18.4	2.5	30.6	58.8	109.2	41.0
LOS	A	B	A	D	B	A	C	E	F	D
Approach Delay		10.6			25.6			58.3		55.0
Approach LOS		B			C			E		E
Queue Length 50th (m)	4.0	25.1	0.0	51.3	73.7	0.0	1.5	74.9	10.3	33.7
Queue Length 95th (m)	m4.8	m26.0	m0.0	#101.5	96.3	5.0	m3.9	#115.3	#31.7	55.8
Internal Link Dist (m)		334.1			554.6			188.3		429.6
Turn Bay Length (m)	65.0		40.0	100.0		40.0	35.0		30.0	
Base Capacity (vph)	481	1539	715	373	1854	828	225	449	68	414
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	0.25	0.78	0.03	0.86	0.51	0.08	0.03	0.84	0.71	0.45

Intersection Summary
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: 0.92
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 105.5% 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: 2: Albion & Hunt Club

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	4	4	0	97	772	17	1358	148
Future Volume (vph)	150	4	4	0	97	772	17	1358	148
Lane Group Flow (vph)	0	313	0	16	0	869	17	1358	148
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		2		6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.7	16.7	37.7	37.7	44.8	44.8	44.8	44.8	44.8
Total Split (s)	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%	68.3%
Maximum Green (s)	31.3	31.3	31.3	31.3	76.2	76.2	76.2	76.2	76.2
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4	3.4	3.4	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.7		6.7		5.8	5.8	5.8	5.8
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)			7.0	7.0	25.0	25.0	25.0	25.0	25.0
Flash Dont Walk (s)			24.0	24.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)			20	20	17	17	17	11	11
Act Effct Green (s)		28.2		28.2		79.3	79.3	79.3	79.3
Actuated g/C Ratio		0.24		0.24		0.66	0.66	0.66	0.66
v/c Ratio		0.90		0.05		0.30	0.02	0.62	0.15
Control Delay		67.7		8.2		6.6	0.2	4.9	0.2
Queue Delay		2.1		0.0		0.0	0.0	0.7	0.5
Total Delay		69.8		8.2		6.6	0.2	5.5	0.7
LOS		E		A		A	A	A	A
Approach Delay		69.8		8.2		6.5		5.1	
Approach LOS		E		A		A		A	
Queue Length 50th (m)		61.2		0.0		17.9	0.0	23.5	0.0
Queue Length 95th (m)		#107.6		3.9		17.4	m0.2	m31.1	m0.0
Internal Link Dist (m)		64.2		37.0		227.9		67.1	
Turn Bay Length (m)							15.0		
Base Capacity (vph)		380		389		2854	947	2192	994
Starvation Cap Reductn		0		0		0	0	440	537
Spillback Cap Reductn		17		17		123	0	0	0
Storage Cap Reductn		0		0		0	0	0	0
Reduced v/c Ratio		0.86		0.04		0.32	0.02	0.78	0.32

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 114.3% ICU Level of Service H
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.

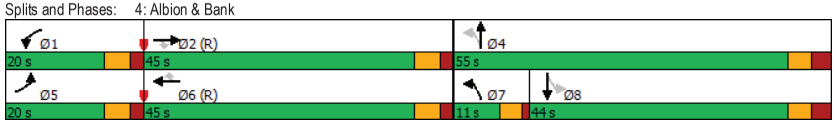
Splits and Phases: 3: Bank & Tonwgate/Towngate

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	70	1125	279	61	665	163	158	169	183	255
Future Volume (vph)	70	1125	279	61	665	163	158	169	183	255
Lane Group Flow (vph)	70	1125	279	61	665	163	158	213	183	302
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6		7	4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	7	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.7	38.7	38.7	10.7	38.7	38.7	9.3	43.4	43.4	43.4
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0	44.0	44.0
Total Split (%)	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	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	3.3	3.3	3.3	3.3
All-Red Time (s)	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	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	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)		1	1		10	10		5	5	5
Act Effct Green (s)	10.4	57.0	57.0	9.8	56.5	56.5	39.8	37.7	26.7	26.7
Actuated g/C Ratio	0.09	0.48	0.48	0.08	0.47	0.47	0.33	0.31	0.22	0.22
v/c Ratio	0.49	0.71	0.33	0.46	0.43	0.22	0.72	0.40	0.76	0.79
Control Delay	74.1	16.0	1.6	62.4	24.9	4.8	48.3	31.1	49.1	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	16.0	1.6	62.4	24.9	4.8	48.3	31.1	49.1	44.8
LOS	E	B	A	E	C	A	D	C	D	D
Approach Delay		16.1			23.8			38.4		46.4
Approach LOS		B			C			D		D
Queue Length 50th (m)	17.6	45.1	0.0	14.0	55.0	0.0	27.5	36.9	44.0	71.2
Queue Length 95th (m)	m23.4	#182.0	m5.2	27.0	88.2	14.6	38.6	50.6	m55.1	m86.1
Internal Link Dist (m)		227.9			198.3			328.9		188.3
Turn Bay Length (m)	30.0		100.0	100.0		65.0	30.0		45.0	
Base Capacity (vph)	198	1576	834	197	1560	748	220	690	340	538
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	0.35	0.71	0.33	0.31	0.43	0.22	0.72	0.31	0.54	0.56

Intersection Summary
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: 0.79
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 84.0% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Albion & Bank



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1265	66	0	865	0	26
Future Vol, veh/h	1265	66	0	865	0	26
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, %	2	2	2	2	2	2
Mvmt Flow	1265	66	0	865	0	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	666
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	402
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	402
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	402	-	-	-
HCM Lane V/C Ratio	0.065	-	-	-
HCM Control Delay (s)	14.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1196	11	21	667	119	16
Future Vol, veh/h	1196	11	21	667	119	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1196	11	21	667	119	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1207	0	1572	598
Stage 1	-	-	-	-	1196	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	574	-	~ 101	445
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	574	-	~ 97	445
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	48.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	211	-	-	574	-
HCM Lane V/C Ratio	0.64	-	-	0.037	-
HCM Control Delay (s)	48.2	-	-	11.5	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	7	100	1184	760	26	23	99
Future Vol, veh/h	7	100	1184	760	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	-	10	-	-	-	350	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	7	100	1184	760	26	23	99

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	786	786	0	-	0	1579	393
Stage 1	-	-	-	-	-	773	-
Stage 2	-	-	-	-	-	806	-
Critical Hdwy	6.44	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.52	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	455	829	-	-	-	100	606
Stage 1	-	-	-	-	-	416	-
Stage 2	-	-	-	-	-	400	-
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	770	770	-	-	-	86	606
Mov Cap-2 Maneuver	-	-	-	-	-	212	-
Stage 1	-	-	-	-	-	358	-
Stage 2	-	-	-	-	-	400	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	770	-	-	-	212	606
HCM Lane V/C Ratio	0.139	-	-	-	0.108	0.163
HCM Control Delay (s)	10.4	-	-	-	24	12.1
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Future Volume (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Lane Group Flow (vph)	149	1016	358	49	800	177	328	546	60	252	1067	213
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	33.7	33.7	11.5	33.7	33.7	12.1	34.5	34.5	12.1	34.5	34.5
Total Split (s)	13.0	43.0	43.0	12.0	42.0	42.0	20.0	42.0	42.0	23.0	45.0	45.0
Total Split (%)	10.8%	35.8%	35.8%	10.0%	35.0%	35.0%	16.7%	35.0%	35.0%	19.2%	37.5%	37.5%
Maximum Green (s)	6.5	36.3	36.3	5.5	35.3	35.3	12.9	35.5	35.5	15.9	38.5	38.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	3.0	3.0	2.8	3.0	3.0	3.4	2.8	2.8	3.4	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.7	6.7	6.5	6.7	6.7	7.1	6.5	6.5	7.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		21	21		4	4		22	22		55	55
Act Effct Green (s)	6.5	38.7	38.7	5.5	35.3	35.3	12.9	37.4	37.4	14.0	38.5	38.5
Actuated g/C Ratio	0.05	0.32	0.32	0.05	0.29	0.29	0.11	0.31	0.31	0.12	0.32	0.32
v/c Ratio	0.90	0.97	0.55	0.66	0.82	0.32	0.95	0.53	0.11	0.67	1.00	0.40
Control Delay	103.7	62.4	10.6	90.7	61.4	23.4	97.7	40.2	4.2	59.9	69.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
Total Delay	103.7	62.4	10.6	90.7	61.4	23.4	97.7	41.7	4.2	59.9	69.4	11.7
LOS	F	E	B	F	E	C	F	D	A	E	E	B
Approach Delay		54.2			56.2			58.9			59.8	
Approach LOS		D			E			E			E	
Queue Length 50th (m)	18.2	~135.1	11.2	12.1	86.6	11.1	42.6	51.1	0.3	29.5	~132.6	9.3
Queue Length 95th (m)	#37.8	#175.6	39.3	m#29.3	114.2	35.6	m#68.5	m90.0	m5.7	42.7	#178.7	29.3
Internal Link Dist (m)		358.7			334.1			67.1			340.8	
Turn Bay Length (m)	150.0			60.0		90.0				40.0		115.0
Base Capacity (vph)	166	1048	656	74	975	552	345	1033	551	426	1063	530
Starvation Cap Reductn	0	0	0	0	0	0	0	294	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.97	0.55	0.66	0.82	0.32	0.95	0.74	0.11	0.59	1.00	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 125

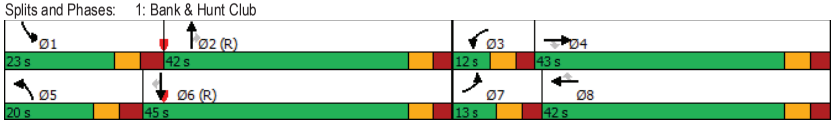
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 57.2 Intersection LOS: E
Intersection Capacity Utilization 97.2% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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: 1: Bank & Hunt Club



Appendix M

TDM Checklist

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	☑
		2.2 Bicycle skills training	
		Commuter travel	
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3 Valet bike parking	
		Visitor travel	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances	☑
BASIC		3.1.2 Provide online links to OC Transpo and STO information	☑
BETTER		3.1.3 Provide real-time arrival information display at entrances	☐
		3.2 Transit fare incentives	
		Commuter travel	
BETTER		3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER		3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER		3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4 Private transit service	
		Commuter travel	
BETTER		3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☑
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER		4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3	**Vanpool service**	
			Commuter travel	
BETTER		4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5.	**CARSHARING & BIKESHARING**	
		5.1	**Bikeshare stations & memberships**	
BETTER		5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
			Commuter travel	
BETTER		5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2	**Carshare vehicles & memberships**	
			Commuter travel	
BETTER		5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER		5.2.2	Provide employees with carshare memberships for local business travel	☐
		6.	**PARKING**	
		6.1	**Priced parking**	
			Commuter travel	
BASIC	★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☑
BASIC		6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☑
			Visitor travel	
BETTER		6.1.3	Charge for short-term parking (hourly)	☐

TDM Measures Checklist **City of Ottawa**
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			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☐
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☑
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☑
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐