971 Montreal Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

Prepared for:

12318407 Canada Inc.
3500 Atwater, Suite 6
Montreal, QC, H3H 1Y5

Prepared by:

CGH TRANSPORTATION

6 Plaza Court
Ottawa, ON K2H 7W1

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PN: 2021-021

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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, the trip generation trigger was not met, but the safety and location triggers were met indicating a TIA is required including the Design Review component. This report accompanies a site plan application.

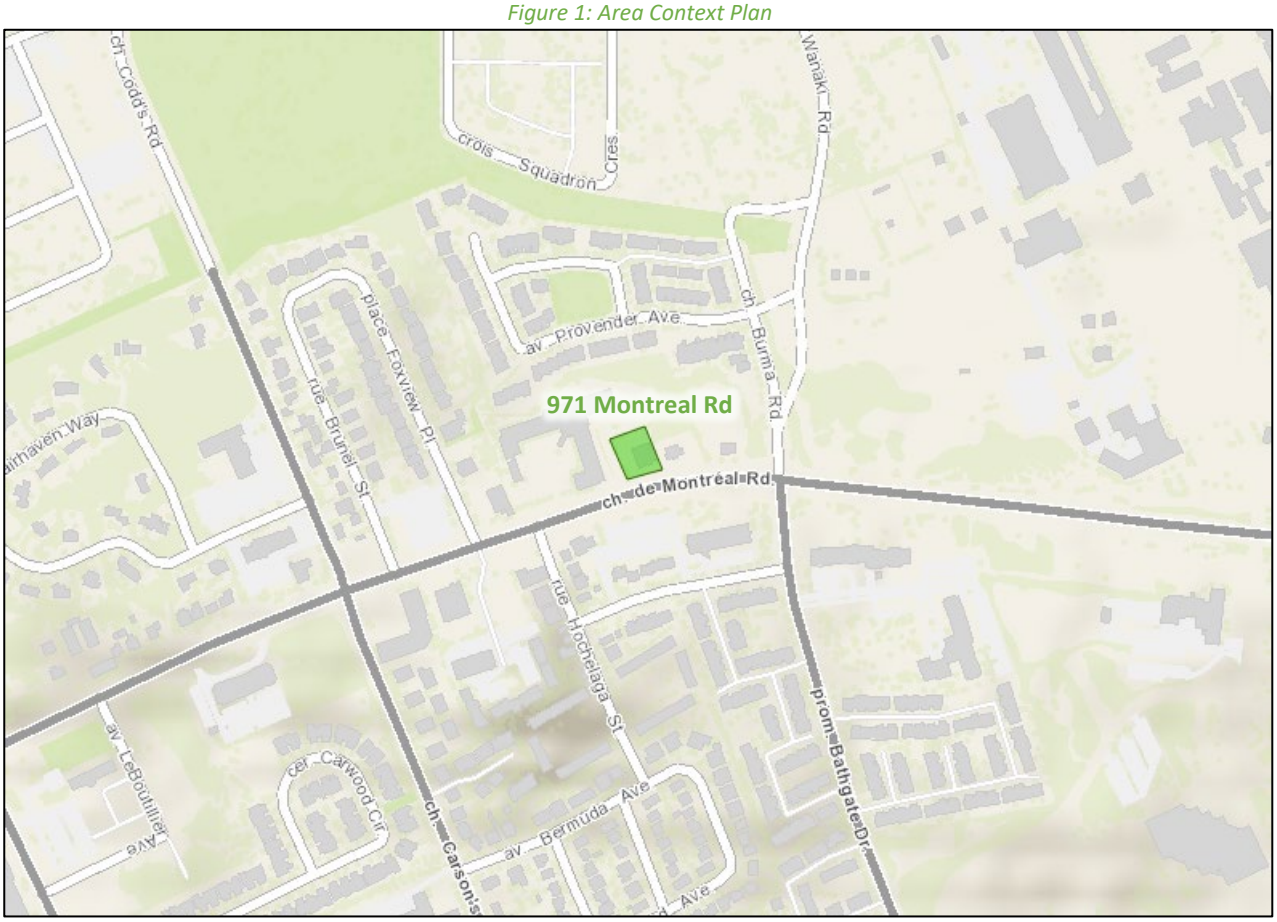
2 Existing and Planned Conditions

2.1 Proposed Development

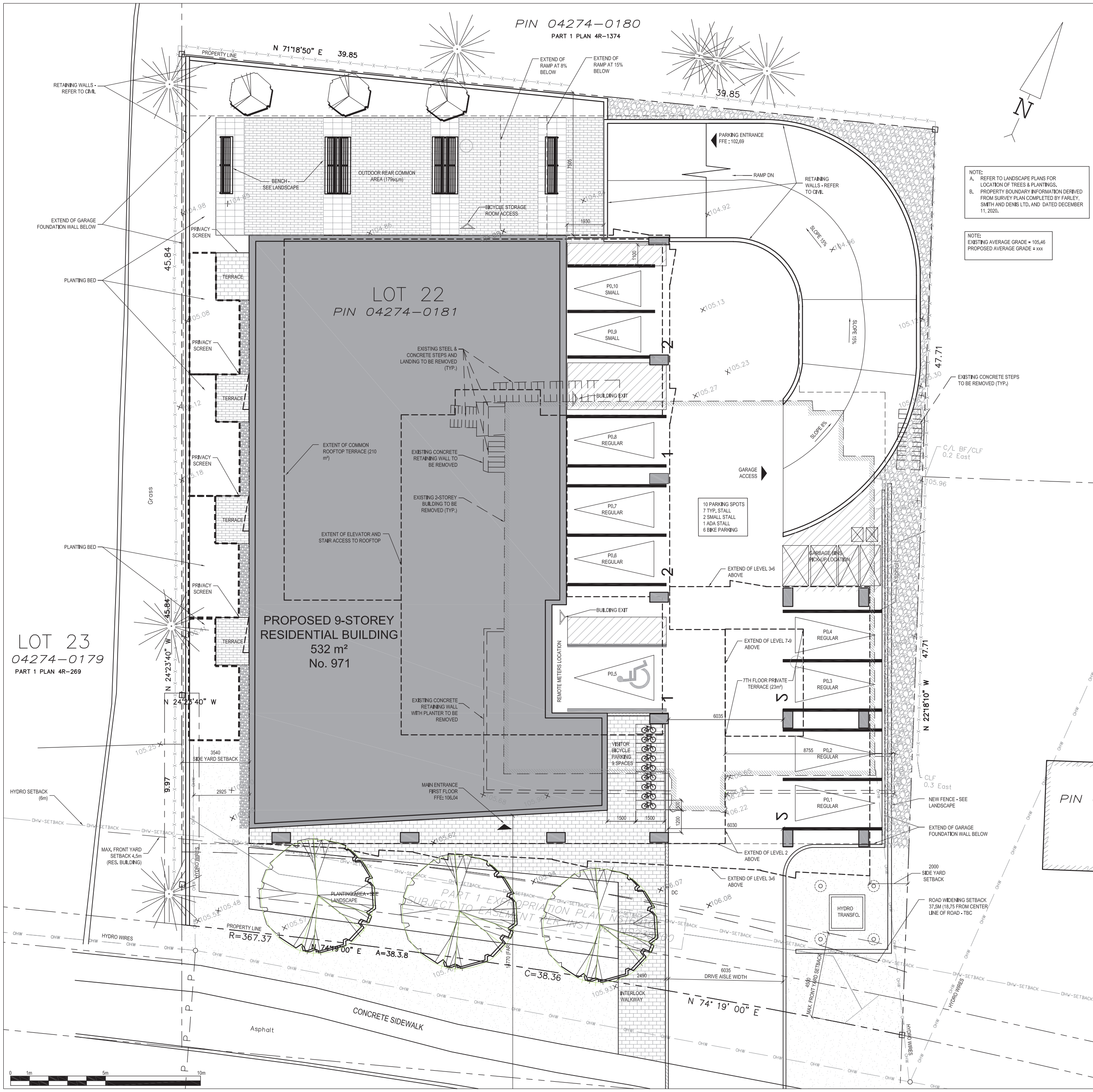
The existing site, zoned as Arterial Mainstreet (AM10[2199]) and within the Montreal Arterial Mainstreet Design Priority Area, is currently occupied by a restaurant and surface parking lot. The proposed redevelopment of the site includes a 9-storey apartment building comprising 78 apartment units, to be built-out in a single phase by 2025. The development proposes use of the existing full-movement east access and the removal of the existing west access and proposes 40 vehicle and 78 bicycle parking stalls.

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: March 11, 2021



KEY PLAN

PROPOSED SITE

PROPERTY DESCRIPTION

NINE STOREY RESIDENTIAL BUILDING	
CITY OF OTTAWA PIN NUMBER	04274-0181
MUNICIPAL ADDRESS	971 Montreal Road

SITE INFORMATION

LOT AREA: 1,813sq.m
LOT FRONTAGE: 38.37m
LOT DEPTH: irregular 45.84m / 47.71m

BUILDING INFORMATION

BUILDING AREA: 878sq.m
BUILDING FLOOR AREA: 6851sq.m
PROPOSED USE: APARTMENT DWELLING, MIDDLE-RISE
UNIT BREAKDOWN:

L1:	4 UNITS	3- 1BD, 1- 2BD, 0-2BD+D
L2:	7 UNITS	4- 1BD, 2- 2BD, 1-2BD+D
L3 TO L6 (10 UNITS/FL.):	40 UNITS	4- 1BD, 5- 2BD, 1-2BD+D
L7 TO L9 (9 UNITS/FL.):	27 UNITS	5- 1BD, 3- 2BD, 1-2BD+D
A:	78 UNITS	38- 1 BD, 32- 2 BD, 8- 2BD+D

ZONING TABLE

AM10(2199)		
CITY OF OTTAWA ZONING BY-LAW No. 2008-250	EXISTING	PROPOSED
MINIMUM LOT AREA	NO MINIMUM	N/A
MINIMUM LOT WIDTH	NO MINIMUM	N/A
MAX. FRONT YARD SETBACK	4.5m	4.5m
ROAD WIDENING SETBACK	37.5m (18.75 FROM CENTER LINE OF ROAD)	18.75m
MINIMUM INTERIOR SIDE YARD SETBACK	0m	east side: 2m west side: 3.5m
MINIMUM REAR YARD SETBACK	Abutting an R3 Zone=7.5m - N/A	7.5m
HYDRO SETBACK	6m	6m
MAXIMUM BUILDING HEIGHT	30m	29.98m
MAXIMUM FLOOR SPACE INDEX	N/A	N/A
LANDSCAPED AREA	N/A	31.8% = 418sq.m
VEHICLE PARKING REQUIREMENTS (AREA Z, SCHEDULE 1A)	33 parking spaces required	33 SPACES
VISITOR PARKING REQUIREMENTS (AREA Z, SCHEDULE 1A)	0.1 / DWELLING UNIT 7 SPACES REQUIRED	7 SPACES
AMENITY AREA REQUIREMENTS	6m² per dwelling unit = 468sq.m.	-50sq.m PRIVATE TERRACE -205sq.m ROOFTOP -179sq.m REAR COMMON AREA -65sq.m GROUND FL. AMENITY ROOM TOTAL: 499sq.m
BICYCLE PARKING SPACES	0.5 per dwelling unit = 39	40 SPACES - CITY'S DIMENSIONS 38 STACKED SPACES TOTAL = 78 SPACES

LEGEND

- SOFT LANDSCAPING REFER TO LANDSCAPE
- UNIT PAVERS REFER TO LANDSCAPE
- ASPHALT PAVING
- CONCRETE
- EXISTING BUILDING ELEMENT TO BE REMOVED
- EXISTING FENCE
- NEW BOARD FENCE REFER TO LANDSCAPE
- LOT LINE
- SETBACK LINE
- DESIGNATED BUILDING ENTRANCE / EXIT
- FH — FIRE HYDRANT, REFER TO CIVIL
- CB — CATCH BASIN
- MH — MANHOLE
- FLOOR DRAIN
- UTILITY POLE
- OHW — OVERHEAD UTILITY WIRES
- LS — LIGHT STANDARD
- DC — DEPRESSED CURB
- 0.20ø — EXISTING TREE TO REMAIN (REFER TO LANDSCAPE DRAWINGS)
- NEW TREE (REFER TO LANDSCAPE DRAWINGS)
- NEW SHRUBS (REFER TO LANDSCAPE DRAWINGS)
- NEW EVERGREEN SHRUB (REFER TO LANDSCAPE DRAWINGS)
- FIRE DEPARTMENT CONNECTION
- X 77.70 — EXISTING GROUND ELEVATION [TO DETERMINE EXISTING AVERAGE GRADE]
- X 58.64 — NEW GROUND ELEVATION REFER TO CIVIL

NOTE: 'X-E INDICATES EXISTING TO REMAIN

No.	Date	Émis pour / Object
1	2021.06.18	SITE PLAN CONTROL
2	2021.11.08	ISSUED FOR COORDINATION
2	2021.12.14	ISSUED FOR COORDINATION

Ingénieur / *Engineer*
(Mécanique & Électricité / *Mechanical & Electrical*)

Ingénieur / *Engineer*
(Structure / *Structure*)

Architecte/ *Architect*
(paysagiste / *Landscape*)

Stantec

Ingénieur / *Engineer*
(Civil / *Civil*)

Stantec

Client / *Client*

proximi-t

Architecte / *Architect*
fig. 1
3550, Saint-Antoine O.
Montréal QC H4C 1A9
T. 514 861-5122
fig. 2
190 Somerset St W #206
Ottawa ON K2P 0J4
T. 613 695-6122
Collectif d'architectes / Architects Collective
figurr architects collective
www.figurr.ca

Sceau / *Seal*
ONTARIO ASSOCIATION OF ARCHITECTS
ROBERTO CAMPOS
LICENCE
7401

Note:
L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.
Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / *Project*
9-Storey Apartment Building
971 Montreal Road
Ottawa

Titre / *Title*
Site Plan

Dessiné par / *Drawn by* SC	No. projet / *Project number* *2052*	
Vérifié par / *Verified by* MD, RC	No. dessin / *Drawing number*	Révision / Revision 0
Échelle / Scale *AS SHOWN*		
Date de création du dessin / *Drawing creation date* 2021-03-08	A105	

2.2 Existing Conditions

2.2.1 Area Road Network

Montreal Road: Montreal Road is a is a City of Ottawa arterial road with a four-lane urban cross-section east of Codd's Road and a five-lane urban cross-section including two-way left-turn lane to the west. Sidewalks and bike lanes are on both sides of the road, where the bike lanes terminate 110 metres east of Bathgate Drive/Wanaki Road. The posted speed limit is 60 km/h, and the City-protected right-of-way of 37.5 metres. Montreal Road is a truck route.

Codd's Road: Codd's Road is a is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks on both sides of the road. Within the study area, the unposted speed limit is assumed to be 50km/h and the measured right of way is 20 metres.

Carsons Road: Carsons Road is a is a City of Ottawa collector road with a two-lane urban cross-section with sidewalks on both sides of the road and on-street parking permitted on both sides of the road. Within the study area, the posted speed limit is 50km/h and the measured right of way is 20 metres.

Bathgate Drive: Bathgate Drive is a is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks on both sides of the road and on-street parking permitted on the east side of the road south of the 665 Bathgate Drive access. The posted speed limit is 50 km/h and the Ottawa Official Plan reserves a 24-metre right of way.

Wanaki Road: Wanaki Road is a is a City of Ottawa local road per geoOttawa with a with a two-lane urban collector road cross-section with a sidewalk and two-way cycletrack on the east side of the road and additionally with a sidewalk on the west side of the road south of Provender Avenue. The unposted speed limit is assumed to be 50 km/h and the measured right of way is 26.0 metres.

2.2.2 Existing Intersections

The existing signalized area intersections within 400 metres of the site have been summarized below:

Montreal Road at Codd's Road / Carsons Road	The intersection of Montreal Road at Codd's Road/Carsons Road is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane, and the eastbound and westbound approaches each consist of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane. No turn restrictions were noted.
Montreal Road at Wanaki Road / Bathgate Drive	The intersection of Montreal Road at Wanaki Road/Bathgate Drive is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane and the eastbound and westbound approaches each consist of an auxiliary left-turn lane, a through lane, a shared through/right-turn lane, and a bike lane. No turn restrictions were noted.

2.2.3 Existing Driveways

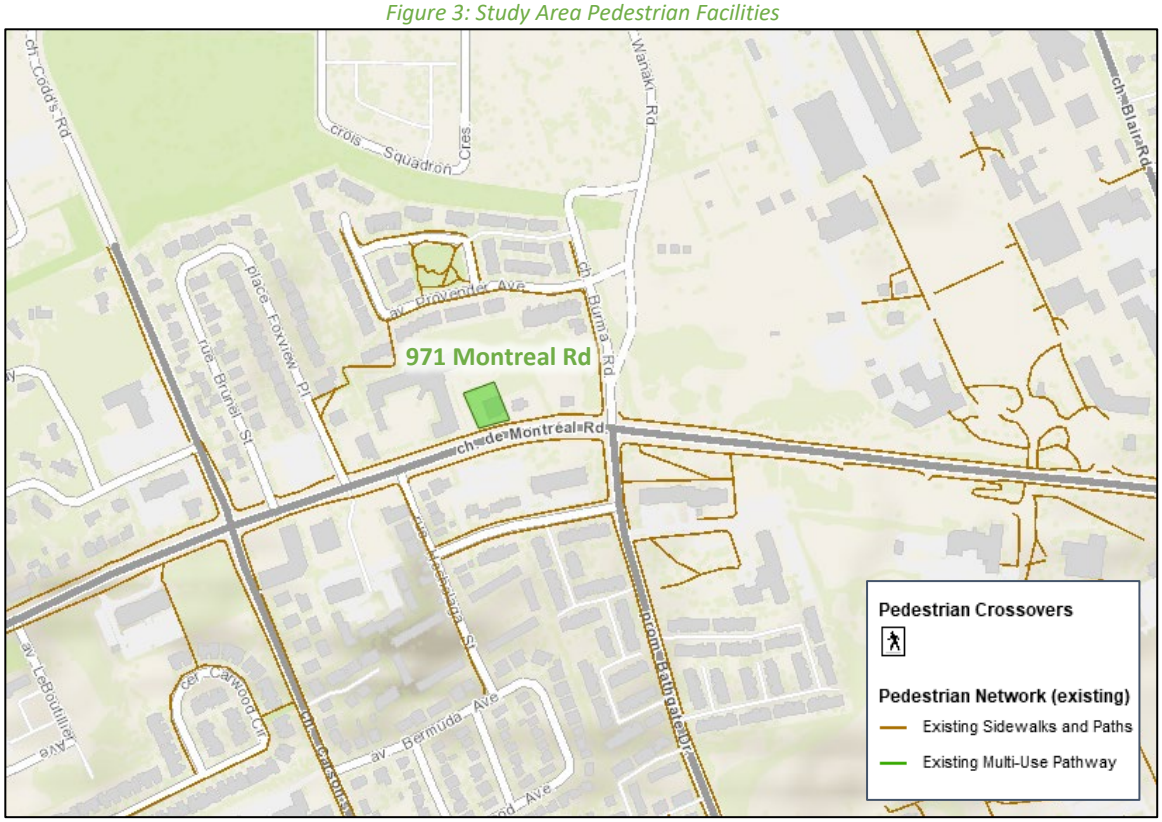
On the north side of Montreal Road within 200 metres of the site access, driveways to a restaurant, a long-term care home, and a pumping station are present and on the south side a shared driveway to a convenience store and tattoo shop is present.

2.2.4 Cycling and Pedestrian Facilities

Figure 3 illustrates the pedestrian facilities in the study area and Figure 4 illustrates the cycling facilities.

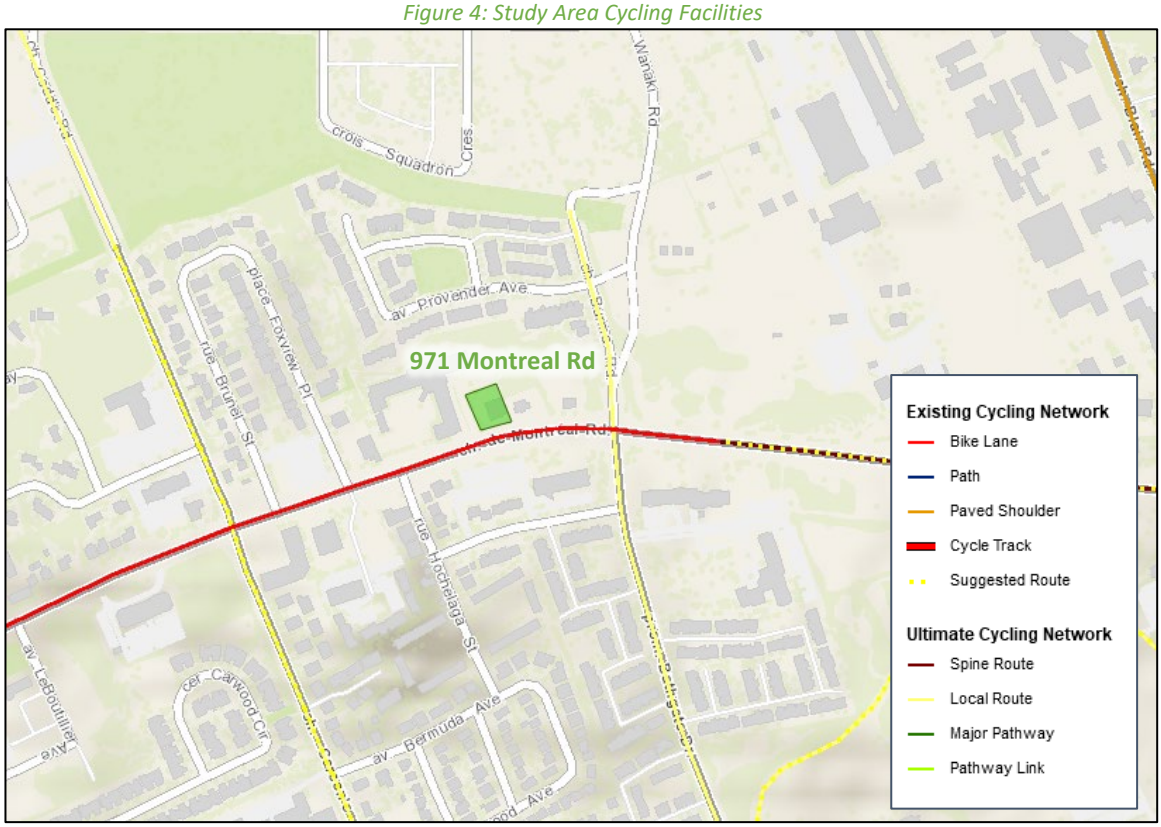
Within the study area, sidewalks are provided along both sides of Montreal Road, Bathgate Drive, and Carsons Road, and along one side of Codd's Road and Wanaki Road. Cycling facilities include bike lanes along Montreal Road which terminate 110 metres east of Bathgate Drive/Wanaki Road, and a two-way cycletrack along the east side of Wanaki Road which is not depicted in the below figure. Montreal Road is a spine cycling route, Codd's Road, Carsons Road, Bathgate Drive, and Wanaki Road are local routes.

Figure 3: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: March 11, 2021

Figure 4: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: March 11, 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 5 and Figure 6 respectively.

Figure 5: Existing Pedestrian Counts

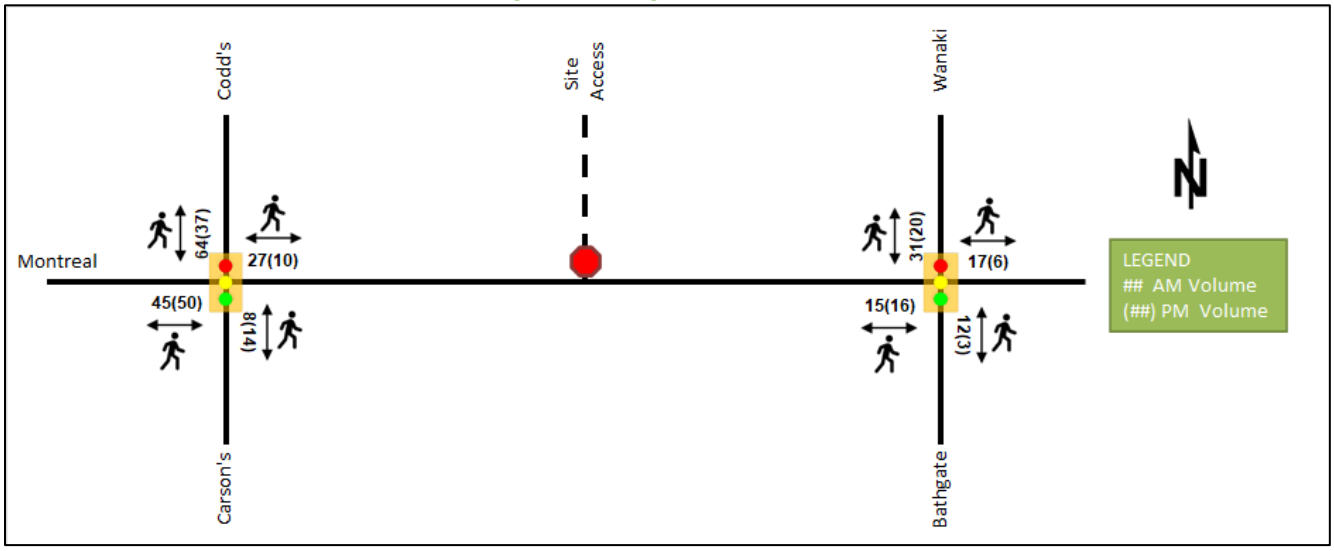
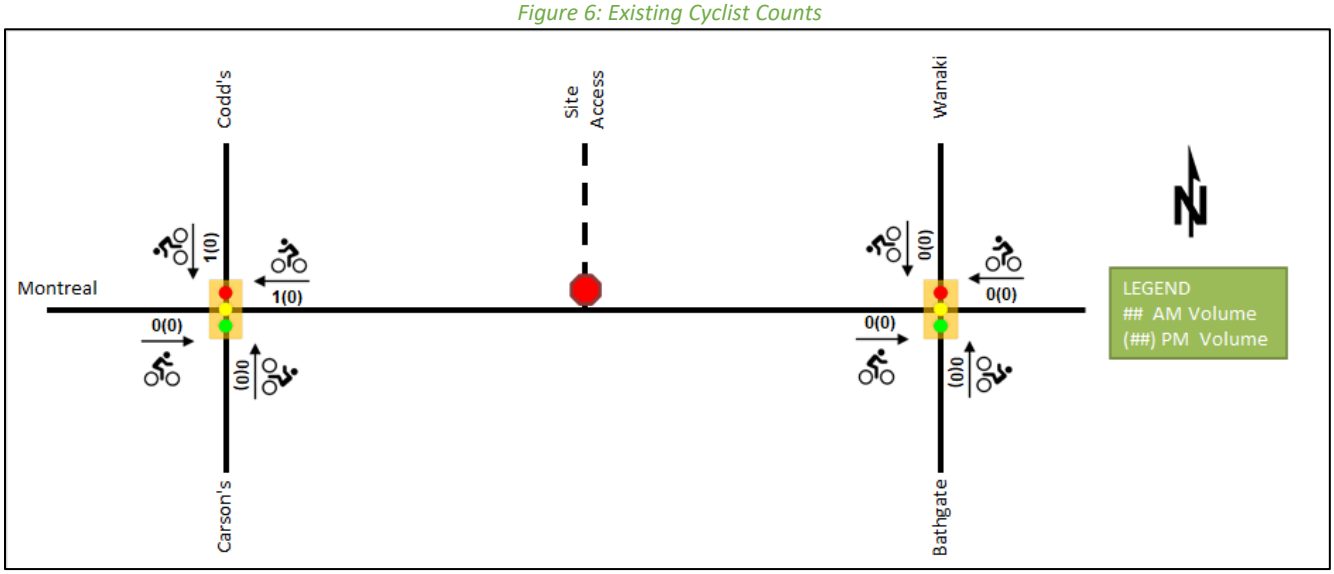


Figure 6: Existing Cyclist Counts



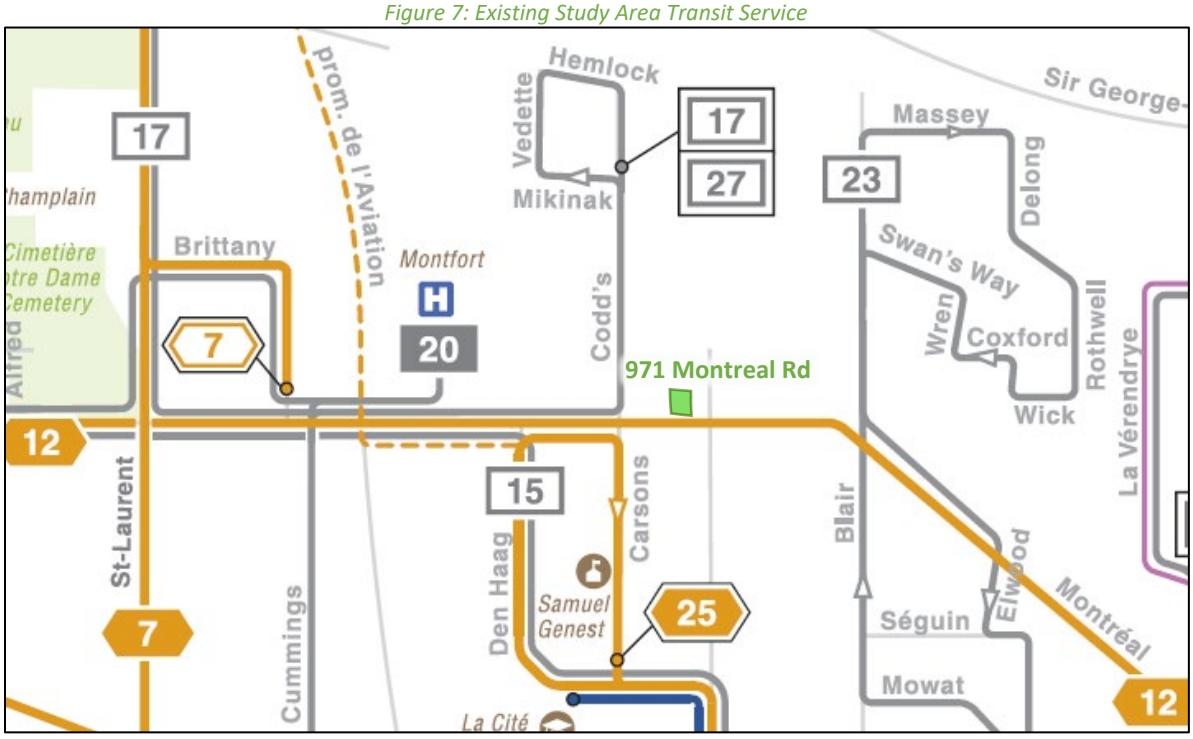
2.2.5 Existing Transit

Within the study area, the route #12 travels along Montreal Road, the routes #17 and # 27 travel along Codd's Road continuing to Montreal Road with route #17 connecting to Rideau LRT Station and beyond and route #27 connecting to St. Laurent LRT Station, and the route #25 travels along Carsons Road with connections to Blair LRT Station and Millennium Station. The frequency of these routes within proximity of the proposed site currently are:

- Route # 12 – 15-minute daytime service, 30-minute late-night and early-morning service
- Route # 17 – 30-minute service operating during the peak period/direction only
- Route #25 – 10-minute service during peak period/direction, 15-minute daytime service, 30-minute service after 6:00 PM
- Route # 27 – 30-minute service operating during the peak period/direction only

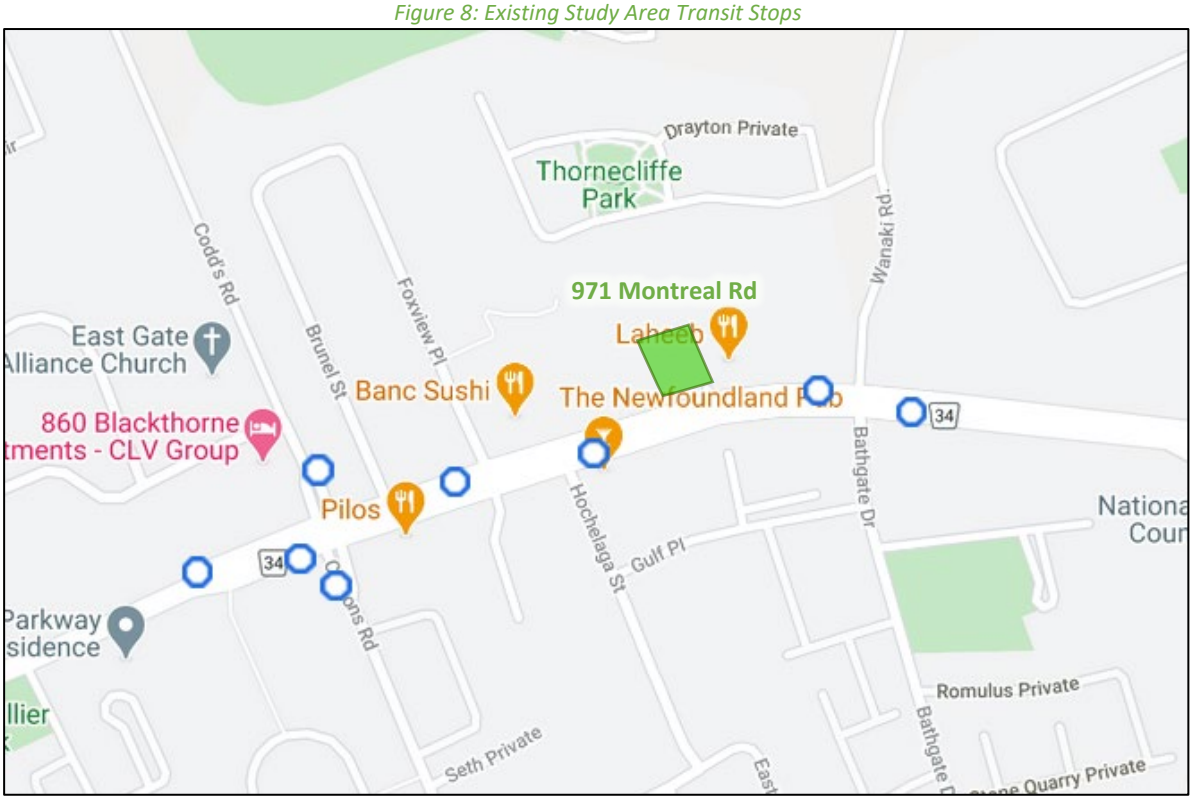
Figure 7 illustrates the transit system map in the study area and Figure 8 illustrates nearby transit stops.

Figure 7: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: March 11, 2021

Figure 8: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: March 11, 2021

2.2.6 Existing Area Traffic Management Measures

On-street parking throughout and a radar speed driver feedback sign on Carsons Road are the primary 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
Montreal Road at Codd's Road/Carsons Road	Wednesday, January 30, 2019
Montreal Road at Bathgate Drive/Wanaki Road	Wednesday, January 30, 2019

Figure 9 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 9: Existing Traffic Counts

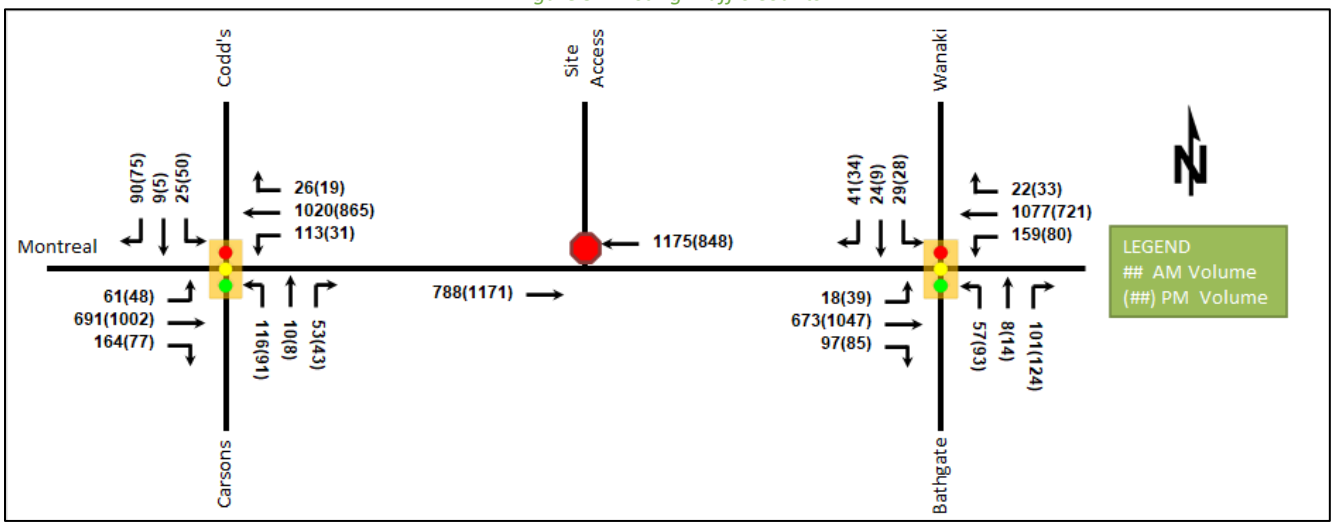


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Codd's Road / Carsons Road *Signalized*	EBL	A	0.27	9.7	10.1	A	0.15	7.4	8.3
	EBT	A	0.45	9.6	64.7	A	0.52	9.9	91.6
	WBL	A	0.43	22.0	36.8	A	0.14	10.7	5.7
	WBT	A	0.59	18.3	121.3	A	0.48	9.7	44.2
	NBL	A	0.56	50.8	46.1	A	0.48	49.4	36.6
	NBT	A	0.20	13.2	13.6	A	0.19	14.1	12.2
	SBL	A	0.12	37.0	13.0	A	0.25	41.3	21.9
	SBT	A	0.31	11.1	16.1	A	0.28	11.1	14.0
	Overall	**A**	**0.59**	**16.5**	-	**A**	**0.53**	**12.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Bathgate Drive / Wanaki Road *Signalized*	EBL	A	0.09	9.8	4.4	A	0.10	5.9	m5.8
	EBT	A	0.54	18.6	78.1	B	0.61	12.7	78.5
	WBL	A	0.52	15.0	24.4	A	0.32	8.6	12.3
	WBT	B	0.64	18.6	**#142.5**	A	0.39	11.8	74.0
	NBL	A	0.24	27.8	17.8	A	0.55	56.0	37.5
	NBT	A	0.30	7.8	12.9	A	0.45	13.0	20.1
	SBL	A	0.13	25.3	10.7	A	0.22	44.6	14.5
	SBT	A	0.21	12.7	13.0	A	0.20	17.5	11.7
	Overall	**A**	**0.58**	**17.9**	-	**A**	**0.58**	**14.4**	-

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 0.90
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersection operates well. No capacity issues are noted outside of extended queuing on the westbound through movement at the intersection of Montreal Road at Bathgate Drive/Wanaki Road during the AM peak hour.

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 area road network. Table 3 summarizes the collisions types and conditions in the study area, Figure 10 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		**52**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	14	27%
	Property Damage Only	38	73%
Initial Impact Type	**Approaching**	1	2%
	Angled	6	12%
	Rear end	19	37%
	Sideswipe	6	12%
	Turning Movement	10	19%
	SMV Other	10	19%
Road Surface Condition	**Dry**	27	52%
	Wet	14	27%
	Slush	4	8%
	Packed Snow	4	8%
	Ice	3	6%
Pedestrian Involved		6	12%
Cyclists Involved		1	2%

Figure 10: Study Area Collision Records – Representation of 2015-2019

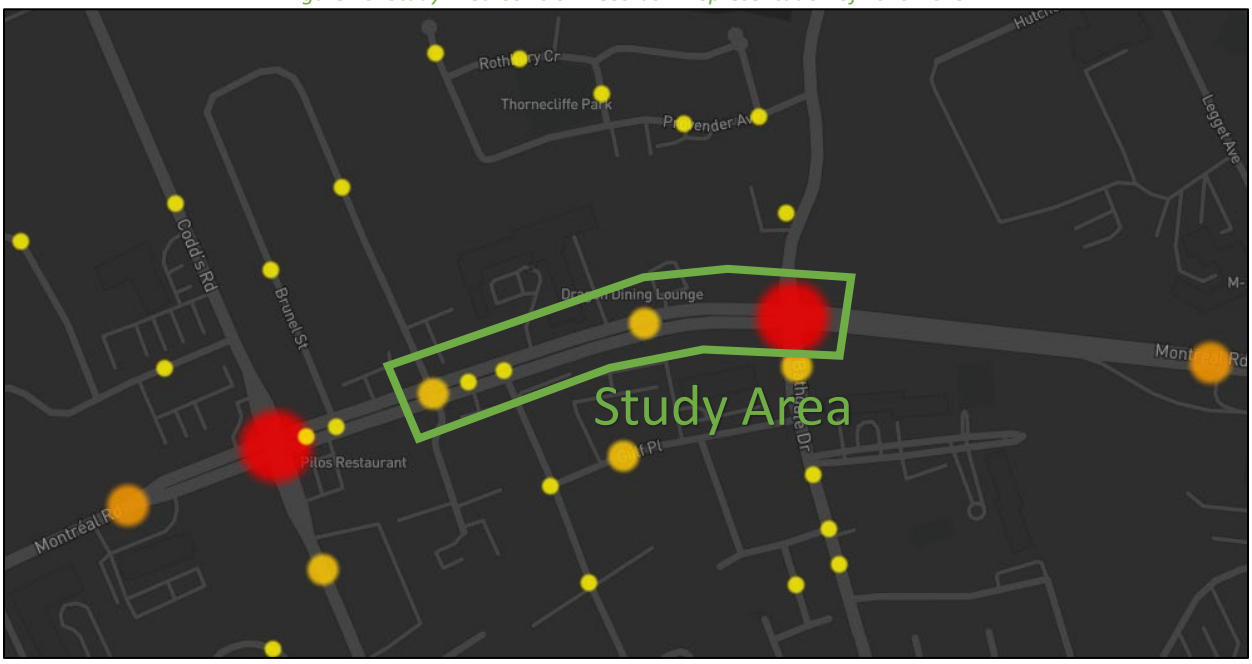


Table 4: Summary of Collision Locations, 2015-2019

	Number	%
Intersections / Segments	**52**	**100%**
Montreal Rd at Foxview Pl/Desloges Priv	5	10%
Montreal Rd at Hochelaga St	2	4%
Montreal Rd at Bathgate Dr/Burma Rd	37	71%
Montreal Rd between Foxview Pl & Hochelaga St	2	4%
Montreal Rd between Hochelaga St & Burma Rd	6	12%

Within the study area, the intersection of Montreal Road at Wanaki Road (Burma Road)/Bathgate Drive is noted to have experienced higher collisions than other locations. Table 5 summarizes the collision types and conditions for the Montreal Road at Wanaki Road (Burma Road)/Bathgate Drive intersection.

Table 5: Montreal Road at Wanaki Road (Burma Road)/Bathgate Drive Collision Summary

		Number	%
Total Collisions		**37**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	12	32%
	Property Damage Only	25	68%
Initial Impact Type	**Angle**	4	11%
	Rear end	13	35%
	Sideswipe	5	14%
	Turning Movement	8	22%
	SMV Other	7	19%
Road Surface Condition	**Dry**	16	43%
	Wet	11	30%
	Slush	4	11%
	Packed Snow	3	8%
	Ice	3	8%
Pedestrian Involved		4	11%

	Number	%
Total Collisions	**37**	**100%**
Cyclists Involved	1	3%

The Montreal Road at Wanaki Road (Burma Road)/Bathgate Drive intersection had a total of 37 collisions during the 2015-2019 time period, with 25 involving property damage only and the remaining 12 having non-fatal injuries. The collision types are most represented by rear end collisions with 13, followed by turning movement with eight, SMV (other) with seven, sideswipe with five, and angle with four. Rear end collisions are typical of congested intersections, often correlated with non-dry road surface conditions as seen in eight out of these 13 collisions. Despite the absence of changes to geometry or regulation, no turning movement or angle collisions have been observed at this intersection in 2018 or 2019. Weather conditions may influence collisions at this location and alternative paving materials may be explored by the City during future roadway rehabilitation activities.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is not within any CDP area.

Within the Transportation Master Plan (TMP), the Rapid Transit and Transit Priority Network (RTTP) Affordable Network diagram shows a transit priority corridor along Montreal Road through the study area.

Montreal-Blair Road Transit Priority Corridor Planning and Environmental Assessment Study is examining the inclusion of transit priority measures on Blair Road south of Montreal Road and on Montreal Road from St. Laurent Boulevard to Shefford Road, to be coordinated with the Montreal Road Revitalization Project. Alternatives for the typical cross-sections are being explored; however, the recommended solution has not been released by the city. It is understood that the interim proposal will focus on isolated transit priority measures and the enhancement of the pedestrian and cycling facilities within the corridor and will involve right-of-way widening of up to 0.50 metres on the near side along the site frontage as part of the project. The EA will be continuing with public consultation through 2021.

2.3.2 Other Study Area Developments

875 Montreal Road

The proposed development application includes a site plan for the construction of a two-storey and a three-storey mixed-use building to be built out by 2022. This development did not meet the trip generation trigger for the TIA and thus traffic associated with the development is assumed to be negligible. (CGH, 2019)

455 Wanaki Road

The proposed development application includes a site plan for the construction a three-storey apartment building. No TIA is available for this development.

475 Wanaki Road

The proposed development application includes a site plan for the construction of five low-rise residential apartment buildings comprising 120 residential dwelling units. A TIA screening form included within the application determined a TIA was not required based upon the marginal increase in units over the number assumed by the CDP.

1400 Hemlock Road

The proposed development application includes a site plan for the construction of 20 back-to-back stacked dwellings, and 18 townhomes. No TIA is available for this development.

681 Mikinak Road

The proposed development application includes a site plan for the construction of four mid-rise mixed-use buildings. The development is anticipated to generate 100 new AM and 137 new PM peak hour two-way vehicle trips by the 2025 build-out. (Novatech, 2020)

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of Montreal Road at Codd's Road/Carsons Road and Montreal Road at Wanaki Road/Bathgate Drive.

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

3.2 Time Periods

As the proposed development is composed entirely of residential units 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 6 summarizes the exemptions for this TIA.

Table 6: 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	Exempt - Has been included by City request
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 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

As the Screening Form identifies the need for only the Design Review Component of the TIA guidelines, the following exemptions summarized in Table 7 are also recommended for this TIA.

Table 7: Recommended Additional Exemptions

Module	Element	Explanation
Design Review Component		
3.1 Development-Generated Travel Demand	All Elements	Trip generation trigger was not met; therefore trip and mode share forecasting are not required for the subject site. Additionally, trip distribution and assignment are also not required.
3.2 Background Network Travel Demands	All Elements	Subject to the trip generation trigger not being met, no background analysis is required as part of this TIA.
3.3 Demand Rationalization	All Elements	Subject to the trip generation trigger not being met, no demand rationalization is required as part of this TIA.
Network Impact Components		
4.7 Transit	All Elements	No network impact components required due to no trip generation trigger.
4.9 Network Intersections	All Elements	No network impact components required due to no trip generation trigger.

5 Development Design

5.1 Design for Sustainable Modes

The proposed development is a mid-rise residential building with a hard surface connection provided from the building's main entrance to the existing sidewalk on Montreal Road. Parking for vehicles is proposed via a surface lot comprising 10 spaces, and one underground parking level. Bicycle parking is proposed via a secure bike storage room on the main floor at the rear of the building, accessed via the parking drive aisle, a bike rack adjacent to the main entrance, and in the underground parking level.

Bus stops to routes travelling along Montreal Road past the site frontage are approximately 100 metres-walk and 225 metres-walk, and routes that travel along Codd's Road/Carson's Road are approximately 385 metres- and 400 metres-walk from the main building entrance.

5.2 Circulation and Access

Access for vehicles and bicycles is provided via the six-metre driveway onto Montreal Road. It is assumed that emergency services will access the site via the Montreal Road frontage. Garbage collection is proposed with trucks entering in a forward manner and exiting in reverse.

6 Parking

6.1 Parking Supply

The site plan proposes 33 vehicle parking spaces for tenants and seven for visitors, with 10 within the surface lot and 30 within the underground parking level. Seventy-eight bicycle parking spaces are proposed, nine within a surface rack, and 69 within a secure bicycle room on the main floor at the rear of the building, accessing the parking drive aisle, and in the underground parking level.

Required parking per the zoning by-law is 33 vehicle spaces for tenants and seven vehicle spaces for visitors for a total of 40 vehicle parking spaces, and is 39 bicycle parking spaces.

The proposed parking meets minimum requirements per the zoning by-law.

7 Boundary Street Design

Table 8 summarizes the MMLOS analysis for the boundary street of Montreal Road. The existing and future conditions for the street will be the different and are considered in separate rows. The boundary street analysis is based on the land use designation of "Arterial Main Street". The MMLOS worksheets has been provided in Appendix E.

Table 8: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Montreal Road (existing)	**E**	C	C	C	**D**	C	D	D
Montreal Road (future)	**D**	C	A	C	**D**	C	A	D

Montreal Road will not meet pedestrian or transit LOS targets under either the existing or future conditions.

To meet pedestrian LOS targets, Montreal Road would require a reduction in operating speeds to below 60 km/h or a reduction in traffic along Montreal Road to fewer than 3000 vehicles in the curb lane. It should be noted that the planned conditions include a 2.5-metre-wide sidewalk separated from the road by a 2.0-metre-wide cycletrack, including buffer, and a 3.0-metre-wide boulevard, which still results in pedestrian exposure not meeting that MMLOS target. Despite the MMLOS target not being met, it is assumed that this meets the City's goal as it is the City's proposed concept for Montreal Road.

To meet the transit LOS targets, dedicated transit facilities would be required. The preliminary preferred design for Montreal Road includes bus queue jump lanes at its intersections with Wanaki Road/Bathgate Drive and Codd's Road/Carsons Road, on either side of the site frontage. It is assumed that City objectives are again being met for the roadway.

8 Access Intersections Design

8.1 Location and Design of Access

The proposed development plan includes the removal of the existing west access and the retention of the east access. The access is to be maintained as permitting full movements. The west access will be reinstated to typical conditions including full height curb and sidewalk per City standards.

The access is proposed as being six metres in width with a throat length of approximately 14 metres under existing conditions and approximately 17 metres under ultimate conditions based upon the relocation of the curb proposed as part of the preliminary preferred design of the Montreal-Blair Transit Priority EA study.

Table 8.9.3 in the TAC Geometric Design Guide for Canadian Roads (2017) recommends a throat length of 15 metres for driveways accessing fewer than 100 apartment units. This recommended minimum will be met under the ultimate conditions however will not be met under the existing geometry. No sight issues to or from the active facilities are present for either inbound or outbound vehicles in either condition.

In the existing conditions, storage for a single vehicle is available between the first parking space and the active facilities. Examining the space considerations for two stored vehicles, such a queue of inbound vehicles would extend to within the bike lane and not spill back into the vehicle travel lanes, and a queue of two outbound vehicles stopped in advance of the active facilities would block the first parking stall.

Furthermore, during the PM peak hour, the site would be estimated to generate seven inbound auto trips based upon the typical area mode shares and trip generation rates, which averages to one vehicle every eight-and-a-half

minutes. Given these considerations, the throat length in the existing Montreal Road configuration is considered to be adequate and no queueing is anticipated at the site access.

8.2 Intersection Control

The access intersection is assumed to be maintained as having stop-control on the minor approach, with Montreal Road operating under free-flow conditions.

8.3 Access Intersection Design

8.3.1 Access Intersection MMLOS

The access intersection is not signalized, therefore no access intersection MMLOS analysis has been performed.

8.3.2 Recommended Design Elements

No design elements are recommended outside of the typical private approach considerations.

9 Transportation Demand Management

9.1 Context for TDM

The Montreal-Blair Road Transit Priority Corridor Planning and EA study is currently ongoing and will be recommending future upgrades to the transit and active facilities along the site boundary street and within the surrounding area context to be implemented after site build-out. Supporting TDM measures should be provided to transition towards transit mode adoption within the development in advance of the implementation of the transit priority measures.

The subject site is within the Montreal Road Arterial Mainstreet Design Priority Area.

The total number of bedrooms within the development is 118 with 38 one-bedroom units and 40 two-bedroom units. No age restrictions are noted.

9.2 Need and Opportunity

The subject site does not meet the threshold for the Trip Generation Trigger, therefore it is assumed that low transit and active mode uptake will incur low risk for the surrounding network users.

9.3 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 F. The key TDM measures recommended include:

- Display local walking/cycling area maps and relevant transit schedules and route maps at entrances
- Provide a multi-modal travel option information package to new residents
- Inclusion of a 1-year Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
- Unbundle parking cost from purchase or rental costs

10 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 a mid-rise building comprising 78 dwelling units

- It is proposed that the site plan retain the existing east access onto Montreal Road and the remove the west access onto Montreal Road
- The development is proposed to be completed as a single phase by 2025
- The Safety and Locations Triggers were met for the TIA Screening, but the Trip Generation Trigger was not
- This TIA is in support of a site plan application

Existing Conditions

- Montreal Road is an arterial road, Codd's Road, Carsons Road, Bathgate Drive, and Wanaki Road are collector roads in the study area
- Sidewalks are provided along both sides of Montreal Road, Bathgate Drive, and Carsons Road, and along one side of Codd's Road and Wanaki Road, on-street bike lanes are provided on both sides of Montreal Road west of Bathgate Drive/Wanaki Road, and a two-way cycle track is provided on the east side of Wanaki Road
- Montreal Road is a spine cycling route, Codd's Road, Carsons Road, and Bathgate Drive are local routes
- The high-volume roadways have produced a high number of collisions at the study area intersections, primarily at the Bathgate Drive/Wanaki Road intersection, where most of the collisions were rear end
- Queuing may be observed on the westbound through movement at the intersection of Montreal Road at Bathgate Drive/Wanaki Road during the AM peak hour but generally the intersections operate well

Development Design

- Vehicle parking is proposed via a surface lot and an underground parking level and bicycle parking is proposed via a surface rack, a secure bike room on the main floor, and in the underground parking level
- Pedestrian connections will be made to the main entrance to surrounding sidewalk facilities, and to the auxiliary entrances via the surface parking lot and drive aisle
- Garbage collection vehicles are assumed to enter in a forward manner and exit in a reverse manner, and emergency service may access the site via the Montreal Road right of way
- Area bus routes have stops located within 400 metres-walk of the main building entrance

Parking

- 33 tenant vehicle parking spaces and seven visitor spaces are proposed across the surface lot and underground parking levels, and 78 bicycle parking spaces are proposed across the exterior, main level, and underground parking level
- Proposed parking provision meets the minimum rates per the zoning by-law

Boundary Street Design

- The boundary street will not meet pedestrian LOS targets due to the high volumes and operating speed on Montreal Road and will not meet transit LOS due to the mixed flow conditions
- It is assumed that the proposed improvements from the Montreal-Blair Transit Priority Corridor Planning and EA study meet the City's objectives for the corridor

Access Intersections Design

- The site plan proposes removal the west access and retaining the east access, assumed as stop-controlled on the minor approach, with Montreal Road operating under free-flow conditions

- The proposed access throat length will meet the suggested minimum from the TAC guidelines of 15 metres once Montreal Road is widened, and no issues are noted for the interim throat length of 14 metres

TDM

- Supportive TDM measures to be included within the proposed development should include:
  - Designate a TMD program coordinator
  - Display local walking/cycling area maps and relevant transit schedules and route maps at entrances
  - Provide a multi-modal travel option information package to new residents
  - Inclusion of a 1-year Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
  - Unbundle parking cost from purchase or rental costs

11 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications proceed.

Prepared By:

John Kingsley, EIT
Transportation Engineering-Intern

Reviewed By:

Andrew Harte, P.Eng.
Senior Transportation Engineer

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: 17-Feb-21
Project Number: 2021-021
Project Reference: 971 Montreal Road

1.1 Description of Proposed Development	
Municipal Address	971 Montreal Road
Description of Location	Existing restaurant building and surface parking
Land Use Classification	Arterial Mainstreet 10 (AM10)
Development Size	9-storey apartment, 78 units, 42 parking stalls, 48 bike parking stalls
Accesses	Existing access location (west access to be closed)
Phase of Development	Single phase
Buildout Year	2025
TIA Requirement	Design Review Component

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	78	Units
Trip Generation Trigger	No	

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	Spine route
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes	Montreal Arterial Mainstreet DPA; also St Laurent to Blair Bus Lanes EA is ongoing
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?	No
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)?	Yes
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	Yes
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
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.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
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

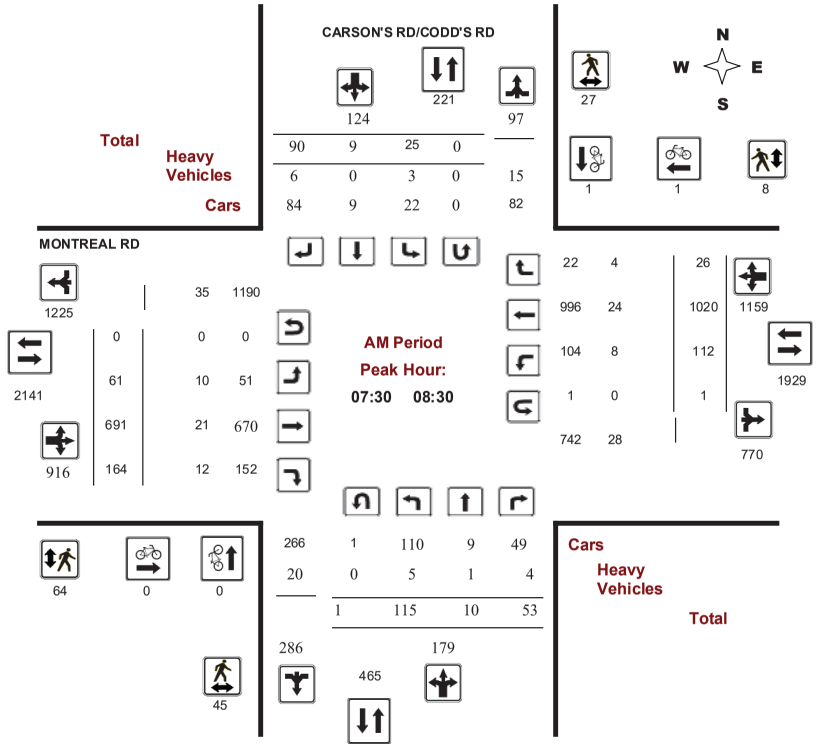
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38341

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



Comments

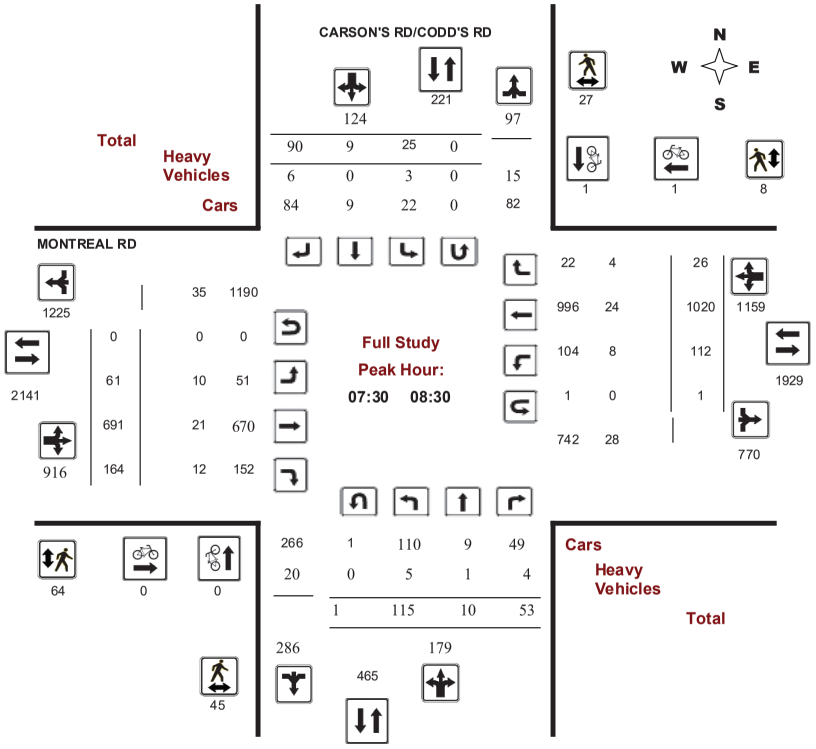
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38341

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



Comments

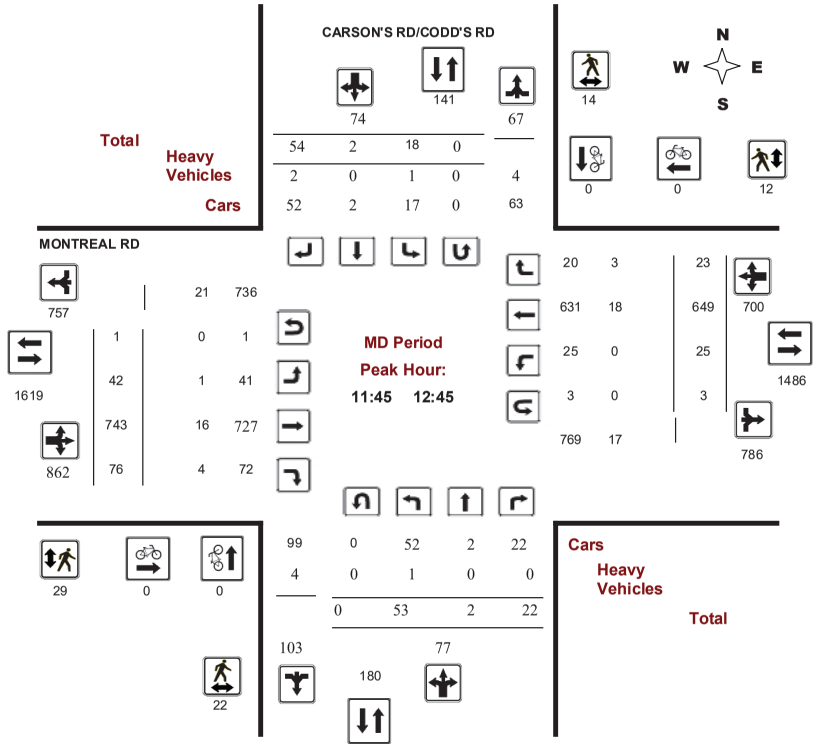
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38341

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



Comments

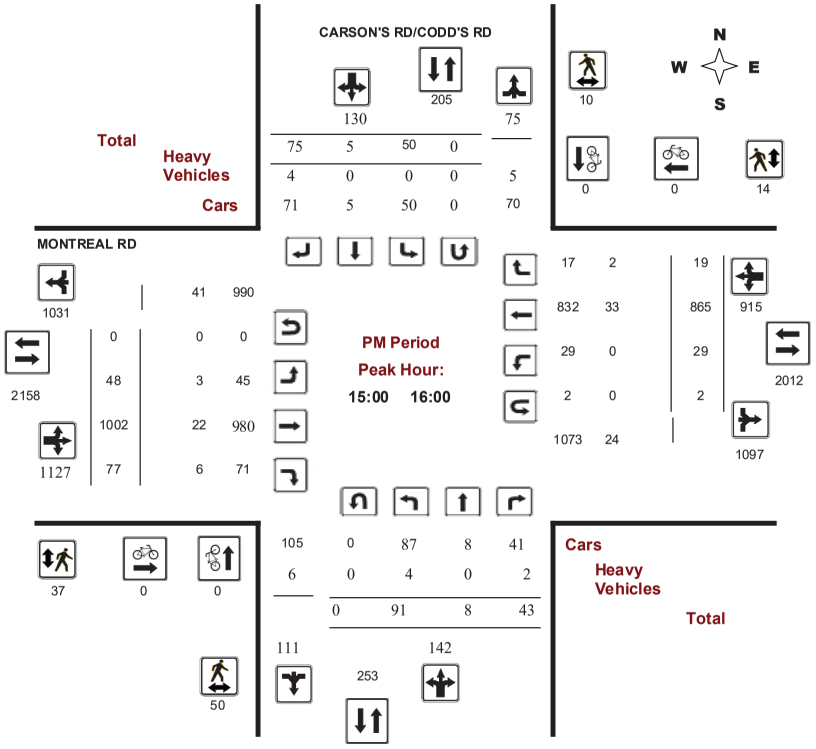
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38341

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



Comments

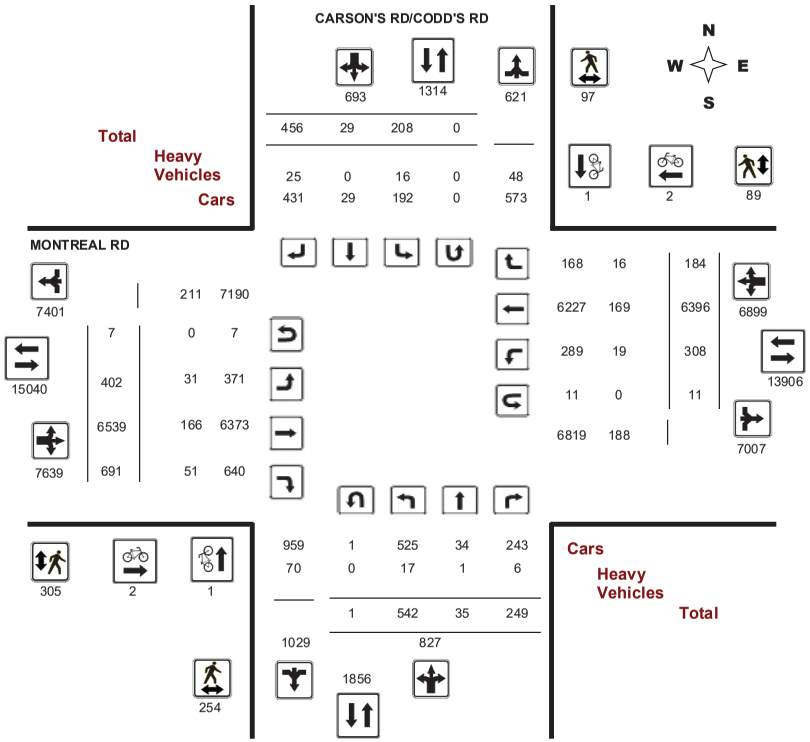
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019 **WO#:** 38341

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 38341

Turning Movement Count - Full Study Summary Report

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 201

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 7 Westbound: 11

AADT Factor 1.00

Full Study

	CARSON'S RD/CODD'S RD									MONTREAL 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	80	3	29	**112**	20	5	63	**88**	**200**	77	615	162	**854**	98	1039	39	**1176**	**2030**	**2230**
08:00 09:00	82	10	38	**130**	27	8	84	**119**	**249**	41	716	99	**856**	51	1034	29	**1114**	**1970**	**2219**
09:00 10:00	41	4	16	**61**	17	1	50	**68**	**129**	39	650	67	**756**	22	724	22	**768**	**1524**	**1653**
11:30 12:30	50	2	17	**69**	15	3	50	**68**	**137**	41	735	80	**856**	28	637	21	**686**	**1542**	**1679**
12:30 13:30	61	2	31	**94**	25	1	33	**59**	**153**	31	635	62	**728**	26	651	21	**698**	**1426**	**1579**
15:00 16:00	91	8	43	**142**	50	5	75	**130**	**272**	48	1002	77	**1127**	29	865	19	**913**	**2040**	**2312**
16:00 17:00	72	2	36	**110**	32	2	60	**94**	**204**	59	1148	73	**1280**	26	781	19	**826**	**2106**	**2310**
17:00 18:00	65	4	39	**108**	22	4	41	**67**	**175**	66	1038	71	**1175**	28	665	14	**707**	**1882**	**2057**
Sub Total	542	35	249	**826**	208	29	456	**693**	**1519**	402	6539	691	**7632**	308	6396	184	**6888**	**14520**	**16039**
U Turns				**1**				**0**	**1**				**7**				**11**	**18**	**19**
Total	542	35	249	**827**	208	29	456	**693**	**1520**	402	6539	691	**7639**	308	6396	184	**6899**	**14538**	**16058**
EQ 12Hr	753	49	346	**1150**	289	40	634	**963**	**2113**	559	9089	960	**10618**	428	8890	256	**9590**	**20208**	**22321**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	**1.39**		
AVG 12Hr	753	49	346	**1150**	289	40	634	**963**	**2113**	559	9089	960	**10618**	428	8890	256	**9590**	**20208**	**22321**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	**1.00**		
AVG 24Hr	987	64	453	**1506**	379	53	830	**1262**	**2768**	732	11907	1258	**13910**	561	11646	335	**12562**	**26472**	**29240**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.																	**1.31**		

Comments:

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

Transportation Services - Traffic Services

W.O. 38341

Turning Movement Count - 15 Minute Summary Report

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 7 Westbound: 11

		CARSON'S RD/CODD'S RD									MONTREAL 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	8	0	3	**11**	4	0	11	**15**	**26**	18	114	20	**152**	5	247	13	**265**	**417**	**443**
07:15	07:30	11	1	3	**15**	3	1	12	**16**	**31**	22	151	33	**206**	11	250	13	**274**	**480**	**511**
07:30	07:45	30	1	7	**38**	7	1	23	**31**	**69**	16	178	51	**245**	38	270	8	**316**	**561**	**630**
07:45	08:00	31	1	16	**48**	6	3	17	**26**	**74**	21	172	58	**251**	44	272	5	**321**	**572**	**646**
08:00	08:15	35	7	22	**64**	9	3	28	**40**	**104**	11	152	36	**199**	22	225	4	**251**	**450**	**554**
08:15	08:30	19	1	8	**29**	3	2	22	**27**	**56**	13	189	19	**221**	8	253	9	**271**	**492**	**548**
08:30	08:45	11	1	4	**16**	8	1	18	**27**	**43**	5	178	20	**204**	7	282	8	**297**	**501**	**544**
08:45	09:00	17	1	4	**22**	7	2	16	**25**	**47**	12	197	24	**233**	14	274	8	**296**	**529**	**576**
09:00	09:15	7	1	3	**11**	7	0	17	**24**	**35**	11	183	18	**213**	5	206	6	**217**	**430**	**465**
09:15	09:30	12	3	4	**19**	6	0	10	**16**	**35**	12	173	12	**197**	8	199	9	**216**	**413**	**448**
09:30	09:45	12	0	6	**18**	3	0	14	**17**	**35**	9	141	13	**163**	7	175	3	**185**	**348**	**383**
09:45	10:00	10	0	3	**13**	1	1	9	**11**	**24**	7	153	24	**185**	2	144	4	**150**	**335**	**359**
11:30	11:45	8	0	2	**10**	4	1	6	**11**	**21**	9	168	22	**199**	9	160	4	**174**	**373**	**394**
11:45	12:00	17	0	7	**24**	5	1	11	**17**	**41**	11	190	22	**223**	6	157	3	**166**	**389**	**430**
12:00	12:15	12	2	2	**16**	5	1	16	**22**	**38**	9	190	14	**214**	6	166	9	**182**	**396**	**434**
12:15	12:30	13	0	6	**19**	1	0	17	**18**	**37**	12	187	22	**221**	7	154	5	**166**	**387**	**424**
12:30	12:45	11	0	7	**18**	7	0	10	**17**	**35**	10	176	18	**204**	6	172	6	**186**	**390**	**425**
12:45	13:00	14	1	9	**24**	7	1	7	**15**	**39**	3	162	19	**184**	13	165	7	**185**	**369**	**408**
13:00	13:15	16	0	6	**22**	6	0	7	**13**	**35**	10	147	12	**169**	2	160	5	**168**	**337**	**372**
13:15	13:30	20	1	9	**30**	5	0	9	**14**	**44**	8	150	13	**171**	5	154	3	**162**	**333**	**377**
15:00	15:15	24	1	16	**41**	14	2	24	**40**	**81**	12	243	25	**280**	7	280	8	**297**	**577**	**658**
15:15	15:30	26	5	11	**42**	11	0	19	**30**	**72**	12	240	14	**266**	8	221	5	**234**	**500**	**572**
15:30	15:45	27	1	8	**36**	18	0	19	**37**	**73**	14	254	19	**287**	7	194	4	**205**	**492**	**565**
15:45	16:00	14	1	8	**23**	7	3	13	**23**	**46**	10	265	19	**294**	7	170	2	**179**	**473**	**519**
16:00	16:15	27	1	12	**40**	8	1	16	**25**	**65**	16	295	14	**325**	6	223	5	**235**	**560**	**625**
16:15	16:30	14	0	7	**21**	10	0	23	**33**	**54**	11	293	19	**323**	3	201	5	**209**	**532**	**586**
16:30	16:45	11	1	9	**21**	11	1	16	**28**	**49**	18	294	19	**331**	7	189	3	**199**	**530**	**579**
16:45	17:00	20	0	8	**28**	3	0	5	**8**	**36**	14	266	21	**301**	10	168	6	**184**	**485**	**521**
17:00	17:15	16	2	11	**29**	9	0	11	**20**	**49**	17	275	14	**307**	8	191	4	**204**	**511**	**560**
17:15	17:30	13	0	16	**29**	5	1	10	**16**	**45**	15	269	12	**298**	5	165	1	**171**	**469**	**514**
17:30	17:45	17	1	8	**26**	2	1	11	**14**	**40**	10	265	18	**293**	5	154	3	**162**	**455**	**495**
17:45	18:00	19	1	4	**24**	6	2	9	**17**	**41**	24	229	27	**280**	10	155	6	**172**	**452**	**493**
TOTAL:		542	35	249	**827**	208	29	456	**693**	**1520**	402	6539	691	**7639**	308	6396	184	**6899**	**14538**	**16058**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 38341

MONTREAL RD @ CARSON'S RD/CODD'S RD

Count Date: Wednesday, January 30, 2019 **Start Time:** 07:00

	CARSON'S RD/CODD'S RD			MONTREAL RD			
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 08:00	0	0	**0**	0	2	**2**	**2**
08:00 09:00	0	1	**1**	0	0	**0**	**1**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	1	0	**1**	0	0	**0**	**1**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	1	0	**1**	**1**
17:00 18:00	0	0	**0**	1	0	**1**	**1**
Total	1	1	**2**	2	2	**4**	**6**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 38341

Turning Movement Count - Heavy Vehicle Report

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019

		CARSON'S RD/CODD'S RD									MONTREAL 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	08:00	6	0	3	**9**	3	0	5	**8**	**17**	12	17	14	**43**	8	23	1	**32**	**75**	**92**
08:00	09:00	1	1	1	**3**	3	0	3	**6**	**9**	4	27	6	**37**	3	30	4	**37**	**74**	**83**
09:00	10:00	3	0	0	**3**	2	0	1	**3**	**6**	2	25	3	**30**	1	19	0	**20**	**50**	**56**
11:30	12:30	1	0	0	**1**	0	0	3	**3**	**4**	1	21	4	**26**	1	16	2	**19**	**45**	**49**
12:30	13:30	1	0	0	**1**	1	0	2	**3**	**4**	1	17	6	**24**	2	21	3	**26**	**50**	**54**
15:00	16:00	4	0	2	**6**	0	0	4	**4**	**10**	3	22	6	**31**	0	33	2	**35**	**66**	**76**
16:00	17:00	1	0	0	**1**	4	0	4	**8**	**9**	5	25	5	**35**	4	13	2	**19**	**54**	**63**
17:00	18:00	0	0	0	**0**	3	0	3	**6**	**6**	3	12	7	**22**	0	14	2	**16**	**38**	**44**
Sub Total		17	1	6	**24**	16	0	25	**41**	**65**	31	166	51	**248**	19	169	16	**204**	**452**	**517**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		17	1	6	**0**	16	0	25	**41**	**65**	31	166	51	**248**	19	169	16	**204**	**452**	**517**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 38341

Turning Movement Count - Pedestrian Volume Report

MONTREAL RD @ CARSON'S RD/CODD'S RD

Count Date: Wednesday, January 30, 2019 **Start Time:** 07:00

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	0	**0**	6	0	**6**	**6**
07:15	07:30	12	2	**14**	11	2	**13**	**27**
07:30	07:45	8	8	**16**	21	1	**22**	**38**
07:45	08:00	19	6	**25**	17	5	**22**	**47**
07:00	08:00	39	16	**55**	55	8	**63**	**118**
08:00	08:15	10	2	**12**	18	2	**20**	**32**
08:15	08:30	8	11	**19**	8	0	**8**	**27**
08:30	08:45	7	5	**12**	7	5	**12**	**24**
08:45	09:00	6	3	**9**	15	2	**17**	**26**
08:00	09:00	31	21	**52**	48	9	**57**	**109**
09:00	09:15	5	0	**5**	10	1	**11**	**16**
09:15	09:30	3	4	**7**	5	4	**9**	**16**
09:30	09:45	3	1	**4**	13	0	**13**	**17**
09:45	10:00	1	1	**2**	2	0	**2**	**4**
09:00	10:00	12	6	**18**	30	5	**35**	**53**
11:30	11:45	9	1	**10**	6	3	**9**	**19**
11:45	12:00	2	5	**7**	9	4	**13**	**20**
12:00	12:15	4	5	**9**	6	3	**9**	**18**
12:15	12:30	11	2	**13**	9	4	**13**	**26**
11:30	12:30	26	13	**39**	30	14	**44**	**83**
12:30	12:45	5	2	**7**	5	1	**6**	**13**
12:45	13:00	4	1	**5**	2	4	**6**	**11**
13:00	13:15	7	2	**9**	10	0	**10**	**19**
13:15	13:30	10	2	**12**	18	3	**21**	**33**
12:30	13:30	26	7	**33**	35	8	**43**	**76**
15:00	15:15	16	1	**17**	15	2	**17**	**34**
15:15	15:30	16	2	**18**	9	3	**12**	**30**
15:30	15:45	8	6	**14**	8	5	**13**	**27**
15:45	16:00	10	1	**11**	5	4	**9**	**20**
15:00	16:00	50	10	**60**	37	14	**51**	**111**
16:00	16:15	12	7	**19**	12	8	**20**	**39**
16:15	16:30	13	4	**17**	12	1	**13**	**30**
16:30	16:45	6	4	**10**	8	4	**12**	**22**
16:45	17:00	7	1	**8**	5	3	**8**	**16**
16:00	17:00	38	16	**54**	37	16	**53**	**107**
17:00	17:15	8	0	**8**	5	3	**8**	**16**
17:15	17:30	5	4	**9**	13	4	**17**	**26**
17:30	17:45	7	4	**11**	8	5	**13**	**24**
17:45	18:00	12	0	**12**	7	3	**10**	**22**
17:00	18:00	32	8	**40**	33	15	**48**	**88**
Total	.....	254	97	**351**	305	89	**394**	**745**

Comment:

Transportation Services - Traffic Services

Work Order 38341

Turning Movement Count - 15 Min U-Turn Total Report

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Wednesday, January 30, 2019

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	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	1	0	0	1	2
08:30	08:45	0	0	1	0	1
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	1	0	1
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	1	0	1
11:30	11:45	0	0	0	1	1
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	1	1	2
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	2	2
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	1	1
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	2	2
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	1	1
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	1	1	2
17:15	17:30	0	0	2	0	2
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	1	1
Total		1	0	7	11	19

Transportation Services - Traffic Services

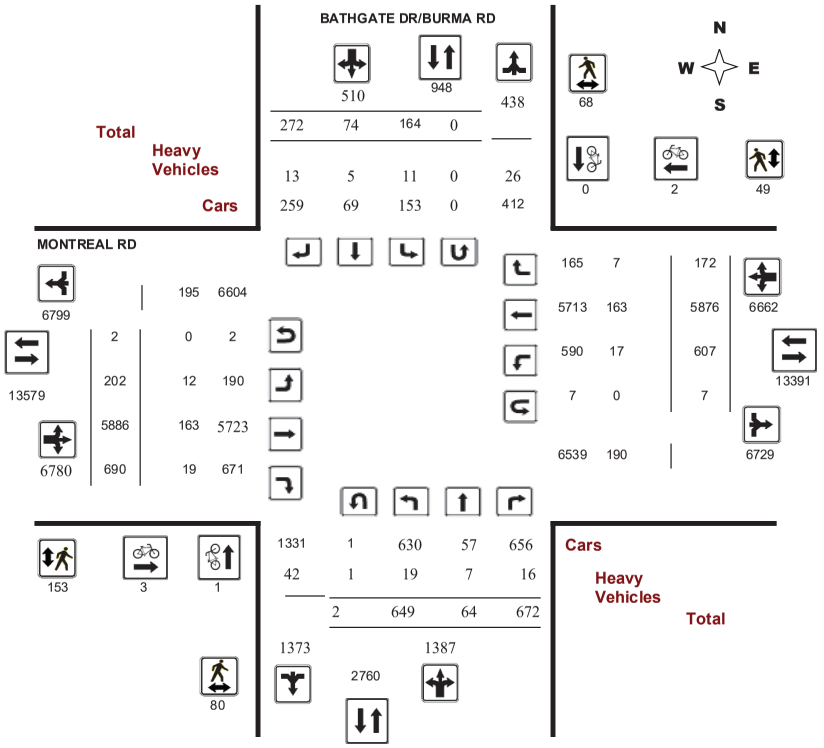
Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Diagram



Transportation Services - Traffic Services

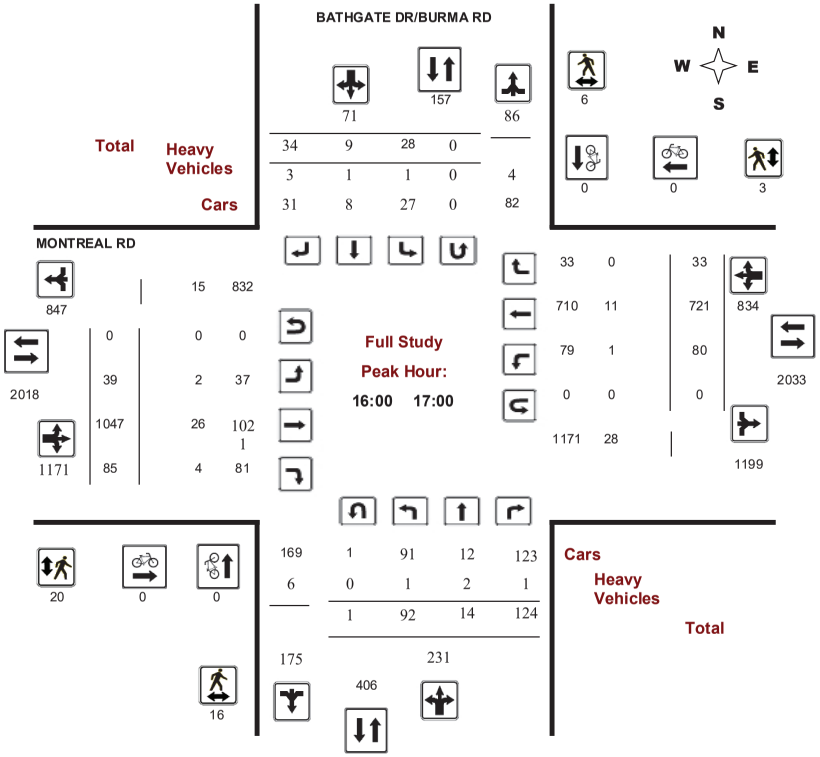
Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Peak Hour Diagram



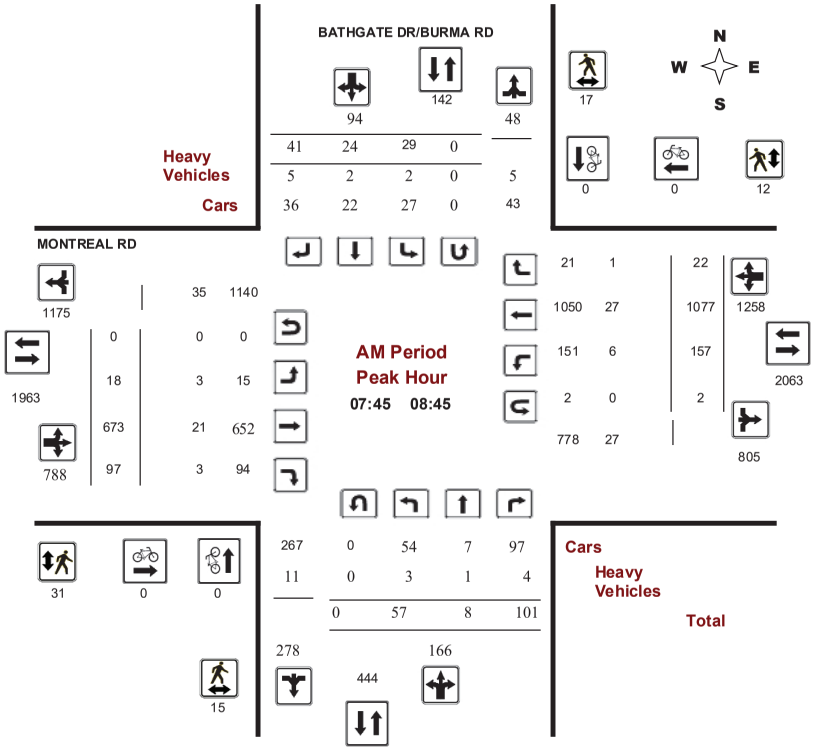
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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



Comments

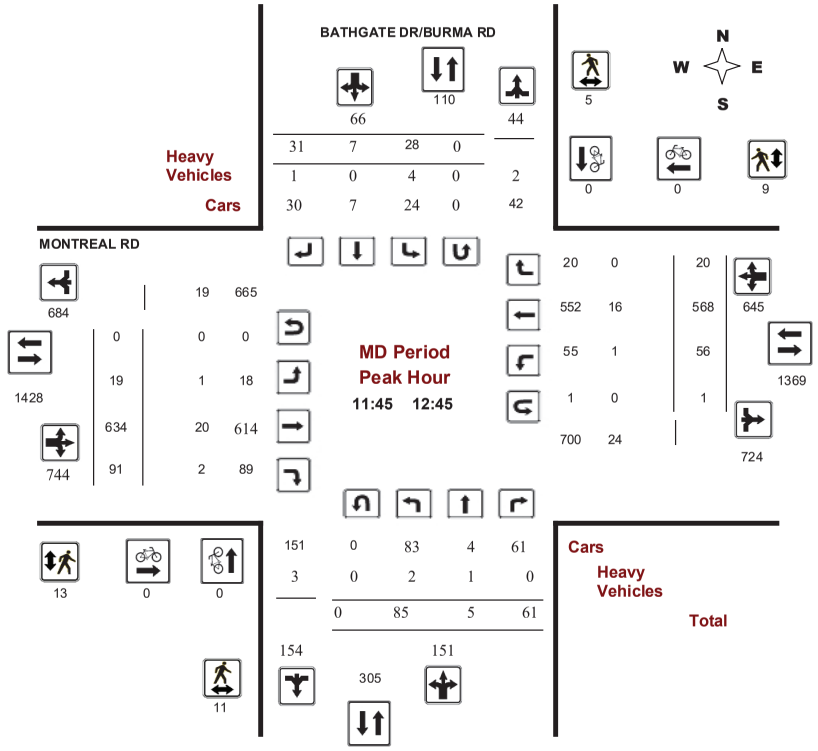
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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



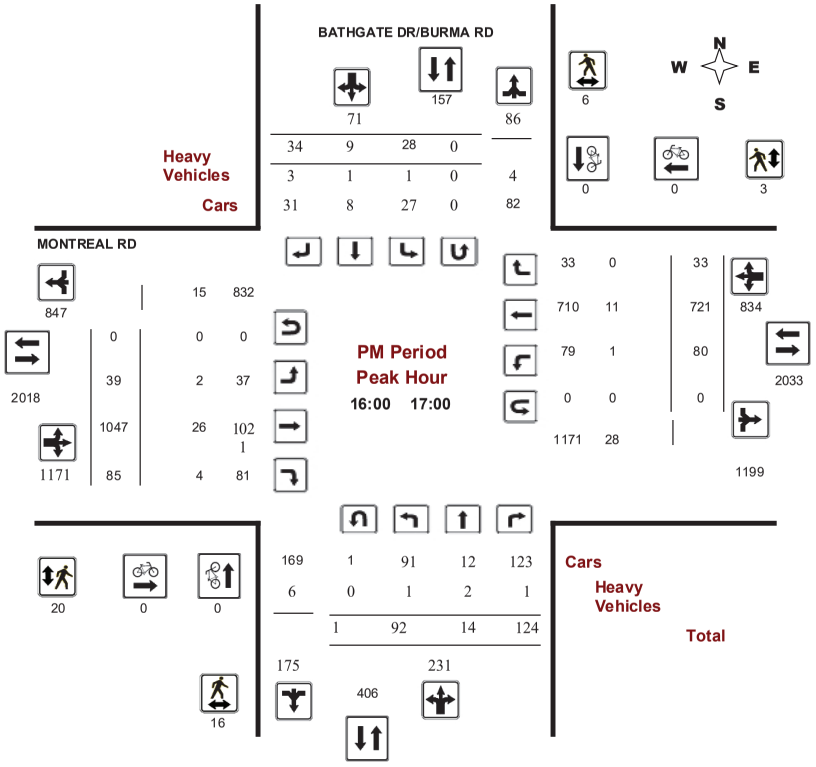
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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



Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, January 30, 201

Total Observed U-Turns

Northbound: 2 Southbound: 0

Eastbound: 2 Westbound: 7

AADT Factor 1.00

	BATHGATE DR/BURMA RD									MONTREAL 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	63	0	72	**135**	29	13	47	**89**	**224**	12	518	91	**621**	102	1044	15	**1161**	**1782**	**2006**
08:00 09:00	63	12	101	**176**	23	24	33	**80**	**256**	22	702	84	**808**	133	1008	22	**1163**	**1971**	**2227**
09:00 10:00	61	7	74	**142**	12	6	39	**57**	**199**	21	565	92	**678**	47	663	19	**729**	**1407**	**1606**
11:30 12:30	89	6	64	**159**	25	6	32	**63**	**222**	16	608	93	**717**	67	567	16	**650**	**1367**	**1589**
12:30 13:30	83	7	81	**171**	16	3	35	**54**	**225**	20	574	73	**667**	57	563	15	**635**	**1302**	**1527**
15:00 16:00	105	9	81	**195**	17	4	27	**48**	**243**	28	957	84	**1069**	62	747	29	**838**	**1907**	**2150**
16:00 17:00	92	14	124	**230**	28	9	34	**71**	**301**	39	1047	85	**1171**	80	721	33	**834**	**2005**	**2306**
17:00 18:00	93	9	75	**177**	14	9	25	**48**	**225**	44	915	88	**1047**	59	563	23	**645**	**1692**	**1917**
Sub Total	649	64	672	**1385**	164	74	272	**510**	**1895**	202	5886	690	**6778**	607	5876	172	**6655**	**13433**	**15328**
U Turns	2			**2**	0			**0**	**2**	**2**			**2**	7			**7**	**9**	**11**
Total	651	64	672	**1387**	164	74	272	**510**	**1897**	204	5886	690	**6780**	614	5876	172	**6662**	**13442**	**15339**
EQ 12Hr	905	89	934	**1928**	228	103	378	**709**	**2637**	284	8182	959	**9425**	853	8168	239	**9260**	**18685**	**21322**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	905	89	934	**1928**	228	103	378	**709**	**2637**	284	8182	959	**9425**	853	8168	239	**9260**	**18685**	**21322**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	1186	117	1224	**2527**	299	135	495	**929**	**3456**	372	10718	1256	**12346**	1117	10700	313	**12130**	**24476**	**27932**
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

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study 15 Minute Increments

		BATHGATE DR/BURMA RD									MONTREAL 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	14	0	11	25	6	2	5	13	**38**	4	98	9	111	16	226	3	245	**356**	**394**
07:15	07:30	14	0	16	30	6	3	13	22	**52**	2	127	19	148	19	230	5	254	**402**	**454**
07:30	07:45	19	0	23	42	8	2	14	24	**66**	4	144	28	176	25	294	3	322	**498**	**564**
07:45	08:00	16	0	22	38	9	6	15	30	**68**	2	149	35	186	42	294	4	340	**526**	**594**
08:00	08:15	16	3	28	47	7	7	6	20	**67**	5	188	24	217	32	289	2	323	**540**	**607**
08:15	08:30	10	4	21	35	8	4	12	24	**59**	7	170	16	193	43	238	6	287	**480**	**539**
08:30	08:45	15	1	30	46	5	7	8	20	**66**	4	166	22	192	42	256	10	308	**500**	**566**
08:45	09:00	22	4	22	48	3	6	7	16	**64**	6	178	22	206	18	225	4	247	**453**	**517**
09:00	09:15	17	1	17	35	4	0	12	16	**51**	6	162	27	195	8	199	3	210	**405**	**456**
09:15	09:30	16	1	16	33	3	3	13	19	**52**	3	150	28	181	9	183	5	197	**378**	**430**
09:30	09:45	17	3	13	33	4	1	8	13	**46**	8	113	19	140	15	155	5	175	**315**	**361**
09:45	10:00	11	2	28	41	1	2	6	9	**50**	5	140	18	163	15	126	6	147	**310**	**360**
11:30	11:45	22	2	20	44	3	1	7	11	**55**	1	122	30	153	20	152	3	175	**328**	**383**
11:45	12:00	20	1	17	38	5	3	9	17	**55**	6	159	21	186	18	138	7	163	**349**	**404**
12:00	12:15	22	2	13	37	8	0	11	19	**56**	3	171	20	194	13	152	5	170	**364**	**420**
12:15	12:30	25	1	14	40	9	2	5	16	**56**	6	156	22	184	17	125	1	143	**327**	**383**
12:30	12:45	18	1	17	36	6	2	6	14	**50**	4	148	28	180	9	153	7	169	**349**	**399**
12:45	13:00	21	3	20	44	3	0	13	16	**60**	3	144	21	168	18	143	4	165	**333**	**393**
13:00	13:15	22	2	24	48	3	1	12	16	**64**	5	133	14	152	18	119	4	141	**293**	**357**
13:15	13:30	22	1	20	43	4	0	4	8	**51**	8	149	10	167	13	148	0	161	**328**	**379**
15:00	15:15	37	2	17	56	5	1	10	16	**72**	6	252	20	278	18	235	3	256	**534**	**606**
15:15	15:30	22	4	18	44	3	0	4	7	**51**	4	225	24	253	10	202	10	222	**475**	**526**
15:30	15:45	23	2	26	51	3	0	10	13	**64**	12	242	25	279	22	154	8	184	**463**	**527**
15:45	16:00	23	1	20	44	6	3	3	12	**56**	7	238	15	260	15	156	8	179	**439**	**495**
16:00	16:15	23	3	31	57	8	3	6	17	**74**	6	262	29	297	15	210	12	237	**534**	**608**
16:15	16:30	22	3	27	52	3	1	10	14	**66**	11	271	26	308	26	176	10	212	**520**	**586**
16:30	16:45	21	6	37	64	8	1	9	18	**82**	7	257	17	281	17	167	6	190	**471**	**553**
16:45	17:00	27	2	29	58	9	4	9	22	**80**	15	257	13	285	22	168	5	195	**480**	**560**
17:00	17:15	23	1	19	43	2	6	5	13	**56**	9	241	19	269	14	154	3	171	**440**	**496**
17:15	17:30	21	1	24	46	2	0	5	7	**53**	8	247	20	275	22	151	7	180	**455**	**508**
17:30	17:45	24	4	15	43	4	2	5	11	**54**	17	225	31	273	8	129	8	145	**418**	**472**
17:45	18:00	26	3	17	46	6	1	10	17	**63**	10	202	18	230	15	129	5	149	**379**	**442**
Total:		651	64	672	1387	164	74	272	510	**1897**	204	5886	690	6780	614	5876	172	6662	**1897**	**15,339**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Cyclist Volume

Time Period		BATHGATE DR/BURMA RD			MONTREAL RD			
		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	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	0	**0**	1	0	**1**	**1**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	1	**1**	**1**
15:30	15:45	0	0	**0**	2	0	**2**	**2**
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	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	0	**1**	3	2	**5**	**6**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Pedestrian Volume

Time Period	BATHGATE DR/BURMA RD			MONTREAL RD			
	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**	9	1	**10**	**12**
07:15 07:30	4	1	**5**	4	0	**4**	**9**
07:30 07:45	1	3	**4**	13	2	**15**	**19**
07:45 08:00	3	5	**8**	12	4	**16**	**24**
08:00 08:15	3	3	**6**	6	3	**9**	**15**
08:15 08:30	8	7	**15**	8	4	**12**	**27**
08:30 08:45	1	2	**3**	5	1	**6**	**9**
08:45 09:00	4	8	**12**	6	7	**13**	**25**
09:00 09:15	3	1	**4**	6	0	**6**	**10**
09:15 09:30	1	0	**1**	5	0	**5**	**6**
09:30 09:45	0	4	**4**	3	4	**7**	**11**
09:45 10:00	2	1	**3**	5	0	**5**	**8**
11:30 11:45	1	0	**1**	0	1	**1**	**2**
11:45 12:00	2	2	**4**	4	3	**7**	**11**
12:00 12:15	3	0	**3**	2	0	**2**	**5**
12:15 12:30	5	3	**8**	5	3	**8**	**16**
12:30 12:45	1	0	**1**	2	3	**5**	**6**
12:45 13:00	0	2	**2**	3	2	**5**	**7**
13:00 13:15	2	0	**2**	4	1	**5**	**7**
13:15 13:30	2	0	**2**	2	0	**2**	**4**
15:00 15:15	2	2	**4**	3	2	**5**	**9**
15:15 15:30	1	4	**5**	4	0	**4**	**9**
15:30 15:45	3	5	**8**	6	1	**7**	**15**
15:45 16:00	1	0	**1**	1	0	**1**	**2**
16:00 16:15	2	1	**3**	3	0	**3**	**6**
16:15 16:30	8	2	**10**	10	0	**10**	**20**
16:30 16:45	1	0	**1**	0	1	**1**	**2**
16:45 17:00	5	3	**8**	7	2	**9**	**17**
17:00 17:15	0	0	**0**	2	0	**2**	**2**
17:15 17:30	4	1	**5**	5	1	**6**	**11**
17:30 17:45	3	5	**8**	5	3	**8**	**16**
17:45 18:00	4	1	**5**	3	0	**3**	**8**
Total	80	68	**148**	153	49	**202**	**350**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study Heavy Vehicles

BATHGATE DR/BURMA RD **MONTREAL RD**

Time Period		Northbound				Southbound					Eastbound				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	1	0	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	0	4	0	**4**	**5**	**6**
07:15	07:30	1	0	0	**1**	2	0	0	**2**	**3**	1	3	0	**4**	0	9	0	**9**	**13**	**16**
07:30	07:45	2	0	4	**6**	0	1	0	**1**	**7**	2	4	1	**7**	1	7	1	**9**	**16**	**23**
07:45	08:00	1	0	0	**1**	0	0	3	**3**	**4**	1	5	2	**8**	3	8	1	**12**	**20**	**24**
08:00	08:15	1	1	1	**3**	1	1	0	**2**	**5**	1	4	1	**6**	1	8	0	**9**	**15**	**20**
08:15	08:30	0	0	1	**1**	1	0	1	**2**	**3**	1	2	0	**3**	0	6	0	**6**	**9**	**12**
08:30	08:45	1	0	2	**3**	0	1	1	**2**	**5**	0	10	0	**10**	2	5	0	**7**	**17**	**22**
08:45	09:00	0	1	0	**1**	0	1	1	**2**	**3**	1	6	1	**8**	0	9	0	**9**	**17**	**20**
09:00	09:15	0	0	0	**0**	0	0	1	**1**	**1**	1	6	0	**7**	0	4	0	**4**	**11**	**12**
09:15	09:30	0	1	0	**1**	0	0	0	**0**	**1**	0	6	0	**6**	0	6	0	**6**	**12**	**13**
09:30	09:45	1	0	0	**1**	0	0	0	**0**	**1**	0	5	0	**5**	1	3	0	**4**	**9**	**10**
09:45	10:00	1	0	1	**2**	0	0	0	**0**	**2**	0	7	1	**8**	2	3	1	**6**	**14**	**16**
11:30	11:45	1	0	1	**2**	0	0	0	**0**	**2**	0	9	0	**9**	1	2	1	**4**	**13**	**15**
11:45	12:00	0	0	0	**0**	1	0	0	**1**	**1**	0	6	0	**6**	0	5	0	**5**	**11**	**12**
12:00	12:15	0	1	0	**1**	1	0	1	**2**	**3**	0	3	0	**3**	1	2	0	**3**	**6**	**9**
12:15	12:30	2	0	0	**2**	1	0	0	**1**	**3**	1	5	0	**6**	0	5	0	**5**	**11**	**14**
12:30	12:45	0	0	0	**0**	1	0	0	**1**	**1**	0	6	2	**8**	0	4	0	**4**	**12**	**13**
12:45	13:00	1	0	1	**2**	0	0	1	**1**	**3**	0	5	0	**5**	0	6	0	**6**	**11**	**14**
13:00	13:15	1	0	0	**1**	0	0	0	**0**	**1**	0	6	1	**7**	1	8	0	**9**	**16**	**17**
13:15	13:30	1	0	0	**1**	0	0	0	**0**	**1**	1	5	1	**7**	0	2	0	**2**	**9**	**10**
15:00	15:15	0	0	0	**0**	0	0	1	**1**	**1**	0	7	1	**8**	1	11	1	**13**	**21**	**22**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	4	3	**7**	1	7	0	**8**	**15**	**15**
15:30	15:45	0	0	2	**2**	1	0	0	**1**	**3**	0	5	0	**5**	0	9	0	**9**	**14**	**17**
15:45	16:00	2	1	2	**5**	1	0	0	**1**	**6**	0	3	1	**4**	0	5	0	**5**	**9**	**15**
16:00	16:15	1	1	1	**3**	1	1	0	**2**	**5**	1	5	2	**8**	1	2	0	**3**	**11**	**16**
16:15	16:30	0	1	0	**1**	0	0	3	**3**	**4**	1	9	0	**10**	0	3	0	**3**	**13**	**17**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	5	2	**7**	0	2	0	**2**	**9**	**9**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	4	0	**4**	**11**	**11**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	4	0	**4**	**6**	**7**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	1	1	1	**3**	**8**	**8**
17:30	17:45	1	0	0	**1**	0	0	0	**0**	**1**	0	3	0	**3**	0	5	0	**5**	**8**	**9**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	4	1	**5**	**9**	**9**
Total:	None	19	7	16	**42**	11	5	13	**29**	**71**	12	163	19	**194**	17	163	7	**187**	**381**	**453**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ BATHGATE DR/BURMA RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38340

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

Full Study 15 Minute U-Turn Total

BATHGATE DR/BURMA RD **MONTREAL 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	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	1	**1**
08:30	08:45	0	0	0	1	**1**
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	1	0	**1**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	1	**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	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	2	**2**
15:15	15:30	0	0	1	0	**1**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	1	**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	1	0	0	0	**1**
17:00	17:15	1	0	0	0	**1**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		2	0	2	7	**11**

Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	61	691	113	1020	116	10	25	9
Future Volume (vph)	61	691	113	1020	116	10	25	9
Lane Group Flow (vph)	68	950	126	1162	129	70	28	110
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.7	29.0	29.0	29.0	35.5	35.5	35.5	35.5
Total Split (s)	13.0	80.0	67.0	67.0	40.0	40.0	40.0	40.0
Total Split (%)	10.8%	66.7%	55.8%	55.8%	33.3%	33.3%	33.3%	33.3%
Maximum Green (s)	8.3	74.0	61.0	61.0	33.5	33.5	33.5	33.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.3	2.3	2.3	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	6.0	6.0	6.0	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		16.0	16.0	16.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)		45	27	27	8	8	64	64
Act Effct Green (s)	83.5	82.2	72.1	72.1	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.70	0.68	0.60	0.60	0.21	0.21	0.21	0.21
v/c Ratio	0.27	0.45	0.43	0.59	0.56	0.20	0.12	0.31
Control Delay	9.7	9.6	22.0	18.3	50.8	13.2	37.0	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	9.6	22.0	18.3	50.8	13.2	37.0	11.1
LOS	A	A	C	B	D	B	D	B
Approach Delay		9.6		18.7		37.6		16.3
Approach LOS		A		B		D		B
Queue Length 50th (m)	5.2	51.2	17.1	94.8	26.2	2.0	5.2	1.8
Queue Length 95th (m)	10.1	64.7	36.8	121.3	46.1	13.6	13.0	16.1
Internal Link Dist (m)		387.3		325.3		481.5		339.9
Turn Bay Length (m)	80.0		70.0		35.0		25.0	
Base Capacity (vph)	263	2125	291	1974	305	436	312	441
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.45	0.43	0.59	0.42	0.16	0.09	0.25

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 16.5 — Intersection LOS: B
Intersection Capacity Utilization 72.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Carsons/Codd's & Montreal

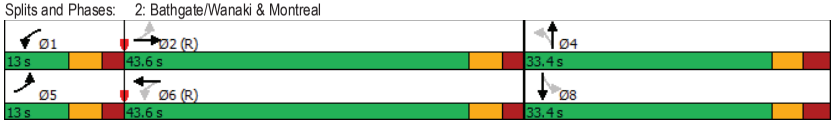
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	673	159	1077	57	8	29	24
Future Volume (vph)	18	673	159	1077	57	8	29	24
Lane Group Flow (vph)	20	856	177	1221	63	121	32	73
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	34.1	11.1	34.1	33.4	33.4	33.4	33.4
Total Split (s)	13.0	43.6	13.0	43.6	33.4	33.4	33.4	33.4
Total Split (%)	14.4%	48.4%	14.4%	48.4%	37.1%	37.1%	37.1%	37.1%
Maximum Green (s)	6.9	37.5	6.9	37.5	27.0	27.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	3.1	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
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		11.0		11.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		17.0		17.0	20.0	20.0	20.0	20.0
Pedestrian Calls (#/hr)		15		17	12	12	31	31
Act Effct Green (s)	50.3	44.3	55.0	52.2	20.2	20.2	20.2	20.2
Actuated g/C Ratio	0.56	0.49	0.61	0.58	0.22	0.22	0.22	0.22
v/c Ratio	0.09	0.54	0.52	0.64	0.24	0.30	0.13	0.21
Control Delay	9.8	18.6	15.0	18.6	27.8	7.8	25.3	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	18.6	15.0	18.6	27.8	7.8	25.3	12.7
LOS	A	B	B	B	C	A	C	B
Approach Delay		18.4		18.1		14.6		16.5
Approach LOS		B		B		B		B
Queue Length 50th (m)	1.4	58.6	14.1	72.3	8.0	1.1	4.0	3.3
Queue Length 95th (m)	4.4	78.1	24.4	#142.5	17.8	12.9	10.7	13.0
Internal Link Dist (m)		97.1		753.2		588.1		163.5
Turn Bay Length (m)			60.0		45.0		30.0	
Base Capacity (vph)	233	1587	344	1897	350	508	335	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.54	0.51	0.64	0.18	0.24	0.10	0.16

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 30 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Bathgate/Wanaki & Montreal



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	48	1002	31	865	91	8	50	5
Future Volume (vph)	48	1002	31	865	91	8	50	5
Lane Group Flow (vph)	53	1199	34	982	101	57	56	89
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.7	29.0	29.0	29.0	35.5	35.5	35.5	35.5
Total Split (s)	15.0	82.0	67.0	67.0	38.0	38.0	38.0	38.0
Total Split (%)	12.5%	68.3%	55.8%	55.8%	31.7%	31.7%	31.7%	31.7%
Maximum Green (s)	10.3	76.0	61.0	61.0	31.5	31.5	31.5	31.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.3	2.3	2.3	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	6.0	6.0	6.0	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		16.0	16.0	16.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)		50	10	10	14	14	37	37
Act Effct Green (s)	86.8	85.5	76.1	76.1	22.0	22.0	22.0	22.0
Actuated g/C Ratio	0.72	0.71	0.63	0.63	0.18	0.18	0.18	0.18
v/c Ratio	0.15	0.52	0.14	0.48	0.48	0.19	0.25	0.28
Control Delay	7.4	9.9	10.7	9.7	49.4	14.1	41.3	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	9.9	10.7	9.7	49.4	14.1	41.3	11.1
LOS	A	A	B	A	D	B	D	B
Approach Delay		9.8		9.7		36.7		22.8
Approach LOS		A		A		D		C
Queue Length 50th (m)	4.0	74.3	2.3	36.8	19.9	1.6	10.5	1.1
Queue Length 95th (m)	8.3	91.6	5.7	44.2	36.6	12.2	21.9	14.0
Internal Link Dist (m)		387.3		325.3		481.5		339.9
Turn Bay Length (m)	80.0		70.0		35.0		25.0	
Base Capacity (vph)	382	2306	246	2051	301	416	324	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.52	0.14	0.48	0.34	0.14	0.17	0.21

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 16 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 12.2 — Intersection LOS: B
Intersection Capacity Utilization 72.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Carsons/Codd's & Montreal

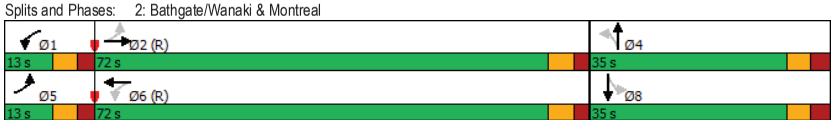
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	39	1047	80	721	93	14	28	9
Future Volume (vph)	39	1047	80	721	93	14	28	9
Lane Group Flow (vph)	43	1257	89	838	103	154	31	48
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	34.1	11.1	34.1	33.4	33.4	33.4	33.4
Total Split (s)	13.0	72.0	13.0	72.0	35.0	35.0	35.0	35.0
Total Split (%)	10.8%	60.0%	10.8%	60.0%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	6.9	65.9	6.9	65.9	28.6	28.6	28.6	28.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	3.1	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
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		11.0		11.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		17.0		17.0	20.0	20.0	20.0	20.0
Pedestrian Calls (#/hr)		16		6	3	3	20	20
Act Effct Green (s)	82.3	75.8	85.0	78.9	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.69	0.63	0.71	0.66	0.15	0.15	0.15	0.15
v/c Ratio	0.10	0.61	0.32	0.39	0.55	0.45	0.22	0.20
Control Delay	5.9	12.7	8.6	11.8	56.0	13.0	44.6	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	12.7	8.6	11.8	56.0	13.0	44.6	17.5
LOS	A	B	A	B	E	B	D	B
Approach Delay		12.5		11.5		30.2		28.1
Approach LOS		B		B		C		C
Queue Length 50th (m)	2.0	63.2	4.3	42.3	23.4	3.4	6.7	2.1
Queue Length 95th (m)	m5.8	78.5	12.3	74.0	37.5	20.1	14.5	11.7
Internal Link Dist (m)		97.1		753.2		588.1		163.5
Turn Bay Length (m)			60.0		45.0		30.0	
Base Capacity (vph)	426	2063	285	2163	294	455	222	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.61	0.31	0.39	0.35	0.34	0.14	0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 78.3% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Bathgate/Wanaki & Montreal



Appendix D

Collision Data

CGH TRANSPORTATION

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2015-01-16	2015	8:26	HOCHELAGA ST @ MONTREAL RD	03 - Snow	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	05 - Packed snow
2018-05-20	2018	13:31	HOCHELAGA ST @ MONTREAL RD (0007649)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2015-03-21	2015	18:24	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	05 - Dusk	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-06-04	2015	20:07	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-07-29	2015	12:26	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2015-07-28	2015	7:40	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-03-17	2015	16:15	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2015-01-15	2015	7:08	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	03 - Dawn	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-01-12	2015	8:49	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2015-03-07	2015	10:38	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-02-12	2015	8:44	MONTREAL RD @ BATHGATE DR/BURMA RD	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2015-11-09	2015	11:03	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-03-18	2016	18:47	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	05 - Dusk	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2016-01-07	2016	13:16	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	02 - Wet
2016-01-29	2016	8:46	MONTREAL RD @ BATHGATE DR/BURMA RD	03 - Snow	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	02 - Wet
2016-12-18	2016	0:16	MONTREAL RD @ BATHGATE DR/BURMA RD	03 - Snow	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	05 - Packed snow
2016-02-25	2016	18:10	MONTREAL RD @ BATHGATE DR/BURMA RD	04 - Freezing Rain	05 - Dusk	01 - Traffic signal		03 - P.D. only	05 - Turning movement	06 - Ice
2016-02-26	2016	1:50	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2016-02-14	2016	0:39	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
2016-01-29	2016	8:30	MONTREAL RD @ BATHGATE DR/BURMA RD	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	07 - SMV other	04 - Slush
2017-06-23	2017	9:14	MONTREAL RD @ BATHGATE DR/BURMA RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2017-08-21	2017	13:22	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2017-08-21	2017	15:21	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-11-16	2017	13:22	MONTREAL RD @ BATHGATE DR/BURMA RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-01-15	2017	22:12	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-01-26	2017	16:52	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	05 - Dusk	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	02 - Wet
2017-04-14	2017	4:20	MONTREAL RD @ BATHGATE DR/BURMA RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2017-04-06	2017	17:36	MONTREAL RD @ BATHGATE DR/BURMA RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
2018-01-21	2018	23:09	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	07 - SMV other	05 - Packed snow
2018-10-21	2018	11:58	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-11-26	2018	11:42	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2018-12-31	2018	18:30	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	06 - Ice
2019-03-10	2019	7:21	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	03 - Snow	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	05 - Packed snow
2019-06-04	2019	21:45	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-09-03	2019	16:45	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-10-16	2019	22:08	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	02 - Rain	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	02 - Wet
2019-10-01	2019	16:12	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	07 - SMV other	02 - Wet
2019-09-26	2019	9:14	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-10-23	2019	9:08	MONTREAL RD @ BATHGATE DR/BURMA RD (0007650)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2015-05-29	2015	18:00	MONTREAL RD @ FOXVIEW PL/DESLOGES PRIV	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2016-06-16	2016	15:01	MONTREAL RD @ FOXVIEW PL/DESLOGES PRIV	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2017-08-30	2017	9:38	MONTREAL RD @ FOXVIEW PL/DESLOGES PRIV	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	04 - Sideswipe	01 - Dry
2017-03-04	2017	12:22	MONTREAL RD @ FOXVIEW PL/DESLOGES PRIV	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
2018-01-15	2018	18:15	MONTREAL RD @ FOXVIEW PL/DESLOGES PRIV (0008207)	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
2015-05-29	2015	15:41	MONTREAL RD btwn FOXVIEW PL & HOCHELAGA ST	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	07 - SMV other	01 - Dry
2018-11-29	2018	11:19	MONTREAL RD btwn FOXVIEW PL & HOCHELAGA ST (__3ZA2D4)	03 - Snow	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	02 - Wet
2015-12-16	2015	16:49	MONTREAL RD btwn HOCHELAGA ST & BURMA RD	01 - Clear	05 - Dusk	10 - No control		03 - P.D. only	03 - Rear end	01 - Dry
2018-04-10	2018	18:00	MONTREAL RD btwn HOCHELAGA ST & BURMA RD (__3ZA2D5)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	07 - SMV other	01 - Dry
2018-11-06	2018	7:10	MONTREAL RD btwn HOCHELAGA ST & BURMA RD (__3ZA2D5)	02 - Rain	03 - Dawn	10 - No control		03 - P.D. only	03 - Rear end	02 - Wet
2019-07-09	2019	7:31	MONTREAL RD btwn HOCHELAGA ST & BURMA RD (__3ZA2D5)	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	01 - Approaching	01 - Dry
2019-10-28	2019	7:50	MONTREAL RD btwn HOCHELAGA ST & BURMA RD (__3ZA2D5)	02 - Rain	01 - Daylight	10 - No control		03 - P.D. only	03 - Rear end	02 - Wet
2019-11-09	2019	19:17	MONTREAL RD btwn HOCHELAGA ST & BURMA RD (__3ZA2D5)	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	07 - SMV other	01 - Dry

Appendix E

MMLOS Analysis

CGH TRANSPORTATION

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation Inc.**	**Project**	**2021-021**
Scenario	**971 Montreal Road**	**Date**	**2021-05-15**
Comments			

SEGMENTS			Montreal Road Existing	Montreal Road Future	
Pedestrian	Sidewalk Width Boulevard Width	**E**	1.5 m 0.5 - 2 m	≥ 2 m > 2 m	
	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	
	Operating Speed On-Street Parking		> 60 km/h no	> 60 km/h no	
	Exposure to Traffic PLoS		**E**	**D**	**-**
	Effective Sidewalk Width				
	Pedestrian Volume				
	Crowding PLoS		**A**	**A**	**-**
	Level of Service		**E**	**D**	**-**
Bicycle	Type of Cycling Facility	**C**	Curbside Bike Lane	Physically Separated	
	Number of Travel Lanes		2 ea. dir. (w median)		
	Operating Speed		>50 to 70 km/h		
	# of Lanes & Operating Speed LoS		**C**	**-**	**-**
	Bike Lane (+ Parking Lane) Width		≥ 1.2 to <1.5 m		
	Bike Lane Width LoS		**C**	**-**	**-**
	Bike Lane Blockages		Rare		
	Blockage LoS		**A**	**-**	**-**
	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 to 50 km/h		
	Unsignalized Crossing - Lowest LoS		**B**	**A**	**-**
	Level of Service		**C**	**A**	**-**
Transit	Facility Type	**D**	Mixed Traffic	Mixed Traffic	
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	
	Level of Service		**D**	**D**	**-**
Truck	Truck Lane Width	**D**	≤ 3.2 m	≤ 3.5 m	
	Travel Lanes per Direction		> 1	> 1	
	Level of Service		**D**	**A**	**-**

Appendix F

TDM Checklist

CGH TRANSPORTATION

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

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: *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 *(multi-family, condominium)*	☑
		2.2 Bicycle skills training	
BETTER		2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses	☐

		TDM measures: *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 *(multi-family, condominium)*	☑
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	★	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☑
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3 Enhanced public transit service	
BETTER	★	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC	★	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☑
BASIC	★	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☑

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

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: *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: *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: *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 resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential 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 at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	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)	☐
	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	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	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	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(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	☐
	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	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐