300 Montgomery Street (Phase 3)

Transportation Impact Assessment Report

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CONTENTS

List of Figures

LIST OF TABLES

LIST OF APPENDICES

TRANSPORTATION IMPACT ASSESSMENT REPORT

Parsons was retained by Main + Main to prepare a Transportation Impact Assessment (TIA) Report in support of a Site Plan Application (SPA), for the future Phase 3 development site at 300 Montgomery Street. Previous TIA Reports have already been submitted to address the transportation requirements of the site (Municipal address of 3 Selkirk St and 2 Montreal Rd), regarding Phase 1 and at full buildout. Given the previous report submissions, it was agreed upon with City staff to provide a TIA Report submission that focuses on any changes to existing conditions, addresses site access plan, and provides trip generation and analysis updates relating to Phase 3 of the development. This report represents the Step 5 Transportation Impact Assessment Report, as outlined in the City Transportation Impact Assessment (TIA) Guidelines, 2017.

1. SCREENING FORM

The Screening Form was prepared as part of the previous TIA Report submission (dated August 2022), which indicated the need to complete a full TIA Report.

2. SCOPING REPORT

2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

The proponent is proposing a mixed-use development comprised of three high-rise residential towers ranging between 22 and 32 storeys in height for full build-out. The site's local context and phasing plan are depicted in Figure 1.

The previous TIA Report submission reviewed the following two scenarios:

- A Phase 1 buildout with vehicle access via Montgomery St only.
- A development full-buildout (Phases 1-3) with vehicle access via both Montgomery St and Selkirk St.

The purpose of this report is to review an interim stage, where Phases 1 and 3 are constructed (ahead of Phase 2) and accessed via Montgomery St only. The Phase 3 Site Plan is illustrated in Figure 2, with high quality plans of Phase 3 and the full site provided in Appendix A.

As identified in previous TIA Report submissions, Phase 1 will be comprised of a 22-storey apartment building, containing 294 residential units and 16,037 ft^2 of retail space. Phase 3 site statistics have been updated to propose 380 residential units within the 28-storey apartment building. At full buildout of Phase 3, vehicle access for both buildings will be provided through Montgomery St only.

The Montgomery St access will connect to an internal site driveway through which the proposed surface and underground parking spaces can be accessed. The Phase 1 building will provide 274 vehicle parking spaces (208 underground and 66 surface) and 308 bicycle parking spaces, as previously indicated. The Phase 3 building will provide 310 vehicle parking spaces within the podium parking structure and 384 bicycle parking spaces.

Figure 1: Local Context

Figure 2: Proposed Phase 3 Site Plan (September 2023)

2.1.2. EXISTING CONDITIONS

AREA ROAD NETWORK

Refer to previous TIA Report submission (dated August 2022) for a description of the existing road network.

Given the Montreal Road construction works, the following serves as an updated description for the conditions fronting the site:

Montreal Road (Summer 2023) is an east-west arterial roadway with a 4-lane cross-section and auxiliary turn lanes at major intersections. It extends from North River Road in the west to HWY-174 in the east. Beyond North River Road, Montreal Road continues as Rideau Street, and beyond HWY-174, it continues as St. Joseph Boulevard. The former time-of-day bus lanes along Montreal Road have been removed, where a cycle track has been installed in each direction from Vanier Parkway to St. Laurent Boulevard (to be extended to North River Road when construction is complete). On-street parking has typically been removed. The posted speed limit is 50 km/h.

EXISTING STUDY AREA INTERSECTIONS

Refer to previous TIA Report submission (dated August 2022) for a description of the existing study area intersections. Note that previous analysis assumed the future plans for intersections along Montreal Rd to be in place in existing conditions. This report will also assume as such, considering that construction work is near completion.

EXISTING DRIVEWAYS TO ADJACENT DEVELOPMENTS

Refer to previous TIA Report submission (dated August 2022) for a description of existing driveways within 200m of the proposed Montgomery St access.

EXISTING AREA TRAFFIC MANAGEMENT MEASURES

Refer to previous TIA Report submission (dated August 2022) for a description of the existing area traffic management measures.

PEDESTRIAN/CYCLING NETWORK

This section is updated to reflect changes since previous TIA Report submission.

Curbside sidewalks are provided on both sides along North River Road, Montreal Road, McArthur Avenue, and Vanier Parkway. They are also provided on the south side of Selkirk Street, east side of Montgomery Street, and west side of Dundas Street.

Based on City of Ottawa 2013 TMP, North River Rd, Montreal Rd and Vanier Pkwy are designated “Spine” Routes. On-street bike lanes are currently provided within the study area, along McArthur Ave, which also connects to the existing multi-use pathway (MUP) that runs along the Rideau River, west of North River Rd. The existing cycling facilities are shown in Figure 3. Note that the new 2023 City of Ottawa TMP update designates each of North River Rd (between Donald St and Mark Ave), Mark Ave and Montreal Rd (east of Vanier Pkwy) as part of the Cross-Town Bikeway Network.

Figure 3: Existing Pedestrian and Cycling Facilities (Updated)

TRANSIT NETWORK

This section is updated to reflect changes since previous TIA Report submission.

OC Transpo bus routes currently run along Montreal Road and North River Road with bus stops provided near the Montreal/North River intersection for Frequent Routes #12 and #14 and Local Routes #15 and #18. Figure 4 illustrates the area transit network and Figure 5 illustrates adjacent transit stops. Along Vanier Pkwy, local route #9 and #19 also currently operate.

Figure 4: Area Transit Network

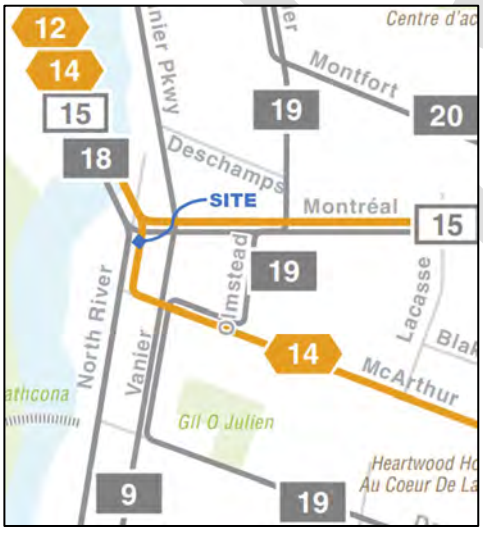
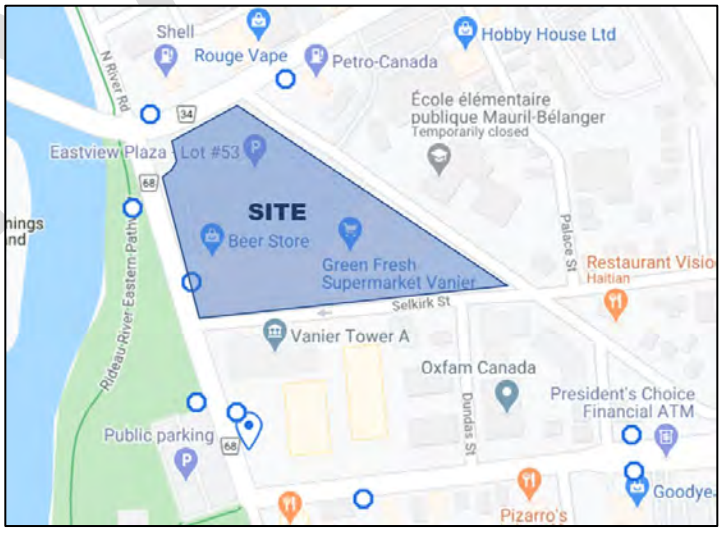


Figure 5: Adjacent Transit Stops



PEAK HOUR TRAVEL DEMAND

The existing peak hour traffic volumes and pedestrian/cyclist volumes within the study area, are illustrated in Figure 6 and Figure 7, respectively. Refer to previous TIA Report submission (dated August 2022) for more information on the data used.

Figure 6: Existing Peak Hour Traffic Volumes

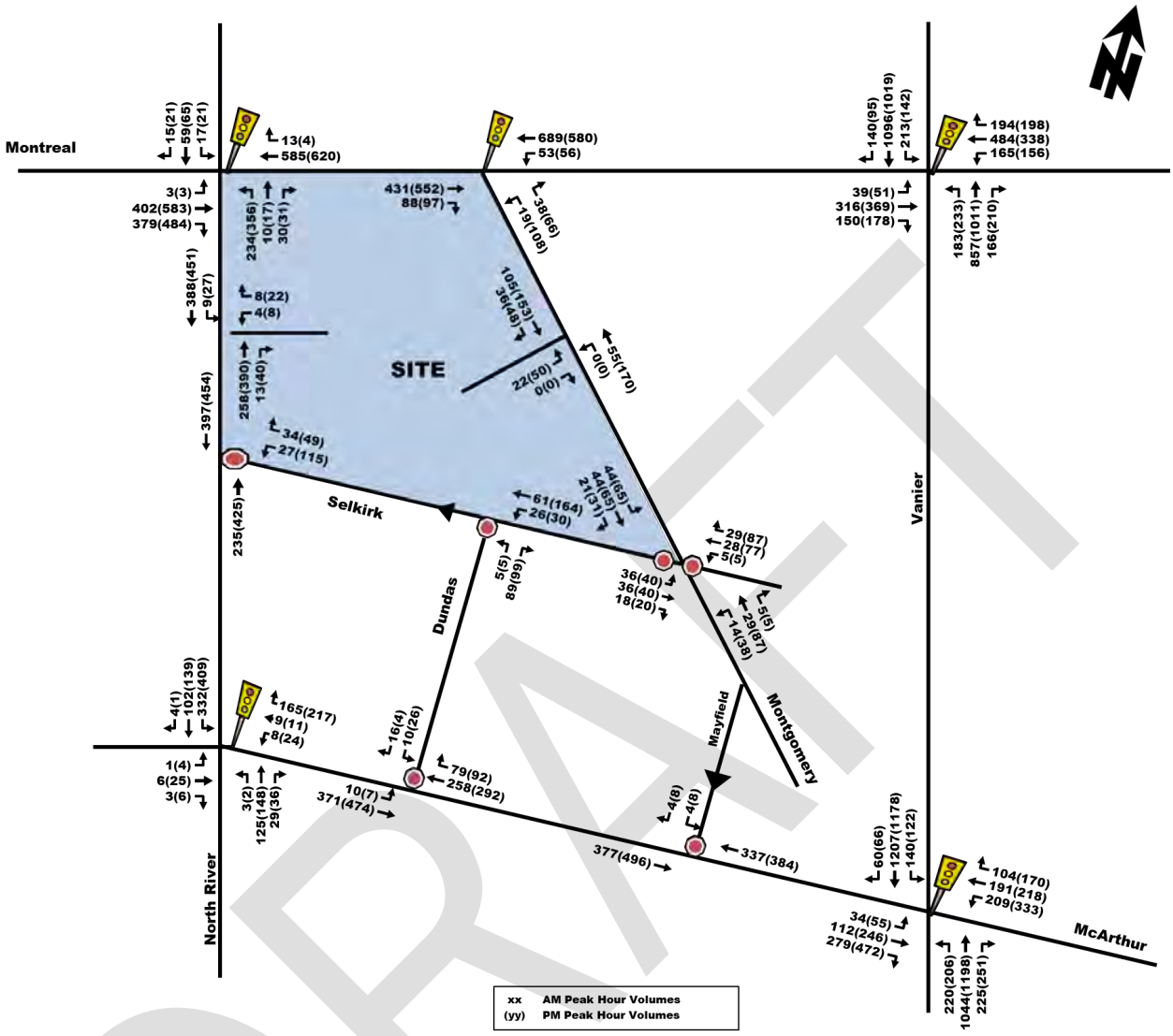
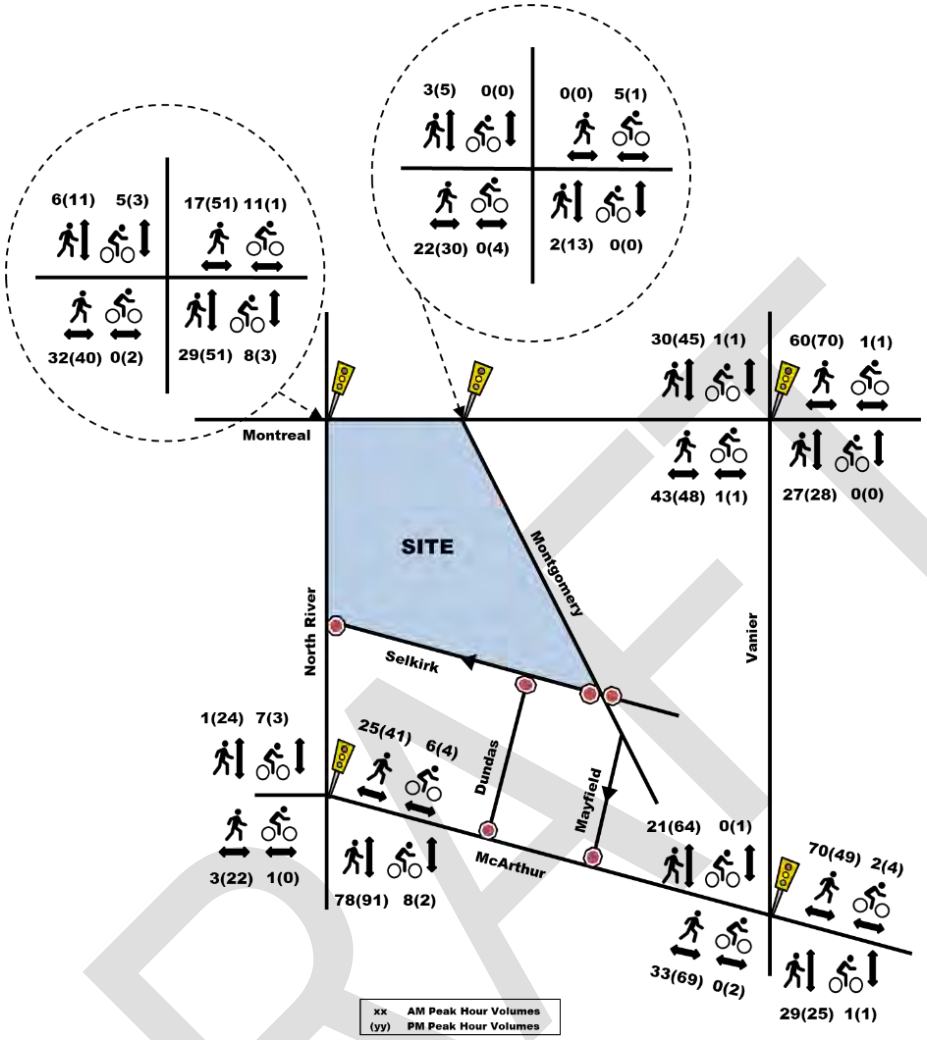


Figure 7: Existing Pedestrian and Cyclist Peak Hour Volumes



EXISTING ROAD SAFETY CONDITIONS

Refer to previous TIA Report submission (dated August 2022) for a detailed description of historic collision data within the study area.

2.1.3. PLANNED CONDITIONS

PLANNED STUDY AREA TRANSPORTATION NETWORK CHANGES

Refer to previous TIA Report submission (dated August 2022) for a detailed description of recent and planned study area modifications.

Montreal Road Revitalization Project Update

Montreal Road project is currently in its final year of construction. The remaining final stages of construction (2023) will be completed by late summer and will include the following main aspects within the study area:

- Completion of remaining landscaping and streetscaping.
- Construction of southside cycle track on Montreal Rd, between North River Rd and Montgomery St.
- Modifications at the Montreal/North River intersection.
- Implementation of traffic calming measures along North River Rd.

For the purpose of this report, the Montreal Rd construction project is assumed to be completed in existing conditions.

City of Ottawa 2023 TMP Update

The new 2023 City of Ottawa TMP update includes a cycling project to add "bike lanes where feasible on North River Rd from Montreal Rd to Donald St".

OTHER AREA DEVELOPMENTS

Refer to previous TIA Report submission (dated August 2022) for description of adjacent future developments within the study area.

2.2. STUDY AREA AND TIME PERIODS

Refer to previous TIA Report submission (dated August 2022) for a full list of study area intersections. Horizon year 2025 is assumed to be full buildout year for Phase 3, where weekday morning and afternoon peak hour periods will be reviewed.

2.3. EXEMPTION REVIEW

Based on the City's TIA guidelines and the subject site, the following modules/elements of the TIA process, summarized in Table 1, are recommended to be exempt in the subsequent steps of the TIA process:

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Streets Networks	Only required for plans of subdivision.
4.2 Parking	4.2.2 Spillover Parking	Only required for Site Plans where parking is 15% below unconstrained demand.

3. FORECASTING

3.1. DEVELOPMENT GENERATED TRAVEL DEMAND

3.1.1. TRIP GENERATION AND MODE SHARES

EXISTING SITE TRIP GENERATION

A new ITE Trip Generation Manual (11th edition) and City of Ottawa TRANS Trip Generation Manual (2020) have been issued since the previous TIA Report Submission (August 2022). As such, the existing site's trip generation will be updated based on the new trip rates and mode share percentages from the two manuals.

As the Eastview Shopping Centre generated trips in existing conditions, it is necessary to account for those trips as a reduction in in the overall future site-generated volumes. The existing site-generated traffic volumes will be approximated using ITE Trip rates and the estimated floor area of the different units within the existing shopping centre. Using GeoOttawa measuring tool, the existing shopping centre is assumed to be composed of the following:

- ~ 2,840 m^2 (30,570 ft^2) of retail space;
- ~ 340 m^2 (3,660 ft^2) restaurant area comprised of:
  - ~ 170 m^2 (1,830 ft^2) of fast casual restaurant area (closed during morning peak hour);
  - ~ 170 m^2 (1,830 ft^2) of fast-food restaurant without drive through area;
- ~ 1,570 m^2 (16,900 ft^2) of high turnover (sit down) restaurant area (closed during morning peak hour); and
- ~ 1,250m^2 (13,455 ft^2) of grocery space.

Figure 8 shows the existing shopping centre and the assumed areas, where the total area of the shopping centre is approximately 64,585 ft^2. Based on the ITE Manual's land use descriptions, the "Shopping Plaza" land use was considered appropriate given the total area of the shopping centre and the available units. The ITE trip generation rates used for the existing property are shown in Table 2.

Figure 8: Existing Eastview Shopping Centre

Table 2: ITE Trip Generation Rates – Existing Shopping Centre

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
Shopping Plaza	ITE 821	T = 1.73(X)	T = 5.19(X)
Note: T = Average Vehicle Trip *X= 1,000 ft² of Ground Floor Area*			

As ITE trip generation surveys only record vehicle trips and typically reflect highly suburban locations (with little to no access by travel modes other than private automobiles), adjustment factors appropriate to the Ottawa study area context were applied to obtain estimates of person trips for the existing site. Our review of TIA Guidelines suggests that a combined factor of approximately 1.28 is considered reasonable to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. The person trip generation for the existing development is summarized in Table 3.

Table 3: Person Trip Generation – Existing Shopping Centre

Land Use	Area	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Shopping Plaza	64,585 ft²	88	55	143	210	219	429

As shown in Table 3, the existing shopping centre is expected to have generated 143 and 429 person trips during the morning and afternoon peak hours, respectively. Mode shares for different travel modes were obtained from the 2020 TRANS Trip Generation Manual for Commercial Generators in the Ottawa East district. As such, a breakdown of the trips generated by the different travel modes is provided in Table 4. A pass-by trip percentage was also obtained from the ITE Manual, which indicated a 40% pass-by trip rate for the PM peak hour only.

Table 4: Existing Site Trip Generation

Travel Mode	AM Mode Share	AM Peak (Person Trips/h)			PM Mode Share	PM Peak (Person Trips/h)		
		In (62%)	Out (38%)	Total		In (49%)	Out (51%)	Total
Auto Driver	58%	51	31	82	55%	115	120	235
Auto Passenger	10%	9	5	14	18%	38	40	78
Transit	15%	13	8	21	11%	22	23	46
Cycling	1%	1	0	1	1%	2	2	4
Walking	17%	15	9	24	15%	32	34	66
Total Person Trips	**100%**	**89**	**54**	**143**	**100%**	**210**	**219**	**429**
PM Pass-by (40%)		0	0	0		-46	-48	-94
Total Auto Trips		**51**	**31**	**82**		**69**	**72**	**141**

As shown in Table 4 above, the total estimated existing site-generated vehicle trips are 82 veh/h and 141 veh/h during the morning and afternoon peak hours, respectively.

PROPOSED DEVELOPMENT TRIP GENERATION RATES

Phases 1 and 3 of the proposed development will consist of a total of 674 high-rise apartment units and 16,037 ft² of grocery store/retail space. The trip rates for the land uses are summarized in Table 5.

Note that the trip rates have been updated from previous TIA Report submission to follow the latest industry standards guidelines. The appropriate trip generation rates for high-rise apartment units were obtained from the 2020 TRANS Trip Generation Manual. This Manual provides person-trip rates during the peak AM and PM periods (i.e. 7am-9:30am and 3:30pm-6pm). The peak hour trip generation rates for the retail land uses were obtained from the ITE Trip Generation Manual (11th edition), assuming the "Supermarket" land use for the total retail area, expected to include a grocery store and small retail units. The "Supermarket" trip rates are considered fairly conservative in this scenario, considering that the small retail units will likely provide minor ancillary use that will likely be utilized by local residents.

Table 5: Vehicle Trip Rates for the Residential and Commercial Uses

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
High Rise Apartment	TRANS	T = 0.8(du)	T = 0.9(du)
Supermarket	ITE 850	T = 2.86(X)	T = 8.95(X)
Note: T = Average Vehicle Trip *X= 1,000 ft² of Ground Floor Area* *du = dwelling units*			

PROPOSED GROCERY STORE AND RETAIL TRIP GENERATION

Using trip rates provided in in Table 5, the person trip generation for the proposed Phase 1 commercial space of the development is summarized in Table 6. The total number of person trips per hour generated by the proposed retail units were multiplied by a factor of 1.28, as per TIA standards, to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%.

Table 6: Person Trip Generation – Commercial Phase 1

Land Use	Area	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
		In (59%)	Out (41%)	Total	In (50%)	Out (50%)	Total
Supermarket (Grocery Store and Retail)	16,037 ft²	34	25	59	92	93	185

Mode shares for commercial land uses were obtained from the TRANS 2020 Trip Generation Manual, assuming the "Ottawa East" district. The anticipated number of trips for different travel modes are provided in Table 7. A pass-by trip percentage was also obtained from the ITE Manual, which indicated a 24% pass-by trip rate for the PM peak hour only. As implied by the name, pass-by trips are trips where vehicles travelling along roads bordering the development would make a stop at the "supermarket", rather than travel to it as a destination. As such, they are not considered 'new' trips, but background vehicle trips that are already travelling on the network.

Table 7: Proposed Phase 1 Peak Hour Commercial Trip Generation

Travel Mode	AM Mode Share	AM Peak (Person Trips/h)			PM Mode Share	PM Peak (Person Trips/h)		
		In (59%)	Out (41%)	Total		In (50%)	Out (50%)	Total
Auto Driver	58%	20	14	34	55%	51	51	101
Auto Passenger	10%	3	2	6	18%	17	17	34
Transit	15%	5	4	9	11%	10	10	20
Cycling	1%	0	0	1	1%	1	1	2
Walking	17%	6	4	10	15%	14	14	28
Total Person Trips	**100%**	**35**	**24**	**59**	**100%**	**93**	**93**	**185**
PM Pass-by (24%)		0	0	0		-12	-12	-24
Total 'New' Auto Trips		**20**	**14**	**34**		**39**	**39**	**77**

As shown in in Table 7, the proposed commercial space of Phase 1 is expected to generate a total of 59 and 185 person trips and 34 and 77 'new' auto trips during the morning and afternoon peak hours, respectively.

PROPOSED RESIDENTIAL TRIP GENERATION

Using the 2020 TRANS Trip Generation Manual rates outlined in Table 5, the total number of trips generated by the proposed residential land uses of the development are calculated for the morning and afternoon peak periods, as shown in Table 8.

Table 8: Projected Phase 1+3 Residential Person Trip Generation – TRANS Model

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High-Rise Apartments	674	539	607

The proposed development's residential land use is anticipated to generate a total of approximately 539 and 607 person trips during the morning and afternoon peak 3-hour periods, respectively. The total person trips in Table 8 are then divided into different travel modes using mode share percentages obtained from the 2020 TRANS Manual for the "Ottawa East" district. Table 9 provides the mode share breakdown for different travel modes.

Table 9: High-Rise Apartments Peak Period Trips Mode Share Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	Mode Share	PM Peak Period Person Trips
Auto Driver	39%	212	40%	243
Auto Passenger	7%	40	14%	85
Transit	38%	205	28%	172
Cycling	2%	11	3%	16
Walking	13%	71	15%	90
Total Person Trips	**100%**	**539**	**100%**	**607**

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. The 2020 TRANS Manual provides conversions rates from peak period to peak hours for different mode shares, as shown in Table 10 below.

Table 10: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors	
	AM	PM
Auto Driver and Passenger	0.48	0.44
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Using the conversion rates in Table 10 and the peak 3-hour period trips in Table 9, the peak hour trips for different travel modes can be calculated as shown in Table 11, with inbound and outbound percentages obtained from the TRANS Manual.

Table 11: Proposed Phase 1+3 Peak Hour Residential Trip Generation

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Auto Driver	32	70	102	62	45	107
Auto Passenger	6	13	19	22	16	37
Transit	35	78	113	47	34	81
Cycling	2	4	6	5	3	8
Walking	13	29	41	27	20	47
Total Person Trips	**87**	**194**	**281**	**162**	**118**	**280**

A shown in Table 11, the combined Phases 1 and 3 of the proposed development are expected to generate a total of approximately 280 person trips during peak hours, which includes up to 107 vehicle trips, 37 passenger trips, 113 transit trips and 55 active transport trips (walking and biking).

PROPOSED PHASE 1+3 TOTAL SITE TRIP GENERATION

The total Phase 1 and 3 projected trips for the residential and commercial land uses of the proposed development are summarized below in Table 12, which include the total of the proposed residential and commercial land uses.

Table 12: Phase 1 and 3 Total Site Trip Generation

Travel Mode	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	52	84	136	113	96	208
Auto Passenger	9	15	25	39	33	71
Transit	40	82	122	57	44	101
Bicycle	2	4	7	6	4	10
Walk	19	33	51	41	34	75
Total Person Trips	**122**	**218**	**340**	**255**	**211**	**465**
PM Pass-by (24%)	0	0	0	-12	-12	-24
Total 'New' Auto Trips	**52**	**84**	**136**	**101**	**84**	**184**

As shown in Table 12, the proposed development is expected to generate a total of 340 to 465 person trips during the morning and afternoon peak hours, which includes 136 to 184 'new' auto trips, 25 to 71 passenger trips, 101 to 122 transit trips and 58 to 85 active transport trips. The total new trips have been reduced as shown in Table 13 by accounting for the existing shopping centre's trips in Table 4.

Table 13: Phase 1 and 3 Total Site Trip Generation, with Reduction from Existing

Travel Mode	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	1	53	54	-2	-24	-27
Auto Passenger	0	10	11	1	-7	-7
Transit	27	74	101	35	21	55
Bicycle	1	4	6	4	2	6
Walk	4	24	27	9	0	9
Total Person Trips	**33**	**164**	**197**	**45**	**-8**	**36**
Total 'New' Auto Trips	**1**	**53**	**54**	**32**	**12**	**43**

As shown in Table 13, after accounting for the existing site's trips, the proposed development is projected to generate approximately 36 to 197 new person-trips per hour in the weekday commute peak hours. This includes 43 to 54 'new' vehicle trips, 55 to 101 new transit trips and 15 to 33 active transport trips. Negative numbers in the table are the result of reductions applied by the no longer existing site-generated trips of the Eastview Shopping Centre.

3.1.2. TRIP DISTRIBUTION AND ASSIGNMENT

Based on the 2011 OD Survey (Ottawa East district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 50% to/from the east;
- 35%/30% to/from the west;
- 5/10% to/from the north; and,
- 10% to/from the south.

The expected 'new' and 'pass-by' site-generated auto trips for Phase 1 and 3 of the proposed development (Table 12) are assigned to the road network as shown in Figure 9. Please note that the negative values represent the pass-by trips. As mentioned previously, access for Phases 1 and 3 is proposed to be provided via Montgomery St only at this interim stage. Existing shopping centre site-generated traffic volumes (Table 4) to be removed from study area volumes are illustrated in Figure 10.

Figure 9: Phase 1+3 'New' and 'Pass-By' Site-Generated Traffic

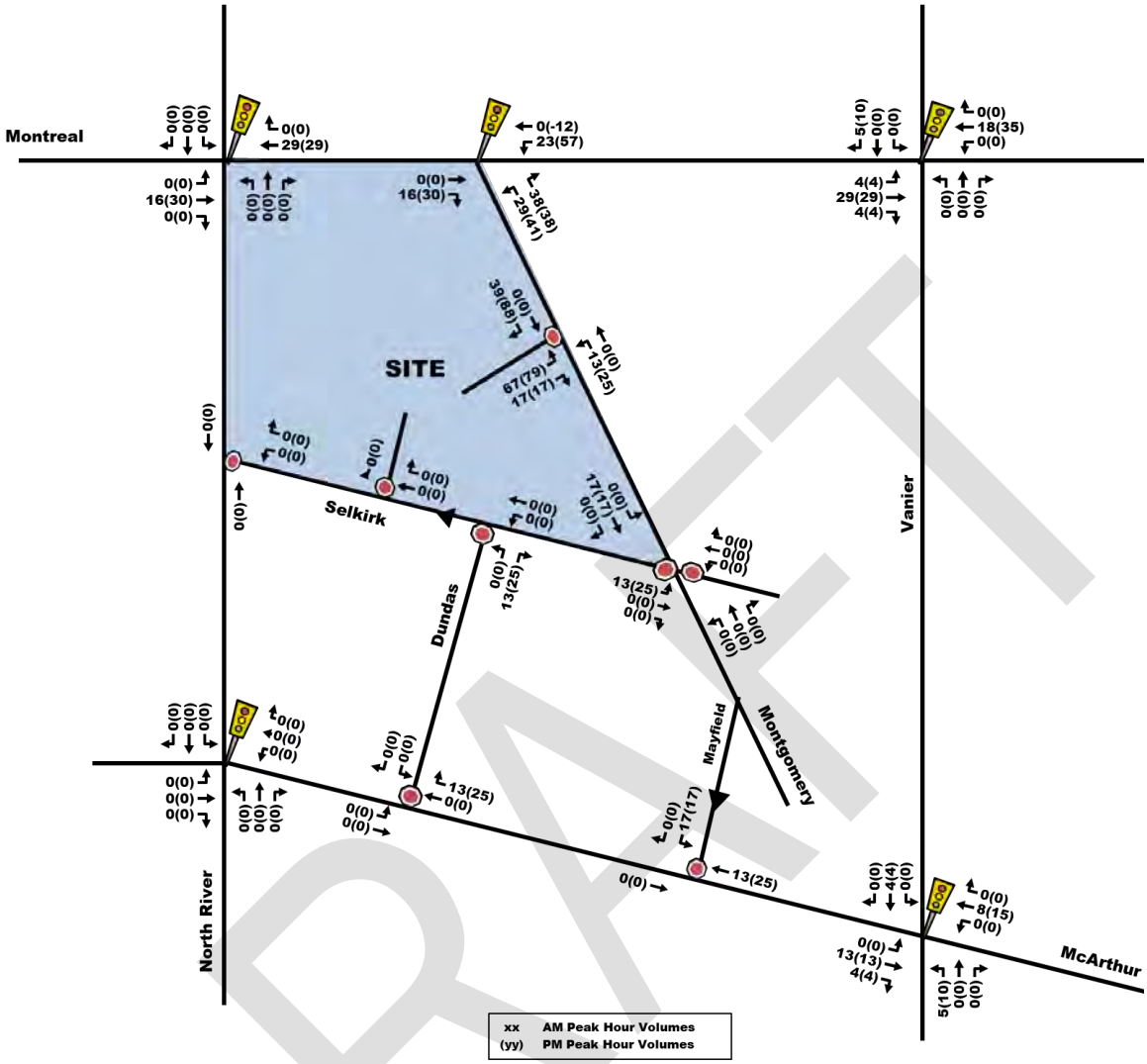
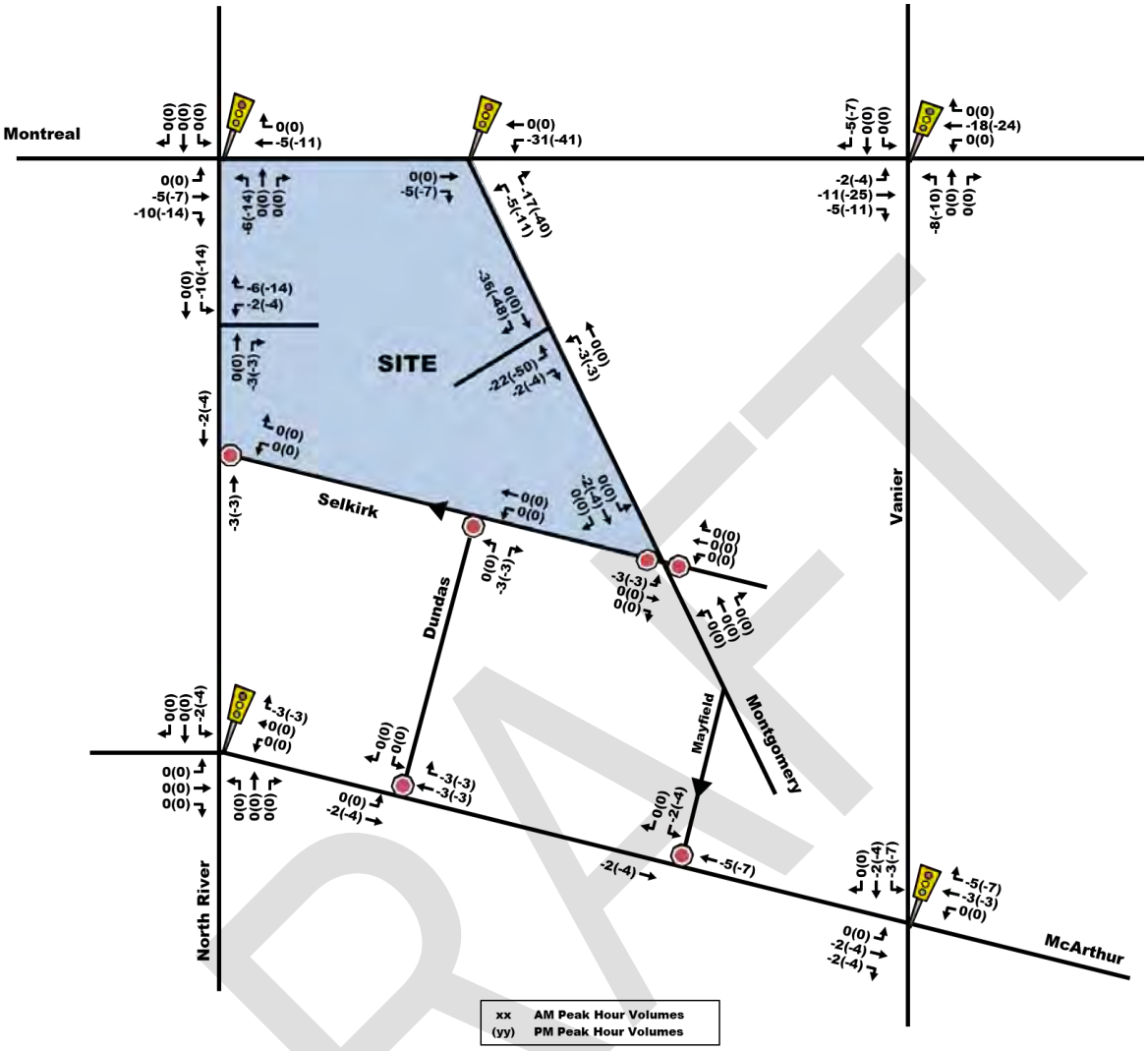


Figure 10: Existing Site-Generated Traffic



3.2. BACKGROUND NETWORK TRAFFIC

3.2.1. TRANSPORTATION NETWORK PLANS

Refer to Section 2.1.3.

3.2.2. BACKGROUND GROWTH

As indicated in the previous TIA Report submission, a 0% background growth rate was applied to study area roads.

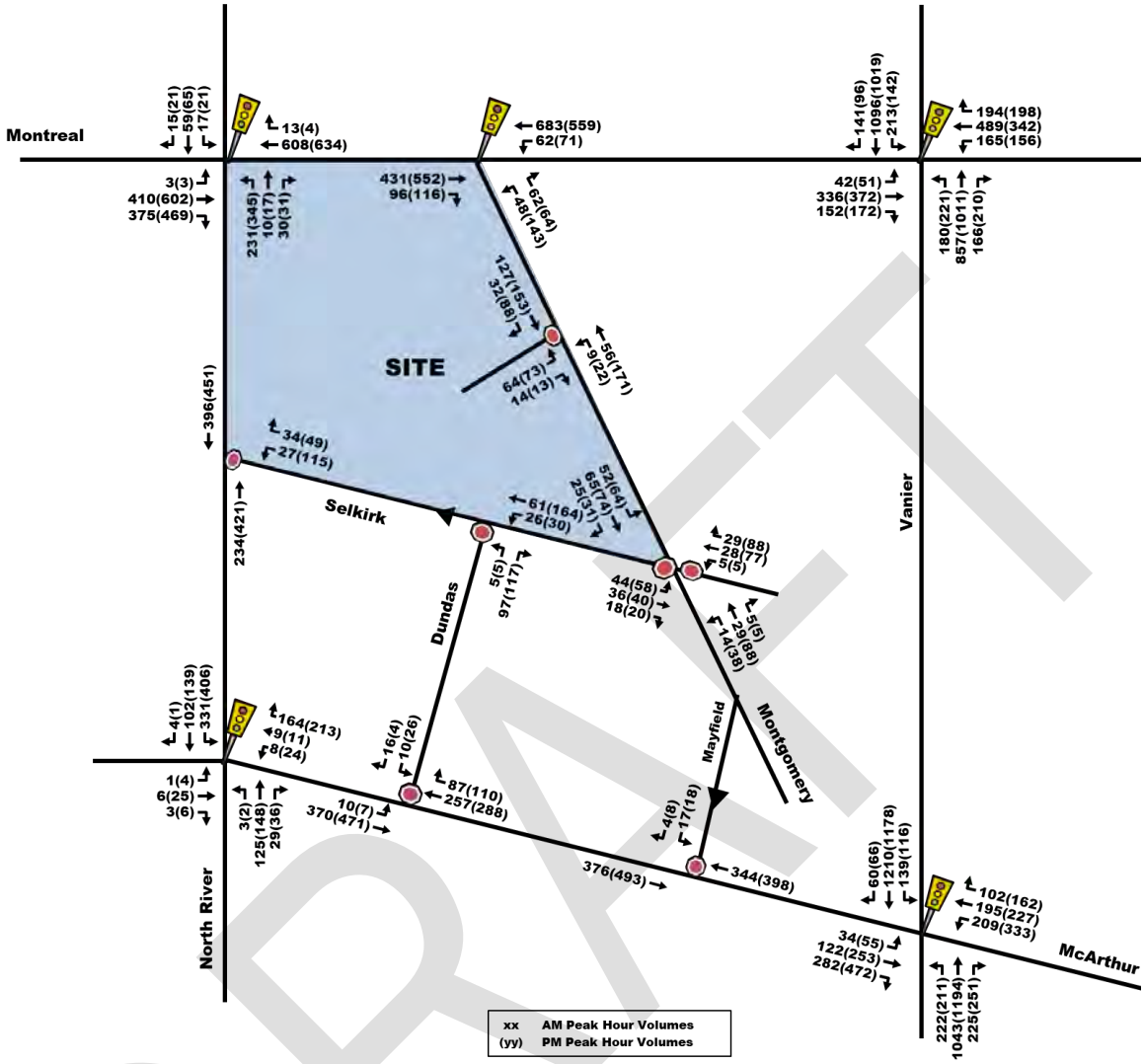
3.2.3. OTHER DEVELOPMENTS

Refer to previous TIA Report submission (dated August 2022) for future adjacent development volumes accounted for within the study area.

3.3. DEMAND RATIONALIZATION

The total projected volumes of Phases 1 and 3 at 2025 are illustrated in Figure 11, which are composed of existing traffic volumes (Figure 6), combined with future adjacent development traffic (see previous TIA submission), the anticipated site-generated traffic (Figure 9), and reduced by the existing shopping centre's site-generated traffic (Figure 10).

Figure 11: Total Projected 2025 Volumes – Phase 1+3



4. ANALYSIS

4.1. DEVELOPMENT DESIGN

4.1.1. DESIGN FOR SUSTAINABLE MODES

Refer to previous TIA Report submission (dated August 2022) for details regarding the proposed pedestrian, cyclists and transit facilities on and off site.

The internal site driveway is expected to be designed to prioritize pedestrians and cyclists by providing wide internal sidewalks and brick paving for travel lanes instead of a typical asphalt pavement. The internal sidewalks will connect to the external sidewalks along Montgomery St and Selkirk St, thereby providing ample connectivity for pedestrians.

Nearest bus stops to the site are at the northeast corner of North River/Selkirk and southeast corner of Montreal/Montgomery intersections, which are located within 100m and 150m walking distances from the Phase 3 building, respectively. It is noted that the bus stop located in the northeast corner of North River/Selkirk is within the property limits of the proposed development site and will be accommodated with a concrete pad and a bus shelter in the future.

MONTGOMERY ST AND SELKIRK ST ROADWAY MODIFICATIONS (RMA)

Appendix B provides, while Figure 12 and Figure 13 illustrate, the proposed RMA design for Montgomery Street and Selkirk Street, demonstrating the proposed future designs along the frontage of each of the development roads. Traffic calming measures have been included along Montgomery St as part the designs, adhering to the City of Ottawa's 30 km/h design toolbox. This includes measures such as a speed hump and road narrowing.

Figure 12: Proposed Road Modifications, Selkirk Street / North River Road

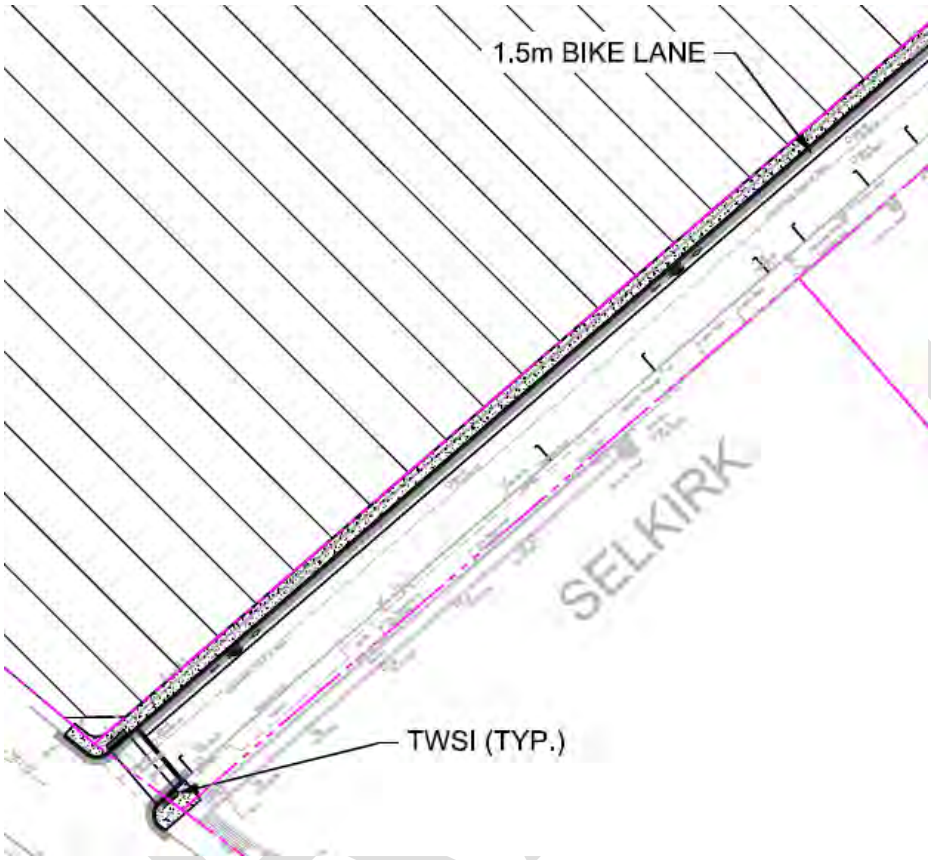
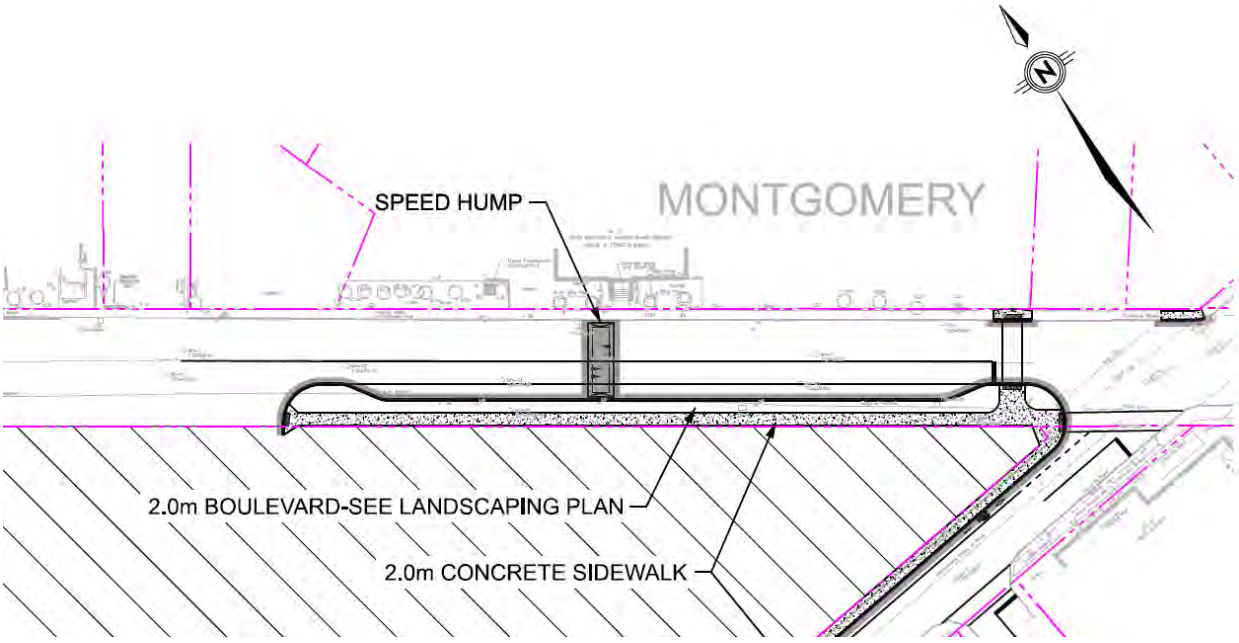


Figure 13: Proposed Road Modifications, Montgomery Street to Selkirk Street



For Montgomery St., the following key elements are included:

- A new 2.0m concrete sidewalk with parallel parking along the site frontage.
- A bulb-out nearest the site access and the Montgomery/Selkirk intersections to book-end parking and narrow travel lanes.
- A speed hump located between the Montgomery St. site access and the Montgomery/Selkirk intersection. The speed hump is located within the school bus drop off zone along the frontage of the Mauril-Bélanger elementary public school.
- A road narrowing which requires modifications to the curb line on one side of Montgomery St., to provide for an improved crosswalk with a shorter crossing distance and relocated STOP-bar.

For Selkirk St., a 1.5m painted westbound cycle lane and 2.0m concrete sidewalk will be included along the site frontage, per Councillor request. Through discussions with City staff, this would provide a short-term cycling improvement before resurfacing where a contraflow bike lane can be considered. Parallel parking will be maintained on the opposite side of Selkirk St.

4.1.2. CIRCULATION AND ACCESS

Trucks are anticipated to access the site occasionally for the purpose of garbage pick-up, loading/unloading and residential move-ins. Truck movements for Phase 1 of the development were confirmed in previous TIA Report submission. For Phase 3, truck turns have been checked at both the Montgomery St site access, as well as at the proposed garbage pick-up/loading space located at the west corner of the Phase 3 building. The in/out truck turn checks have been provided in Appendix C, which confirmed no anticipated issues for truck movements.

4.2. PARKING

Based on City of Ottawa Parking Provisions, Schedule 1A, the proposed development is located in "Area X". A total of 603 vehicle parking spaces and 503 bicycle parking spaces will be provided for Phases 1 and 3 of the proposed development. Of the total, approximately 66 vehicle parking spaces will be provided at surface. Table 14 provides a summary of the required and the proposed parking rates for vehicles and bicycles. As shown in the table, the proposed number of parking spaces meet all parking requirements for vehicle and bicycle parking.

Table 14: Required and Proposed Vehicle and Bicycle Parking Space

Land Use	Size	Parking Rates			Required Spaces			Proposed Spaces		
		Base	Visitor	Bicycle	Base	Visitor	Bicycle	Base	Visitor	Bicycle
High-Rise Residential	674 Units	0.5 per unit, excluding first 12 units	0.1 per unit, excluding first 12 units, 30 spaces max per building	0.5 per unit	325	60	337	603		484
Commercial	1,490 m^2	1.25 per 100 m^2	-	1.0 per 250 m^2	19	-	6			19
				Total	**344**	**60**	**343**	**603**		**503**

4.3. BOUNDARY STREET DESIGN

Refer to previous TIA Report submission (dated August 2022) for a detailed MMLOS analysis of boundary streets North River Rd, Selkirk St, Montgomery St and Montreal Rd. While some changes have been implemented to the proposed Site Plan and the Montreal Rd construction has been assumed to be completed for existing conditions, no changes are expected to the overall analysis results in this section.

Additionally, the plan remains to provide a westbound bike lane along Selkirk St.

4.4. ACCESS INTERSECTION DESIGN

Traffic can access the site via the proposed internal driveway, which will only connect to Montgomery St in the interim, when Phases 1 and 3 are constructed. STOP Control will be provided for vehicles exiting the site at Montgomery St, with a full movement access. The internal site driveway will be approximately 7.8m wide at the

property line, with an additional 3m wide drop-off/pick-up areas. This access location and design was approved as part of the previous application.

The underground parking garage ramp for Phase 3 will be 6m wide and located approximately 20m south of the site access to Montgomery St.

4.5. TRANSPORTATION DEMAND MANAGEMENT

The two residential 'TDM-Supportive Development Design and Infrastructure' and 'TDM Measures' checklists have been completed for Phase 3 and incorporated as Appendix D.

The following is a summary of some of the TDM Design and Infrastructure elements proposed to support sustainable transportation:

- Buildings located close to the street with parking not located between the entrances and the street;
- Direct and attractive walking routes provided from building entrances to adjacent transit stop on North River Rd;
- Easily accessible sidewalks with connections to the external network of sidewalks and pathways;
- A bike lane will be provided along Selkirk St and the internal site driveway and Montgomery St will be designed for access or circulation by cyclists using a target operating speed of no more than 30 km/h;
- On-site bicycle parking provided indoors;
- Landscaping and benches provided along walking and cycling routes; and,
- Designated drop-off/pick-up areas provided on site.

The following TDM Measures are proposed to support sustainable transportation:

- Local area maps for walking/cycling and transit schedules are to be located at major entrances;
- The proponent will seek to find a bikeshare provider, if available in Ottawa;
- The proponent will seek to contract with car sharing and promote their use to residents;
- Parking costs will be unbundled with monthly rent; and
- A multi-modal travel option information package, including relevant car/bike share opportunities, will be provided to new residents.

4.6. NEIGHBOURHOOD TRAFFIC MANAGEMENT

As part of Phase 1 and 3 buildout, the proposed development's site-generated traffic is expected to utilize local roads Montgomery St, Selkirk St and Dundas St, as part of their access route to/from the development. This section compares the existing and projected (at horizon year 2025) traffic volumes along these roads to the ideal maximum threshold of 120 veh/h for local roads, as indicated by the TIA Guidelines. Table 15 summarizes the roadway classifications, the TIA Guideline's ideal roadway threshold, and the approximate existing and projected traffic on respective access routes to the site. Note that this analysis does not include roads classified as arterial, such as North River Road, Montreal Road, Vanier Parkway and McArthur Avenue.

Table 15: Roadway Classification and Traffic Volume

Roadway	Classification	Daily Threshold (veh/day)	Peak Hour Threshold (veh/h)	Peak Hour Two-Way Volumes AM (PM)	
				Existing	Projected
Montgomery Street	Local	1,000	120	198 (327)	268 (394)
Selkirk Street	Local	1,000	120	154 (246)	165 (264)
Dundas Street	Local	1,000	120	120 (134)	128 (152)

As shown in Table 15, the ideal local road threshold at all three local streets is exceeded in both existing and total projected 2025 conditions. On Selkirk St, the volumes are near the ideal threshold of 300 veh/h for a collector road during the afternoon peak hour. Similarly, volumes on Montgomery St are near the ideal threshold of a collector road during the morning peak hour and exceed that threshold during the afternoon peak hour.

Given the nature of the development, the increase in traffic volumes along the local roadways is inevitable. It is important to note that the thresholds provided in the TIA Guidelines are ideal suggestions but not necessarily a requirement for the purpose of maintaining acceptable traffic operations. Nonetheless, proposed traffic calming measures may help deter some background traffic volumes as discussed in the section below. Additionally, traffic operations will be confirmed along these roadways in both existing and projected conditions in Section 4.9.

TRAFFIC CALMING MEASURES

As indicated in Section 4.1.1, proposed future roadway modifications include the provision of traffic calming measures along Montgomery St. These measures include a speed reduction to 30km/h, mid-block speed humps and road narrowing through the use of bulb-outs, all of which are expected to reduce the potential for traffic infiltration (cut-through traffic) along the local roads of Selkirk St, Montgomery St and Dundas St.

With these measures in place, some reduction in future traffic volumes along the local roads may be expected and the majority of the future traffic volumes may consist mostly of traffic from local residents of the area. Therefore, no further modifications are currently proposed to address the existing and future traffic volumes.

4.7. TRANSIT

Refer to previous TIA Report submission (dated August 2022) for information on existing transit ridership data in the study area and assessment of available capacity.

The proponent proposes to construct a bus shelter and pad at the bus stop nearest North River/Selkirk following Phase 2 of the development.

4.8. REVIEW OF NETWORK CONCEPT

Refer to previous TIA Report submission (dated August 2022) for assessment of relevant Screenline in the study area.

4.9. INTERSECTION DESIGN

4.9.1. INTERSECTION CONTROL

Stop Control will be provided for vehicles exiting the site at the proposed future Montgomery St site access. Given the expected traffic volumes at the site access, the access control is considered appropriate. No changes are proposed to the existing controls of other intersections within the study area.

4.9.2. INTERSECTION DESIGN

Synchro 11 Trafficware was used to analyze intersection performance of intersections within the study area. Critical movements at each of the intersections were assessed based on either the movement with the highest volume-to-capacity ratio (for signalized intersections), or the movement experiencing the highest average delay (for unsignalized intersections). It should be noted that, as per the TIA Guidelines, the Peak Hour Factor (PHF) used for analysis was 0.90 in existing conditions and 1.0 in the projected 2025 horizon year conditions.

As indicated previously in this report, the Montreal Rd reconstruction project has been assumed to be completed in both existing and projected 2025 horizon year conditions. In the projected 2025 conditions, phase times were optimized in Synchro for all signalized intersections and no other changes were implemented. The detailed Synchro reports for existing and projected 2025 conditions have been provided in Appendix E.

EXISTING CONDITIONS

The following Table 16 provides a summary of the existing traffic operations at study area intersections, based on the existing conditions traffic volumes illustrated in Figure 6.

Table 16: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
North River/Montreal	C(E)	0.77(0.93)	NBL(EBT)	29.3(47.5)	B(D)	0.64(0.90)
Montgomery/Montreal	A(B)	0.33(0.66)	WBT(WBT)	3.8(11.2)	A(B)	0.32(0.64)
Vanier/Montreal	D(E)	0.89(0.97)	EBT(EBT)	50.1(49.6)	C(D)	0.75(0.83)
North River/McArthur	B(D)	0.66(0.86)	SBT(SBT)	12.9(19.4)	A(B)	0.51(0.66)
Vanier/McArthur	E(F)	0.99(1.34)	SBT(WBL)	46.4(72.2)	E(F)	0.91(1.04)
Unsignalized Intersections						
Dundas/McArthur	B(C)	15(21)	SB(SB)	0.6(0.8)	A(A)	-
Mayfield/McArthur	B(B)	13(15)	SB(SB)	0.1(0.3)	A(A)	-
Selkirk/North River	B(C)	14(20)	WB(WB)	1.1(2.7)	A(A)	-
Selkirk/Montgomery	B(C)	11(15)	EB(EB)	6.6(8.1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane.						

As shown in Table 16, the Vanier/McArthur intersection 'as a whole' and the associated critical movement operate at capacity during the afternoon peak hour. All other signalized intersections 'as a whole' operate at LOS 'D' or better, with critical movements operating at LOS 'E' or better during peak hours.

All unsignalized intersections 'as a whole' are shown to operate at LOS 'A', with critical movements from the stop controlled minor roads operating at LOS 'C' or better during peak hours.

TOTAL PROJECTED 2025 CONDITIONS

The following Table 17 provides a summary of the total projected 2025 operations at the study area intersections based on the total projected 2025 conditions traffic volumes in Figure 11. As mentioned previously, westbound bike lanes will be added on Selkirk St in ultimate conditions, narrowing the travel lanes to a single 4.3m wide lane. This modification is reflected in the analysis results below for the intersection of Selkirk/North River.

Table 17: Total Projected 2025 Performance at Study Area Intersections

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
North River/Montreal	D(E)	0.86(0.99)	NBL(EBT)	34.8(56.8)	B(E)	0.70(0.95)
Montgomery/Montreal	A(B)	0.31(0.63)	WBT(WBT)	5.3(11.9)	A(B)	0.31(0.62)
Vanier/Montreal	D(D)	0.86(0.88)	EBT(EBT)	46.1(46.3)	B(C)	0.69(0.75)
North River/McArthur	B(C)	0.62(0.78)	SBT(SBT)	12.9(15.8)	A(A)	0.48(0.60)
Vanier/McArthur	D(F)	0.90(1.04)	NBL(EBR)	38.5(58.2)	D(F)	0.83(1.00)
Unsignalized Intersections						
Dundas/McArthur	B(C)	14(20)	SB(SB)	0.6(0.7)	A(A)	-
Mayfield/McArthur	B(C)	14(16)	SB(SB)	0.5(0.6)	A(A)	-
Selkirk/North River	B(C)	11(18)	WB(WB)	1.1(2.9)	A(A)	-
Selkirk/Montgomery	B(C)	11(16)	EB(EB)	6.9(8.3)	A(A)	-
Montgomery/Site	B(B)	10(13)	EB(EB)	3.2(2.6)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As shown in Table 17, the Vanier/McArthur intersection is expected to continue to operate at capacity during the afternoon peak hour both 'as a whole' and with the associated critical movement. However, the operations at this intersection and most other signalized intersections have improved compared to existing conditions due to optimization of phase times and increase of PHF to 1.0. The exception is the intersection of North

River/Montreal, where delays and v/c ratios have increased slightly as a result of the added site-generated traffic volumes.

Operations at unsignalized intersections are similar to existing conditions, with slight changes in delays. The proposed Montgomery St site access 'as a whole' is expected to operate at LOS 'A' with critical movements operating at LOS 'B' during peak hours.

MULTI-MODAL LEVEL OF SERVICE – SIGNALIZED INTERSECTIONS

Refer to previous TIA Report submission (dated August 2022) for a detailed MMLOS analysis of signalized intersections within the study area.

5. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Based on the results summarized herein, the following transportation related conclusions are offered:

Proposed Site

- Main + Main is proposing a mixed-use development comprised of 3 high-rise residential towers ranging from 22 to 32 storeys in height, which will be constructed in three phases.
- A TIA Report was previously submitted (August 2022), which reviewed two scenarios:
  - A Phase 1 buildout with vehicle access via Montgomery St only.
  - A development full buildout (Phases 1-3) with vehicle access via both Montgomery St and Selkirk St.
- This TIA Report was prepared for the purpose of reviewing an interim stage, where Phases 1 and 3 are constructed (ahead of Phase 2) and accessed via Montgomery St only. Phase 3 will consist of 380 residential units and will consist of 310 vehicle parking spaces and 384 bicycle parking spaces, all of which will be located within the underground parking garage. Phase 3 buildout is assumed at horizon year 2025.
- The underground parking garage ramp for the Phase 3 building will be located along an internal site driveway with a full movement access to Montgomery St.
- Truck turns at both the Montgomery St site access and the garbage pick-up/loading space of the Phase 3 building were confirmed to have no significant conflicts or turning issues.
- The combined Phases 1 and 3 are projected to generate approximately 136 veh/h and 184 veh/h during the morning and afternoon peak hours respectively.
- The net increase of trips compared to trip generation of the existing developments is 54 veh/h and 43 veh/h during the morning and afternoon peak hours respectively.

Future Study Area Modifications

- The Montreal Rd reconstruction project is in its final year of construction and is anticipated to be completed by late summer of 2023. As such, all modifications related to this project, including intersection and roadway modifications within the study area, have been assumed as an existing condition.
- As part of the development, a westbound bike lane will be provided on the north side on Selkirk Street and an eastbound bike lane will be provided on the south side of Montreal Road based on preferred City design.
- There is ongoing Montgomery St functional design to provide future traffic calming measures along the section at site frontage. Potential traffic calming measures will adhere to the City of Ottawa's 30 km/h design toolbox and may include speed humps, bulb-outs and road narrowing. An opportunity exists to provide traffic calming measures along Selkirk St as well, which will be confirmed through the ongoing RMA plan.

Existing and Projected 2025 Conditions Analysis

- In existing conditions, the study area intersections operate 'as a whole' with a LOS 'E' or better during peak hours, except for the intersection of Vanier/McArthur, which operates at capacity during the afternoon peak hour. With regards to critical movements, the WBL at the Vanier/McArthur intersection operate at capacity during the afternoon peak hour.
- For the 2025 horizon year, operations at study area intersections are mostly similar or slightly better compared to existing conditions. This is due to optimizing phase times at all signalized intersections and increasing PHF to 1.0 as per TIA Guidelines. However, delays and v/c ratios at the North River/Montreal intersections are expected to increase slightly as a result of the increase in future site-generated traffic.
- Existing and total projected 2025 peak hour traffic volumes on Montgomery St, Selkirk St and Dundas St all exceed the ideal threshold of a local road as set by the TIA Guidelines. However, given the future proposed traffic calming measures along each of Montgomery St and Selkirk St, traffic infiltration from non-local traffic is expected to be significantly reduced. Therefore, no further modifications are currently proposed to address the existing and future traffic volumes along the local roads.

Based on the foregoing and as stated in previous TIA Report submissions, the proposed development is recommended to proceed from a transportation perspective.

APPENDIX A

SITE PLANS AND CITY COMMENT RESPONSES

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City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	27-Mar-23
Project	300 Montgomery TIA
Project Number	909979-10003

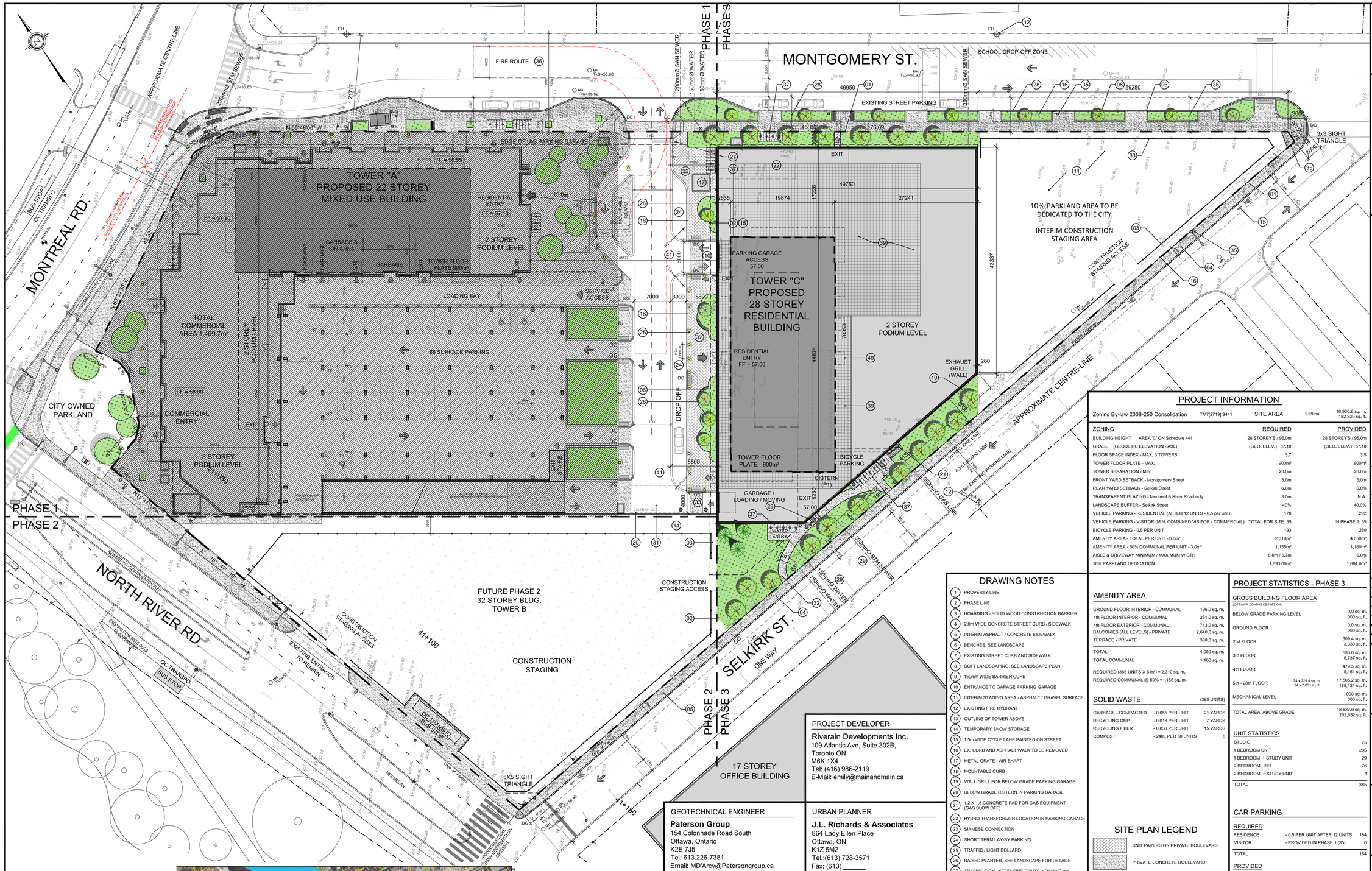
Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	Yes
Development Satisfies the Location Trigger	No
Development Satisfies the Safety Trigger	Yes

Module 1.1 - Description of Proposed Development	
Municipal Address	300 Montgomery Street, Ottawa, ON K1L 7W8
Description of location	Bordering Selkirk to south, N River to west, Montgomery to east
Land Use	28-storey residential tower with parking
Development Size	364 apartment units and 286 parking spaces
Number of Accesses and Locations	Single Access to Montgomery
Development Phasing	Phase 2 of 3
Buildout Year	2026
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size (Phase 2)	364	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	No
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	No
Location Trigger Met?	No

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	
A proposed driveway is 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) or within auxiliary lanes of an intersection;	Yes	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	Yes	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	



1 SP-1 SITE PLAN - PHASE 1

SCALE =1:300

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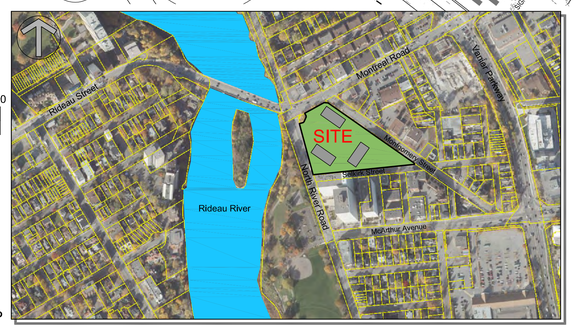
SCALE 1:300



KEY MAP

PROJECT INFORMATION

Zoning By-law 2008-250 Consolidation TM7[2719] S441 — SITE AREA 1.69 ha. 16,930.6 sq. m, 182,239 sq. ft.

ZONING	REQUIRED	PROVIDED
BUILDING HEIGHT AREA 'C' ON Schedule 441	28 STOREY'S / 96.0m	28 STOREY'S / 96.0m
GRADE (GEODETIC ELEVATION - ASL)	(GEO. ELEV.) 57.10	(GEO. ELEV.) 57.10
FLOOR SPACE INDEX - MAX. 3 TOWERS	3.7	3.5
TOWER FLOOR PLATE - MAX.	900m²	900m²
TOWER SEPARATION - MIN.	20.0m	26.0m
FRONT YARD SETBACK - Montgomery Street	3.0m	3.0m
REAR YARD SETBACK - Selkirk Street	6.0m	6.0m
TRANSPARENT GLAZING - Montreal & River Road only	3.0m	N.A.
LANDSCAPE BUFFER - Selkirk Street	40%	40.0%
VEHICLE PARKING - RESIDENTIAL (AFTER 12 UNITS - 0.5 per unit)	170	292
VEHICLE PARKING - VISITOR (MIN. COMBINED VISITOR / COMMERCIAL)	TOTAL FOR SITE: 35	IN PHASE 1: 35
BICYCLE PARKING - 0.5 PER UNIT	193	280
AMENITY AREA - TOTAL PER UNIT - 6.0m²	2,310m²	4,050m²
AMENITY AREA - 50% COMMUNAL PER UNIT - 3.0m²	1,155m²	1,160m²
AISLE & DRIVEWAY MINIMUM / MAXIMUM WIDTH	6.0m / 6.7m	6.0m
10% PARKLAND DEDICATION	1,693.06m²	1,694.0m²

DRAWING NOTES

1. PROPERTY LINE
2. PHASE LINE
3. HOARDING - SOLID WOOD CONSTRUCTION BARRIER
4. 2.0m WIDE CONCRETE STREET CURB / SIDEWALK
5. INTERIM ASPHALT / CONCRETE SIDEWALK
6. BENCHES, SEE LANDSCAPE
7. EXISTING STREET CURB AND SIDEWALK
8. SOFT LANDSCAPING, SEE LANDSCAPE PLAN
9. 150mm WIDE BARRIER CURB
10. ENTRANCE TO GARAGE PARKING GARAGE
11. INTERIM STAGING AREA - ASPHALT / GRAVEL SURFACE
12. EXISTING FIRE HYDRANT
13. OUTLINE OF TOWER ABOVE
14. TEMPORARY SNOW STORAGE
15. 1.5m WIDE CYCLE LANE PAINTED ON STREET
16. EX. CURB AND ASPHALT WALK TO BE REMOVED
17. METAL GRATE - AIR SHAFT
18. MOUNTABLE CURB
19. WALL GRILL FOR BELOW GRADE PARKING GARAGE
20. BELOW GRADE CISTERN IN PARKING GARAGE
21. 1,2 X 1,8 CONCRETE PAD FOR GAS EQUIPMENT (GAS BLOW OFF)
22. HYDRO TRANSFORMER LOCATION IN PARKING GARAGE
23. SIAMESE CONNECTION
24. SHORT TERM LAY-BY PARKING
25. TRAFFIC / LIGHT BOLLARD
26. RAISED PLANTER, SEE LANDSCAPE FOR DETAILS
27. TRAFFIC SIGN - STOP, FIRE ROUTE, LOADING etc.
28. CITY BOULEVARD, 2.0m CONCRETE WALK, PLANTING STRIP, STREET CURB AND ON STREET PARKING
29. PROPOSED UTILITIES, SEE CIVIL
30. INTERIM GRASS BOULEVARD / SNOW STORAGE
31. INTERIM TURNING CIRCLE
32. PEDESTRIAN WALKING SURFACE
33. SERVICE / LOADING BAY; GARBAGE / DELIVERIES
34. 5.0 x 5.0 METRE SIGHT TRIANGLE
35. EXISTING UTILITY POLE
36. 6.0m WIDE FIRE ROUTE
37. BOLLARD STYLE BICYCLE RACK
38. SIGN FOR FIRE TRUCKS NOTING U/G PARKING STRUCTURE BELOW, AS BE OFC REQUIREMENTS
39. EXTERIOR TERRACE ABOVE PODIUM LEVEL
40. BALCONIES
41. ASPHALT DRIVING SURFACE
42. PEDESTRIAN CROSSWALK WITH TWSI & DEPRESSED CURBS

AMENITY AREA

GROUND FLOOR INTERIOR - COMMUNAL	196.0 sq. m,
4th FLOOR INTERIOR - COMMUNAL	251.0 sq. m,
4th FLOOR EXTERIOR - COMMUNAL	713.0 sq. m,
BALCONIES (ALL LEVELS) - PRIVATE	2,640.0 sq. m,
TERRACE - PRIVATE	300.0 sq. m,
TOTAL	4,050 sq. m,
TOTAL COMMUNAL	1,160 sq. m,
REQUIRED (385 UNITS X 6 m²) = 2,310 sq. m,	
REQUIRED COMMUNAL @ 50% =1,155 sq. m,	

SOLID WASTE (385 UNITS)

GARBAGE - COMPACTED	- 0,055 PER UNIT	21 YARDS
RECYCLING GMP	- 0,018 PER UNIT	7 YARDS
RECYCLING FIBER	- 0,038 PER UNIT	15 YARDS
COMPOST	- 240L PER 50 UNITS	8

SITE PLAN LEGEND

- UNIT PAVERS ON PRIVATE BOULEVARD
- PRIVATE CONCRETE BOULEVARD
- ENCLOSED HOARDING AREA
- CITY BOULEVARD PAVERS
- SOFT LANDSCAPING
- CONCRETE SIDEWALK
- TEMPORARY SNOW STORAGE
- BIKE RACK
- TWO WAY VEHICLE CIRCULATION
- VEHICLE SERVICE ENTRANCE
- MAIN ENTRANCE
- COMMERCIAL ENTRY / FIRE EXIT
- PROPERTY LINE

PROJECT STATISTICS - PHASE 3

GROSS BUILDING FLOOR AREA
(OTTAWA ZONING DEFINITION)

BELOW GRADE PARKING LEVEL		0.0 sq. m, 000 sq. ft,
GROUND FLOOR		0.0 sq. m, 000 sq. ft,
2nd FLOOR		309.4 sq. m, 3,330 sq. ft,
3rd FLOOR		533.0 sq. m, 5,737 sq. ft,
4th FLOOR		479.5 sq. m, 5,161 sq. ft,
5th - 28th FLOOR	24 x 729.4 sq. m, 24 x 7,851 sq. ft	17,505.2 sq. m, 188,424 sq. ft,
MECHANICAL LEVEL		000 sq. m, 000 sq. ft,
TOTAL AREA ABOVE GRADE		18,827.0 sq. m, 202,652 sq. ft,

UNIT STATISTICS

STUDIO	75
1 BEDROOM UNIT	205
1 BEDROOM + STUDY UNIT	29
2 BEDROOM UNIT	76
2 BEDROOM + STUDY UNIT	1
TOTAL	385

CAR PARKING

REQUIRED		
RESIDENCE	- 0,5 PER UNIT AFTER 12 UNITS	184
VISITOR	- PROVIDED IN PHASE 1 (35)	0
TOTAL		184
PROVIDED		
RESIDENCE	- 0,77 PER UNIT (380 UNITS)	292
VISITOR	- PROVIDED IN PHASE 1 (35)	0
TOTAL		292

BICYCLE PARKING

REQUIRED		
RESIDENCE	- 0.5 PER UNIT (380 UNITS)	190
PROVIDED		
PARKING GARAGE	-0.64 PER UNIT (380 UNITS)	242
EXTERIOR		38
TOTAL		280
LOCATION		
EXTERIOR AT GRADE		38
P1 PARKING LEVEL		59
GROUND FLOOR		151
SECOND FLOOR		16
THIRD FLOOR		16

PROJECT DEVELOPER

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URBAN PLANNER

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E-Mail: mrivet@jlrichards.ca

LEGAL DESCRIPTION

TOPOGRAPHICAL PLAN OF SURVEY OF

LOTS 2, 4, 6, 8, 10, 12, 14, 16, 32, 33, 34, 35 AND PART OF LOT 1
REGISTERED PLAN 49 AND
LOTS 14, 15, 16 AND
PART OF LOTS 1, 2, 3, 4, AND 5
REGISTERED PLAN 51 AND
PART OF LOT 7
JUNCTION GORE
GEOGRAPHIC TOWNSHIP OF
GLOUCESTER
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

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IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

NOTATION SYMBOLS:

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No.	DESCRIPTION	DATE
6		
5		
4		
3	REVISED AS PER ROUND 1 SPC COMMENTS DRAFT	Sept 11, 23
2	ISSUED FOR SPC APPLICATION PHASE 3	June 14, 23
1	ISSUED FOR OWNER / CONSULTANT REVIEW	June 1, 23

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY — LICENCE 4375 — SEAL DATE: STAMP DATE

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CLIENT: main + main

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PROJECT TITLE:

MAISON RIVERAIN
300 MONTGOMERY STREET
OTTAWA ONTARIO

SHEET TITLE:

SITE PLAN

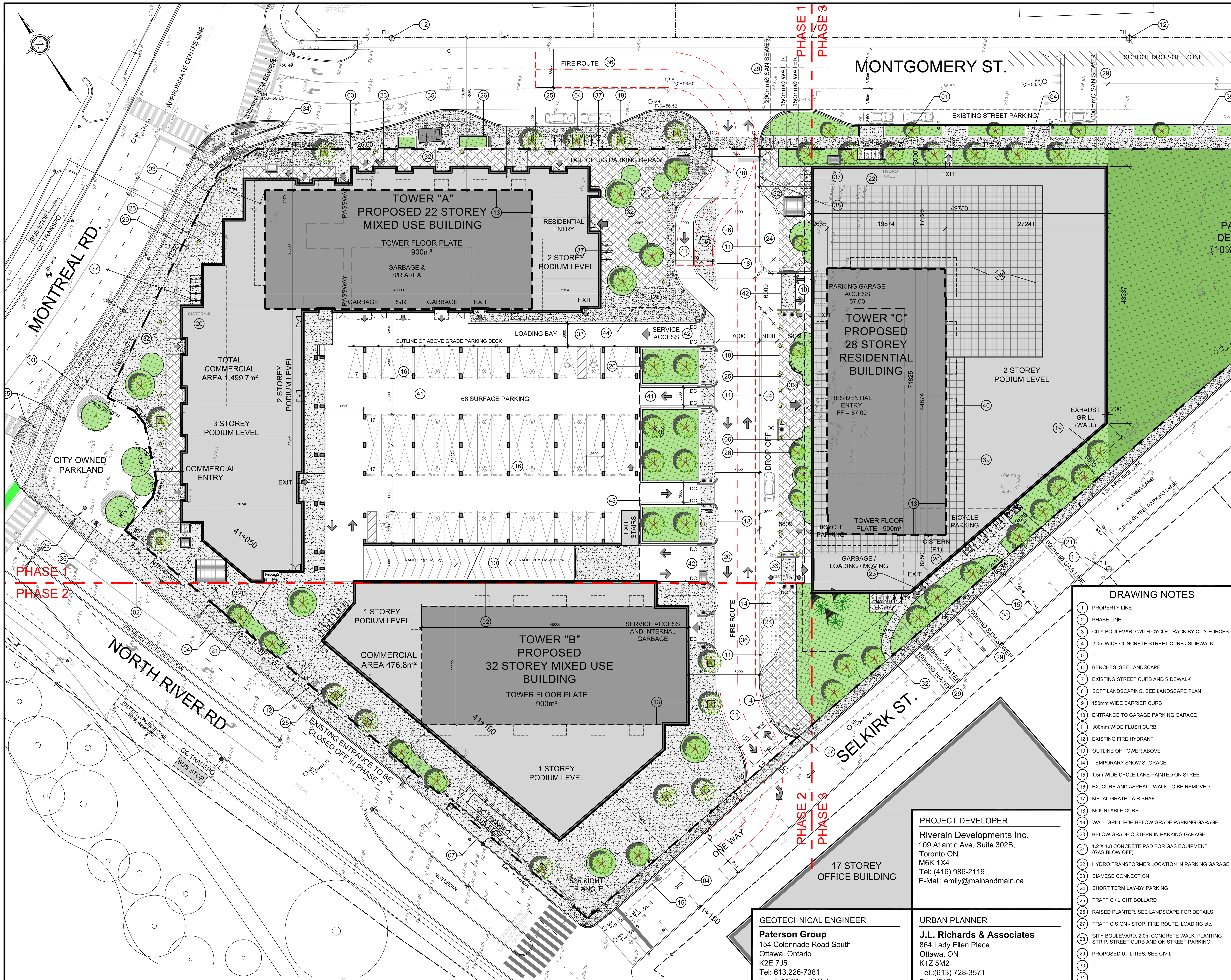
TOWER 'C' - PHASE 3

DRAWN:	CHECKED:
RV	S.S.
SCALE: 1:300	SHEET No. SP-1
PROJECT No. 2302	

D07-12-23-0087

Plan No.: # _____

PAPER SIZE: ISO_B1_(707.00_x_1000.00_MM) | PLOT DATE: Friday, September 15, 2023 | PLOT SCALE: 1:1 | PEN STYLE: 0-RLA-MASTER-100%.ctb | F:\2023\2302 - 300 Montgomery (Riverain Ph 3)\01 Design Development\01 Site Plan\2302 SP-1 Site Plan Ph-3 2023 09 06.dwg



1 SP-2 SITE PLAN - OVERALL
SCALE =1:300

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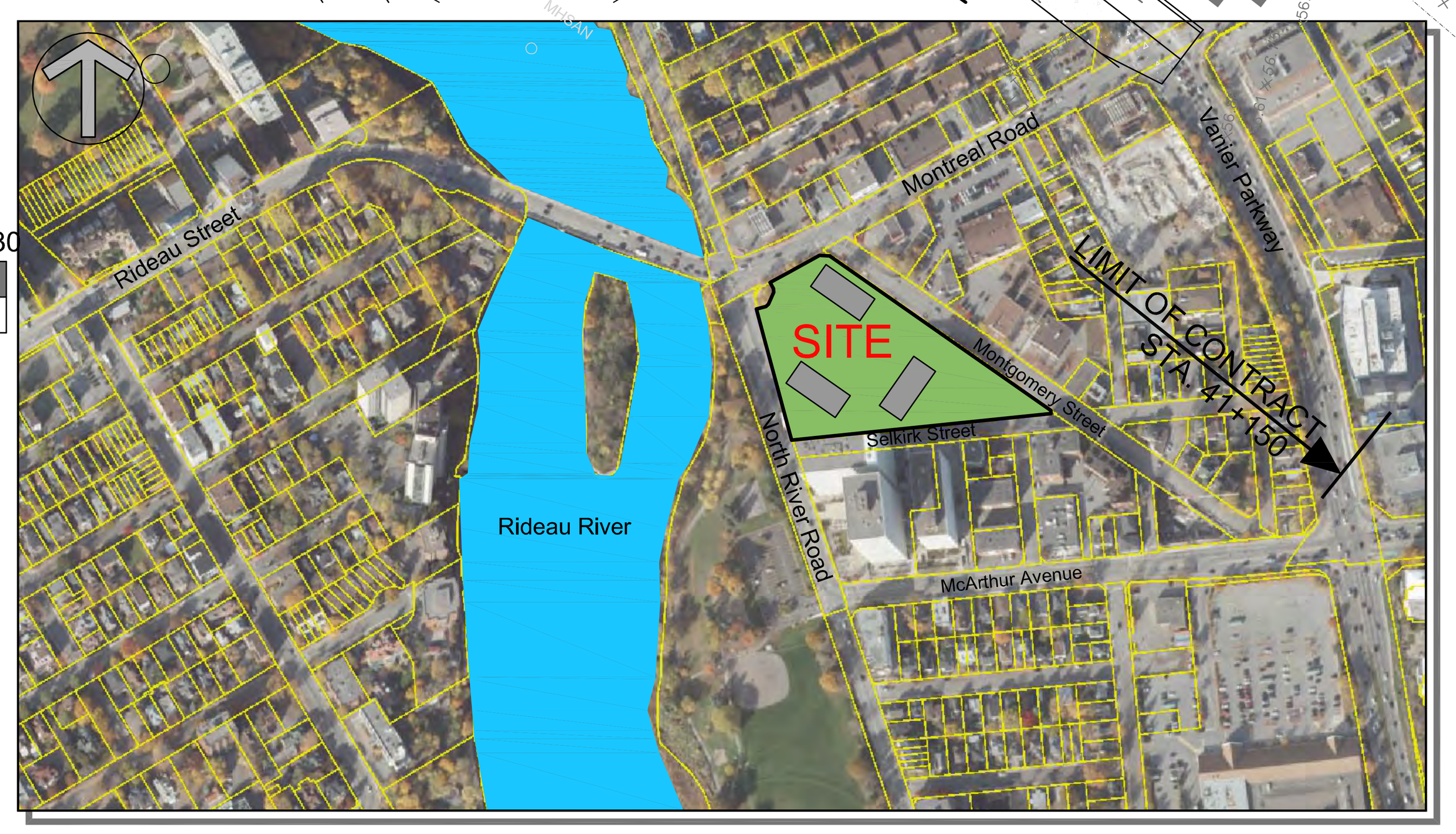

KEY MAP

LEGAL DESCRIPTION

TOPOGRAPHICAL PLAN OF SURVEY OF

LOTS 2, 4, 6, 8, 10, 12, 14, 16, 32, 33, 34,
35 AND PART OF LOT 1
REGISTERED PLAN 49 AND
LOTS 14, 15, 16 AND
PART OF LOTS 1, 2, 3, 4, AND 5
REGISTERED PLAN 51 AND
PART OF LOT 7
JUNCTION GORE
GEOGRAPHIC TOWNSHIP OF
GLOUCESTER
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

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DRAWING NOTES

1. PROPERTY LINE
2. PHASE LINE
3. CITY BOULEVARD WITH CYCLE TRACK BY CITY FORCES
4. 2.0m WIDE CONCRETE STREET CURB / SIDEWALK
5. --
6. BENCHES, SEE LANDSCAPE
7. EXISTING STREET CURB AND SIDEWALK
8. SOFT LANDSCAPING, SEE LANDSCAPE PLAN
9. 150mm WIDE BARRIER CURB
10. ENTRANCE TO GARAGE PARKING GARAGE
11. 300mm WIDE FLUSH CURB
12. EXISTING FIRE HYDRANT
13. OUTLINE OF TOWER ABOVE
14. TEMPORARY SNOW STORAGE
15. 1.5m WIDE CYCLE LANE PAINTED ON STREET
16. EX. CURB AND ASPHALT WALK TO BE REMOVED
17. METAL GRATE - AIR SHAFT
18. MOUNTABLE CURB
19. WALL GRILL FOR BELOW GRADE PARKING GARAGE
20. BELOW GRADE CISTERN IN PARKING GARAGE
21. 1.2 X 1.8 CONCRETE PAD FOR GAS EQUIPMENT (GAS BLOW OFF)
22. HYDRO TRANSFORMER LOCATION IN PARKING GARAGE
23. SIAMESE CONNECTION
24. SHORT TERM LAY-BY PARKING
25. TRAFFIC / LIGHT BOLLARD
26. RAISED PLANTER, SEE LANDSCAPE FOR DETAILS
27. TRAFFIC SIGN - STOP, FIRE ROUTE, LOADING etc.
28. CITY BOULEVARD, 2.0m CONCRETE WALK, PLANTING STRIP, STREET CURB AND ON STREET PARKING
29. PROPOSED UTILITIES, SEE CIVIL
30. --
31. --
32. PEDESTRIAN WALKING SURFACE
33. SERVICE / LOADING BAY: GARBAGE / DELIVERIES
34. 5.0 x 5.0 METRE SIGHT TRIANGLE
35. EXISTING UTILITY POLE
36. 6.0m WIDE FIRE ROUTE
37. BOLLARD STYLE BICYCLE RACK
38. SIGN FOR FIRE TRUCKS NOTING U/G PARKING STRUCTURE BELOW, AS BE OFC REQUIREMENTS
39. EXTERIOR TERRACE ABOVE PODIUM LEVEL
40. BALCONIES
41. ASPHALT DRIVING SURFACE
42. PEDESTRIAN CROSSWALK WITH TWSI & DEPRESSED CURBS
43. OUTLINE OF PHASE 2 ABOVE GRADE PARKING STRUCTURE
44. PRIVACY SCREEN, SEE LANDSCAPE
45. 10% PARKLAND DEDICATION

PROJECT INFORMATION

Zoning By-law 2008-250 Consolidation	TM7[2719] S441	SITE AREA	1.69 ha.	16,930.6 sq. m. 182,239 sq. ft.

ZONING	REQUIRED	PROVIDED
AREA "A" BUILDING HEIGHT ON Schedule 441	22 STOREY'S / 78.0m	22 STOREY'S / 78.0m
AREA "B" BUILDING HEIGHT ON Schedule 441	32 STOREY'S / 108.0m	32 STOREY'S / 108.0m
AREA "C" BUILDING HEIGHT ON Schedule 441	28 STOREY'S / 96.0m	28 STOREY'S / 96.0m
FLOOR SPACE INDEX - MAX. 3 TOWERS	3.7	3.5
TOWER FLOOR PLATE - MAX.	900m sq.	900m sq.
TOWER SEPARATION - MIN.	20.0m	26.0m
Montreal Road YARD SETBACK	4.0m	4.0m
Montgomery Street YARD SETBACK	3.0m	3.0m
North River Road YARD SETBACK	7.0m	7.0m
Selkirk Street YARD SETBACK - VARIES	6.0m & 13.0m	6.0m & 13.0m
TRANSPARENT GLAZING - Montreal & River Road only	40%	40%
LANDSCAPE BUFFER - Selkirk Street	3.0m	3.0m
VEHICLE PARKING - RESIDENTIAL (AFTER 12 UNITS - 0.5 per unit)	521	740
VEHICLE PARKING - VISITOR (MIN. COMBINED VISITOR / COMMERCIAL)	35	68
BICYCLE PARKING - RESIDENTIAL - 0.5 PER UNIT	554	791
BICYCLE PARKING - COMMERCIAL - 1 PER 250m² OF GFA	8	8
AMENITY AREA - TOTAL PER UNIT - 6.0m²	6,672m²	13,750m²
AMENITY AREA - 50% COMMUNAL PER UNIT - 3.0m²	3,336m²	4,980m²
AISLE & DRIVEWAY MINIMUM / MAXIMUM WIDTH	6.0m / 6.7m	6.0m
10% PARKLAND DEDICATION	1,693.06m²	1,694.0m²

AMENITY AREA

AT GRADE EXTERIOR - COMMUNAL	800.0 sq. m.
3rd FL. INTERIOR - COMMUNAL	620.0 sq. m.
3rd FL. TERRACE - COMMUNAL	470.0 sq. m.
4th FL. INTERIOR - COMMUNAL	350.0 sq. m.
4th FL. TERRACE - COMMUNAL	950.0 sq. m.
BALCONIES (ALL LEVELS) - PRIVATE	8,770.0 sq. m.
PH1 & PH2 3rd FL. TERRACE - COMMUNAL	1,640.0 sq. m.
TOTAL	13,750 sq. m.
TOTAL COMMUNAL	4,980 sq. m.

REQUIRED (1,107 UNITS X 6 m²) = 6,642 sq. m.
REQUIRED COMMUNAL @ 50% = 3,321 sq. m.

SITE COVERAGE

PARKLAND DEDICATION	10.00%	1,694.0 sq. m.
BUILDING FOOTPRINT PH-1	13.86%	2,345.8 sq. m.
BUILDING FOOTPRINT PH-2	10.95%	1,853.3 sq. m.
BUILDING FOOTPRINT PH-3	19.06%	3,227.4 sq. m.
PARKING DECK	12.55%	2,125.3 sq. m.
DRIVING SURFACE	10.37%	1,755.4 sq. m.
LANDSCAPE AREA	23.21%	3,929.4 sq. m.
TOTAL	100.0%	16,930.6 sq. m.

SITE PHASING AREA

PARKLAND DEDICATION	10.00%	1,694.0 sq. m.
PHASE 1	47.73%	8,080.2 sq. m.
PHASE 2	19.96%	3,380.1 sq. m.
PHASE 3	22.31%	3,777.3 sq. m.
TOTAL	100.00%	16,930.6 sq. m.

SITE PLAN LEGEND

- UNIT PAVERS ON PRIVATE BOULEVARD
- PRIVATE CONCRETE BOULEVARD
- CITY BOULEVARD PAVERS
- SOFT LANDSCAPING
- PARKLAND DEDICATION AREA
- CONCRETE SIDEWALK
- TEMPORARY SNOW STORAGE
- CYCLE TRACK
- BIKE RACK
- TWO WAY VEHICLE CIRCULATION
- VEHICLE SERVICE ENTRANCE
- MAIN ENTRANCE
- COMMERCIAL ENTRY / FIRE EXIT
- PROPERTY LINE

PROJECT STATISTICS - OVERALL

GROSS BUILDING FLOOR AREA
(OTTAWA ZONING DEFINITION)

PHASE 1 - TOWER "A"	17,196.1 sq. m. 185,097 sq. ft.
PHASE 2 - TOWER "B"	23,271.5 sq. m. 250,492 sq. ft.
PHASE 3 - TOWER "C"	18,827.0 sq. m. 202,652 sq. ft.
TOTAL AREA ABOVE GRADE	59,294.5 sq. m. 638,241 sq. ft.

UNIT STATISTICS

	Ph 1	Ph 2	Ph 3	
STUDIO	39	61	75	175
1 BEDROOM UNIT	162	248	204	614
1 BEDROOM + STUDY UNIT	30	31	28	89
2 BEDROOM UNIT	61	93	78	232
2 BEDROOM + STUDY UNIT	2	0	0	2
TOTAL	294	433	385	1,112

COMMERCIAL UNIT - PH 1	1,489.9 sq. m. 16,037 sq. ft.
COMMERCIAL UNIT - PH 2	476.8 sq. m. 5,132 sq. ft.

CAR PARKING

REQUIRED		
RESIDENCE - PH 1	- 0.5 PER UNIT AFTER 12 UNITS	141
RESIDENCE - PH 2	- 0.5 PER UNIT AFTER 12 UNITS	211
RESIDENCE - PH 3	- 0.5 PER UNIT AFTER 12 UNITS	193
VISITOR / COMMERCIAL		35
TOTAL		580

PROVIDED		
RESIDENCE - PH 1	- 0.79 PER UNIT (294 UNITS)	232
RESIDENCE - PH 2	- 0.50 PER UNIT (433 UNITS)	216
RESIDENCE - PH 3	- 0.76 PER UNIT (385 UNITS)	292
VISITOR / COMMERCIAL		68
TOTAL		808

BICYCLE PARKING

REQUIRED		
RESIDENCE - PH 1	- 0.5 PER UNIT (294 UNITS)	147
RESIDENCE - PH 2	- 0.5 PER UNIT (433 UNITS)	217
RESIDENCE - PH 3	- 0.5 PER UNIT (385 UNITS)	193
COMMERCIAL	- 1 per 250 M² OF GFA	8
TOTAL		565

PROVIDED		
RESIDENCE - PH 1	- 1.0 PER UNIT (294 UNITS)	294
RESIDENCE - PH 2	- 0.5 PER UNIT (433 UNITS)	217
RESIDENCE - PH 3	- 0.72 PER UNIT (385 UNITS)	280
COMMERCIAL	- 1 per 250 M² OF GFA	8
TOTAL		799

LOCATION	
INTERIOR: P1, 1st, 2nd, 3rd FLOOR	731
EXTERIOR AT GRADE	68

NOTATION SYMBOLS:

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No.	DESCRIPTION	DATE
20		
19		
18		
17		
16		
15	REVISED AS PER ROUND 1 SPC COMMENTS DRAFT	Sept 25, 23
14	ISSUED FOR SPC APPLICATION PHASE 3	June 14, 23
13	ISSUED FOR REVISED ENTRY WIDTH	Feb. 13, 23
12	ISSUED FOR SITE PLAN APPROVAL	Dec. 19, 22
11	ISSUED FOR CORNER REVISION	Dec. 07, 22
10	ISSUED FOR SPC AGREEMENT	Sept. 29, 22
8	ISSUED FOR SPC 4th ROUND COMMENTS	Sept. 20, 22
7	ISSUED FOR SUPERSTRUCTURE PERMIT	Sept. 16, 22
6	ISSUED FOR SPC 2nd ROUND COMMENTS	July 22, 22
5	GENERAL UPDATES / REVISED RAMP LOCATION	July 13, 22
4	ISSUED FOR OWNERS REVIEW	Apr. 13, 22
3	ISSUED FOR SPC 1st ROUND COMMENTS	Mar. 11, 22
2	ISSUED FOR OWNER / CONSULTANT REVIEW	Mar. 02, 22
1	ISSUED FOR OWNER / CONSULTANT REVIEW	Dec. 15, 21

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY LICENCE 4375
SEAL DATE: STAMP DATE

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PROJECT TITLE:
MAISON RIVERAIN
2 MONTREAL ROAD, 3 SELKIRK STREET
300 MONTGOMERY STREET
OTTAWA ONTARIO

SHEET TITLE:
SITE PLAN OVERALL

DRAWN:	CHECKED:
RV	S.S.
SCALE: 1:300	SHEET No. SP-2
PROJECT No. 2302	

D07-12-23-0087

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29 September 2023

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Wally Dubyk, C.E.T.

Re: 300 Montgomery Road TIA Report
1st Review Comments – Comment and Response Form

This comment and response form has been prepared to address the 1st Submission Review comments (TIA Report dated July 20, 2023) received on August 24, 2023, with corresponding responses from Parsons.

TRANSPORTATION ENGINEERING

1. As has previously recommended by Transportation Engineering Services, the design of Selkirk Street should move the existing parking lane to the north side of the road and provide a contraflow bike lane on the south side of the road between North River Road and Dundas Street. A contraflow bike lane is consistent with Policy 7-2 of the new TMP (Improve and Expand the Cycling Network), which states that, "where local roads are one-way for vehicles, contraflow cycling facilities (or other options to enable two-way cycling) should be considered, in support of cycling network density and connectivity."

   Note that Selkirk Street is two-way between Dundas Street and Montgomery Street. The design shown in Appendix A does not appear to consider two-way operation in this segment of Selkirk Street.

   Through discussions with the proponent, the proponent wishes to proceed with the Councillor-request westbound-only bike lane and adjacent sidewalk. This would be an improvement to westbound cycling and the pedestrian environment while maintaining the existing parking arrangement, which was a notable concern throughout the life of the project. This improvement can be implemented in the short term, where the resurfacing can present additional opportunities.

   The functional plan depicts the proposed sidewalk and westbound bike lane.

   Road resurfacing along Selkirk Street is targeted to start 3-5 years.

   Noted. The RMA has been prepared showing the "interim" configuration of a westbound bike lane.

TRAFFIC ENGINEERING

2. No additional comments beyond previous concerns surrounding trip generation and modal split targets. If transit and active transportation targets are not achieved there will be impacts throughout the transportation network which will impact site accesses. With the high number of parking spaces planned it seems possible that vehicle usage will be higher than forecast.

   Noted.

3. Are any monitoring measures planned post occupancy regarding trip generation and modal splits to

ensure targets are met?
A Phase 1 Monitoring Plan has been submitted with the Phase 3 site plan control for City review.

TRANSIT SERVICES

1. Throughout the current TIA it references the "previous TIA Report submission (dated August 2022)"
   This TIA report serves as an addendum update to previously approved Transportation Impact Assessment which support the Site Plan Control process for Phase 1, and for Full Build-out.

2. How / where will Para transit access the site in Phase 1, and in the final build-out?
   Para transit will utilize the Montgomery Access in Phase 1 and Phase 3. The Selkirk access is available by full build-out.

3. Will Para Transpo be able to access what appears to be a passenger pick- up / drop off zone on-site without the need to go over any mountable curbs? And are bollards planned along this drive aisle and would they impede Para operations? From the diagram it appears there are curb edge bollards spaced relatively closely along the on-site drop off lane and these may interfere with access and deployment of the ramp.
   Yes, Para Transpo will be able to access the drop-off area (3.0m wide). Bollard dimensions have been included on the site plan and are typically spaced 2.7m apart.

Section 2.1.1 Proposed Development:

4. Figure 2: Proposed Site Plan (July 2023): Figure 2 is missing the adjacent bus stop on North River Road, please update to include the bus stop.
   Bus stop included on site plan.

Section 2.1.2 Existing Conditions:

Montreal Road

5. Should also note existing bus stops in the area.
   Transit stops illustrated on Figure 5.

6. Page 3 of the TIA states: "There are currently time-of-day (TOD) curbside bus lanes along Montreal Road from Montgomery Street to St. Laurent Boulevard. Within the study area, there is a westbound curbside bus lane from Vanier Parkway to Montgomery Street during the morning peak period (7:00 – 9:00am)."
   Please update to reflect current conditions now that more of the Montreal Road constructions works have been completed.
   Noted. The TIA Addendum Report has been updated to better reflect the Montreal Road construction works. No updates are proposed to the approved TIA Report.

North River Road

7. Should also note existing bus stops in the area.
   Transit stops illustrated on Figure 5.

Section 2.1.3 Planned Conditions:
Page 13 in the document, page 20 of the pdf:

8. In the top half of the page, it notes "Removal of time-of-day bus lanes"
   In the "Transit" section in the bottom of the page it notes "It has been confirmed that the peak period bus lanes will be maintained west of Vanier Parkway" (i.e. in the area of this development)
   These are contradictory statements. Please update the TIA throughout to reflect the correct conditions.

Noted. The TIA Addendum Report has been updated to better reflect the Montreal Road construction works. No updates are proposed to the approved TIA Report.

Section 3.1.1 Site Trip Generation and Target Mode Shares:

9. Phase 1 Trip Generation, Residential Trip Generation: This section references the October 2020 TRANS Trip Generation Manual in the body of the text, however, seems to be using the 2009 TRANS Trip Generation for Table 10. Why is the 2020 trip generation not used; or at least specified in more detail for all the mode differences? And what are the modifications being made to 2011 OD Survey Modal data made in Table 11? Similar comments apply for Tables 16 and 17.
   Comment seems to be regarding tables from the approved Phase 1 TIA report (August, 2022). The Phase 1 TIA was commenced prior to the TRANS 2020 trip generation update.

   The Phase 3 TIA has used TRANS 2020 trip generation assumptions per the latest TIA Guidelines.

10. Phase 2 and 3 Trip Generation, Retail Trip Generation: There appear to be several math / rounding errors in Table 14. Trips have been over-assigned to auto modes and under-assigned to transit and active modes. For example, Table 14 shows zero (0) transit trips in the AM peak period despite being 30% of the mode share, while at the same time assigning 1 trip to Auto Passenger which is only 10% mode share. The PM section also appears to be rounding up in favour of auto modes and rounding down on Transit and Active mode trips. Table 14, and any supporting text need to be updated to reflect the proper mode share results.
    The Phase 1 TIA has been approved as part of the Phase 1 Site Plan Application. Rounding up in favour of auto modes allows the analysis to err on the conservative side when considering the capacity analysis. While the 1 person trip could also be assigned to transit, this change would not materially affect the outcome of the report.

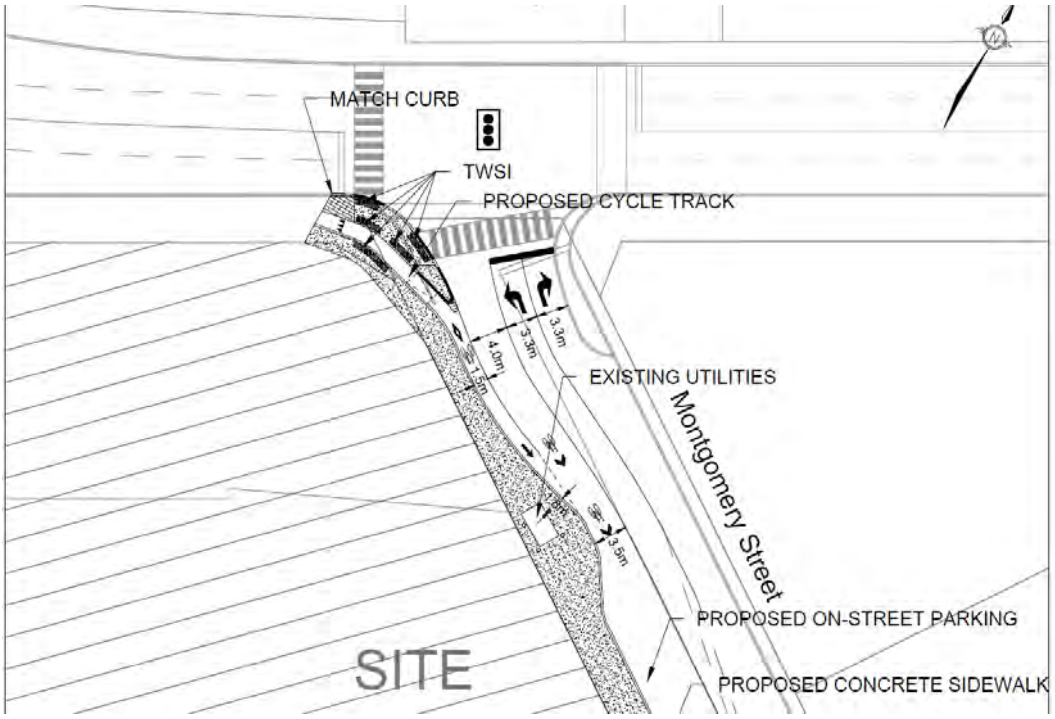
Section 4.1.1 Design for Sustainable Modes:

11. For the text “With regards to transit, a bus shelter is anticipated to be provided at the existing bus stop in the northeast corner of North River / Selkirk.” Please clarify that the applicant is proposing to provide the shelter (and pad) to City of Ottawa standards.
    A bus shelter and pad will be constructed to City of Ottawa standards following Phase 2 of the development.

Phase 1 Roadway Modifications:

Figure 19 and related text: further review of proposed roadway modifications in consideration of Para Transpo service on / via Montgomery Street.

12. From a transit operational perspective, concerns over possible unanticipated movements/ behaviours. How is the termination of the cycle track on Montgomery Street managed? Has protection for future extension of cycling facilities to the east as redevelopment occurs been considered? Is a short bike lane and taper required?
    Additional discussions took place following the August 2022 report resulting in an approved RMA for Phase 1. The design below was established to mitigate the noted implications. The Phase 1 RMA is currently in detailed design.

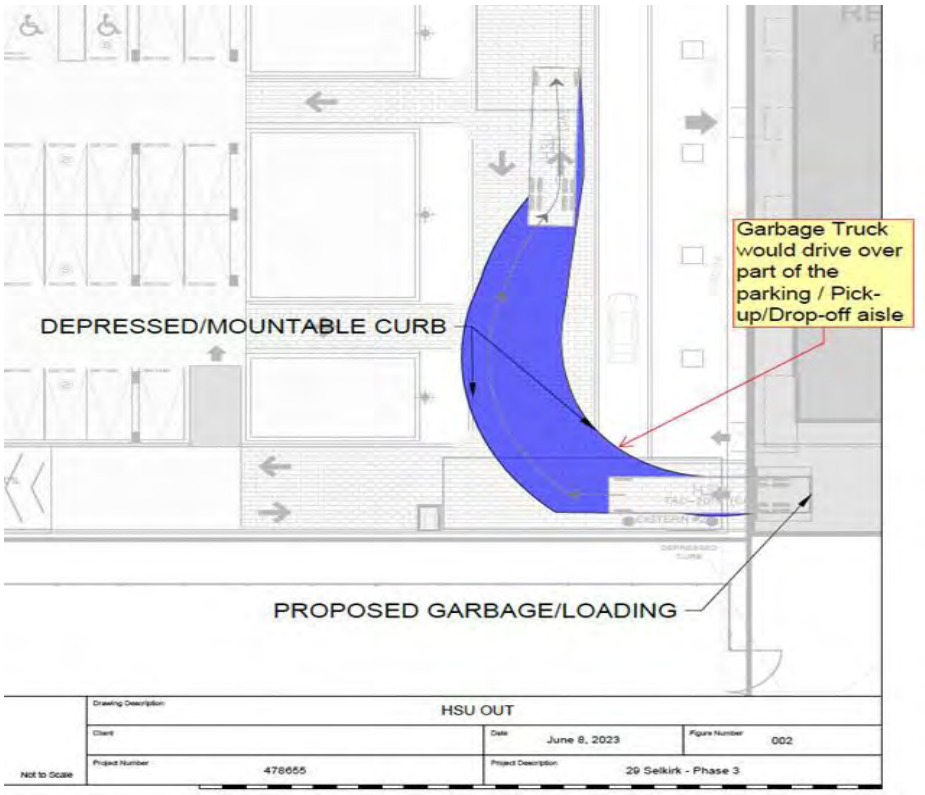


PXO Assessment North River / Selkirk:

13. Pedestrian desire lines / Other considerations: should the nearby bus stop(s) on North River Road also be considered?
    The nearby bus stops should also be considered. A PXO is currently not proposed by the development.

New Comments (for Phase 3 circulation TIA report dated July 2023)

14. This TIA notes in section 5 that "Truck turns at both the Montgomery St site access and the garbage pick-up/loading space of the Phase 3 building were confirmed to have no conflicts or turning issues." However, the turning templates shown in Appendix C – Truck Turning Templates show the HSU vehicle tracking over part of the short term lay-by parking in front of the Phase 3 building and the space on the opposite side of the roadway (see mark-up)
    The noted curbs are depressed and designed for tracking. This is considered acceptable for the occasional loading and waste maneuver.



PARA TRANSPO COMMENTS:

15. The Phase 3 building has a row of 'traffic / light bollard' in front of the main entrance – what is the spacing of these bollards, and will they impede the Para Transpo operations? Similar to the outstanding Phase 1 building comments - from the diagram it appears there are curb edge bollards spaced relatively closely along the on-site drop off lane and these may interfere with access and deployment of the ramp.
    The spacing between bollards is typically 2.7m. The dimension has been noted on the site plan.
16. Please show how Para Transpo will be able to access the Phase 3 building in the interim and final conditions, including applicable dimensions.
    The designated drop off area, which is 3.0m wide, is available for para-transpo use. The vehicle can park in front of the main residential entry. The access from Montgomery Street will be used during Phase 1 & 3.
17. As best as can be scaled from the drawing it appears there is enough of a clear space of bollards between the main entrance and the garbage / loading / moving access, but puts it very close to the apparent interim turn- around and where the HSU will track over the short term lay-by parking.
    The spacing between bollards is typically 2.7m. A depressed curb and TWSI has been provided along the drop-off area.
18. Ideally the Para stop would be in front of the main entrance.
    Noted. The drop-off area can be used for Para-Transpo.
19. Please clarify if there are any depressed curbs along the length of the short term lay-by parking to facilitate access for Para Transpo customers who use the rear ramp of the vehicle. It is not clear if the mountable curb will satisfy the City of Ottawa Accessible Design Standards section 3 – Exterior Elements (see also 6.20 Public Transit as applicable)
    A depressed curb and TWSI has been provided along the drop-off area.
20. How will the interim operation of the internal roadway turnaround work (before it is extended through to Selkirk as part of Phase 2? It is shown on the diagram as being in front of the garbage / loading / moving area and

shown tracking over sections of the short term lay-by parking and the pedestrian and 'traffic / light bollard' area.

The turn-around area, when required, will operate as a hammerhead configuration. There are opportunities to circulate in front of Phase 1, when required.

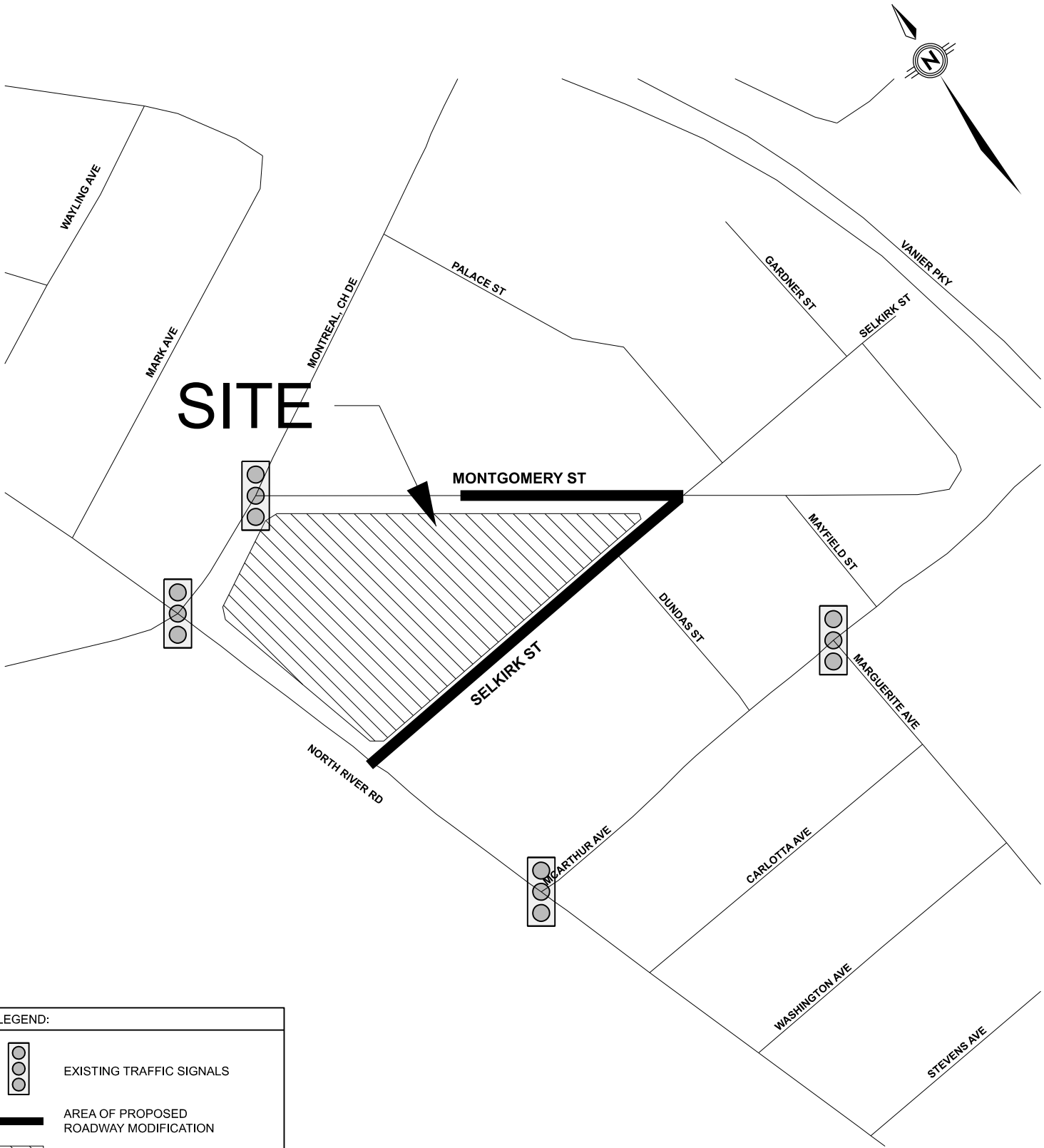
GENERAL COMMENTS

As has previously recommended by Transportation Engineering Services, the design of Selkirk Street should

21. Both Montgomery Street and Selkirk Street are classified as Local Roads. There are no additional protected ROW limits identified in the OP.
    Noted.
22. A 3.0 metres x 3.0 metres sight triangle would be required at the intersection of Montgomery Street and Selkirk Street based on Schedule C16 of the Official Plan. The sight triangle area is to be conveyed to the city and is to be shown on all drawings. Should the City decide to widen O'Connor Street the sight triangle would provide an area for relocating the traffic signal pole.
    Noted. Included on Site Plan and RMA drawings.
23. The Tactile Walking Surface Indicator (TWSI) should be provided at pedestrian crossings. Under the Integrated Accessibility Standards of the Accessibility for Ontarians with Disabilities Act, 2005, and the City of Ottawa Accessibility Design Standards, TWSI's are required for new construction and the redevelopment of elements in public spaces, such as for exterior paths of travel (e.g. sidewalks and at the top of stairs).
    Noted.
24. The concrete sidewalk is required along Montgomery Street and Selkirk Street and is to meet City standards and be 2.0 metres in width and be continuous along the property frontage.
    Noted.
25. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.
    Noted.
26. Signs related to the development site are to be placed in accordance with the applicable sign by-law. (Permanent Signs on Private Property By-law No. 2016- 326). (Temporary Signs on Private Property By-law No. 2004-239). (Signs on City Roads By-law No. 2003-520). An Encroachment Agreement will be required for any signage on the road allowance.
    Noted.
27. The Owner is responsible for identifying the type and location of existing signage that will be removed from within the Right-of-Way to accommodate the development site. The Owner is responsible for providing the General Manager with a detailed drawing identifying the type and position of the existing signs and roadway pavement markings along the site frontage. A separate pavement markings and signage drawings are to be provided.
    Noted.
28. Relocating an existing roadway curbing by 30 cm will require a RMA report and approval by the delegated authority. Please confirm if you are triggering an RMA.
    Noted. RMA is confirmed for Phase 3 for Selkirk and Montgomery. This has been provided in this submission.
29. The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.
    Noted.
30. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be in safe, secure places near main entrances and preferably protected from the weather.
    Noted.

APPENDIX B

MONTGOMERY ST AND SELKIRK ST ROADWAY MODIFICATIONS (RMA)



LEGEND:

- EXISTING TRAFFIC SIGNALS
- AREA OF PROPOSED ROADWAY MODIFICATION
- PROPOSED DEVELOPMENT

TRANSPORTATION SERVICES DEPARTMENT

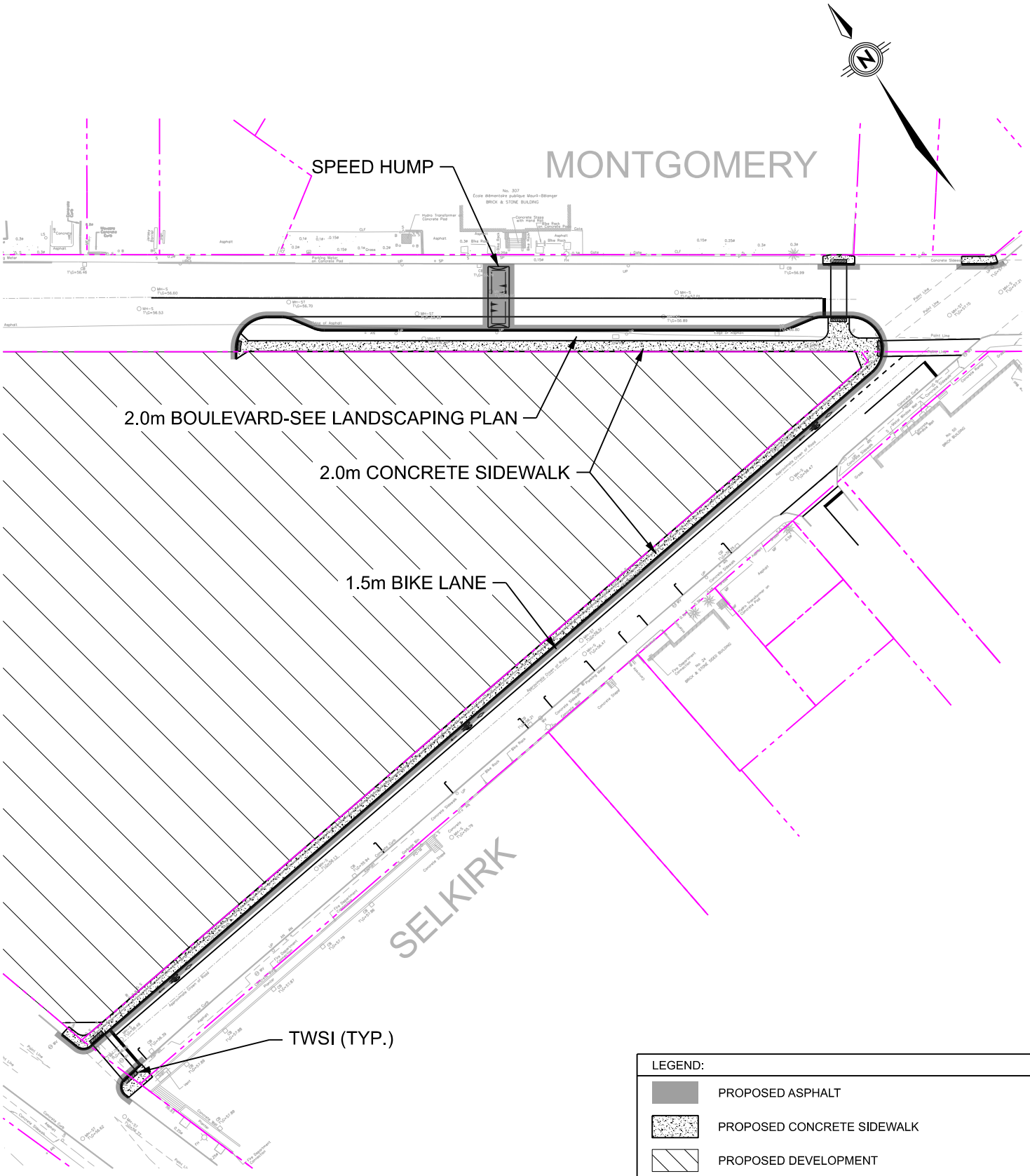
KEY PLAN

RIVERAIN DISTRICT PHASE 3

300 MONTGOMERY STREET
OTTAWA, ON, K1L 7W8

Transportation Engineering Services Branch

Approved By: ..	Drawing No.: RMA-2023-TPD-XXX-A
Completed By: PARSONS	
Scale: N.T.S.	Date: SEPTEMBER 2023



LEGEND:

- PROPOSED ASPHALT
- PROPOSED CONCRETE SIDEWALK
- PROPOSED DEVELOPMENT

Ottawa

TRANSPORTATION SERVICES DEPARTMENT

PROPOSED ROADWAY MODIFICATIONS

RIVERAIN DISTRICT PHASE 3

300 MONTGOMERY STREET
OTTAWA, ON, K1L 7W8

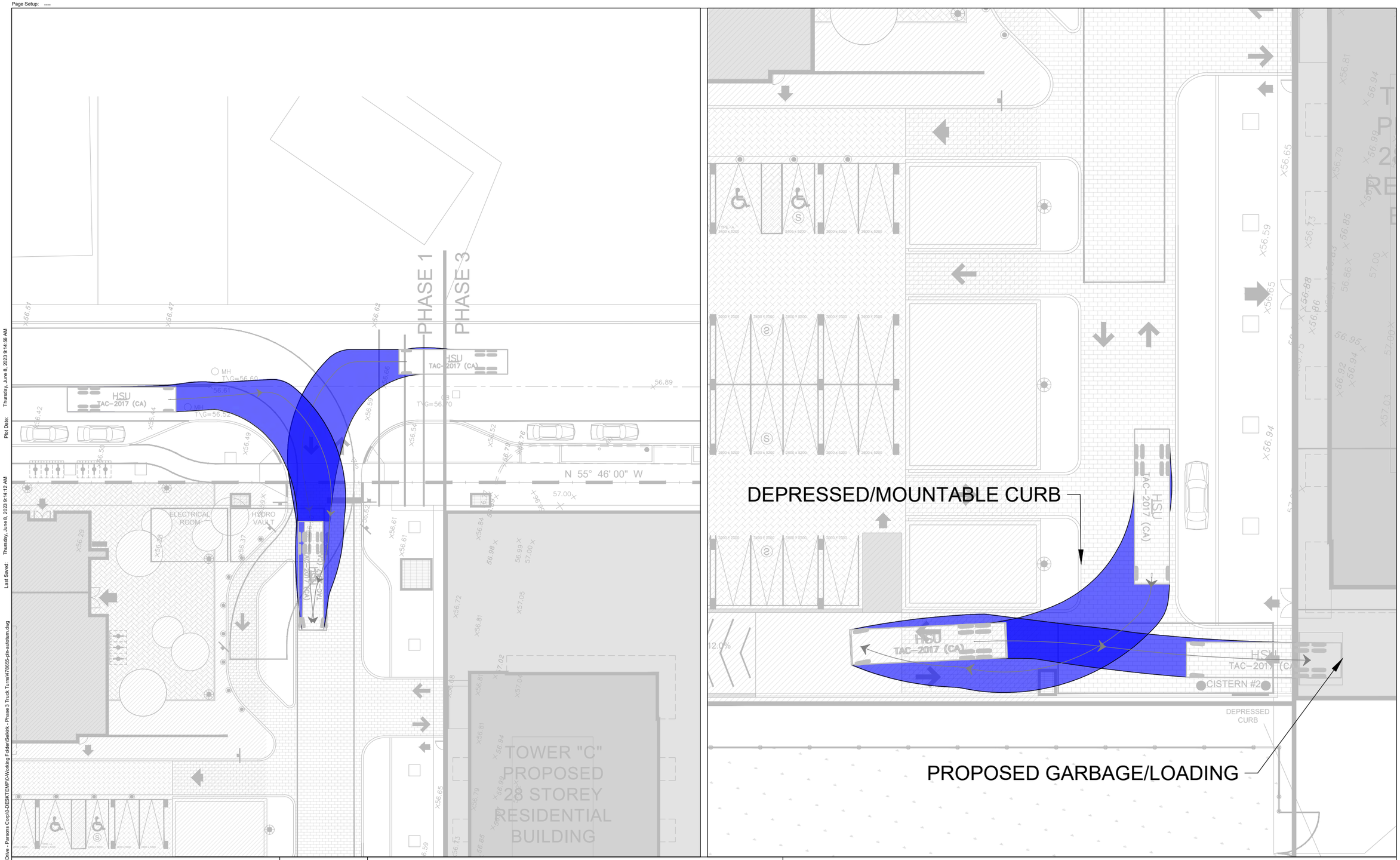
Transportation Engineering Services Branch

Approved By: ..	Drawing No.: RMA-2023-TPD-XXX-B
Completed By: PARSONS	
Scale: 1:1000	Date: SEPTEMBER 2023

APPENDIX C

TRUCK TURNING TEMPLATES

Page Setup: ----



Plot Date: Thursday, June 8, 2023 9:14:56 AM

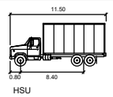
Last Saved: Thursday, June 8, 2023 9:14:12 AM

Consultants Information C:\Users\pjx004378\OneDrive - Parsons Corp\0-DESKTEMP\0-Working Folder\Selkirk - Phase 3 Truck Turns\478655-plh-autoturn.dwg

PARSONS

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



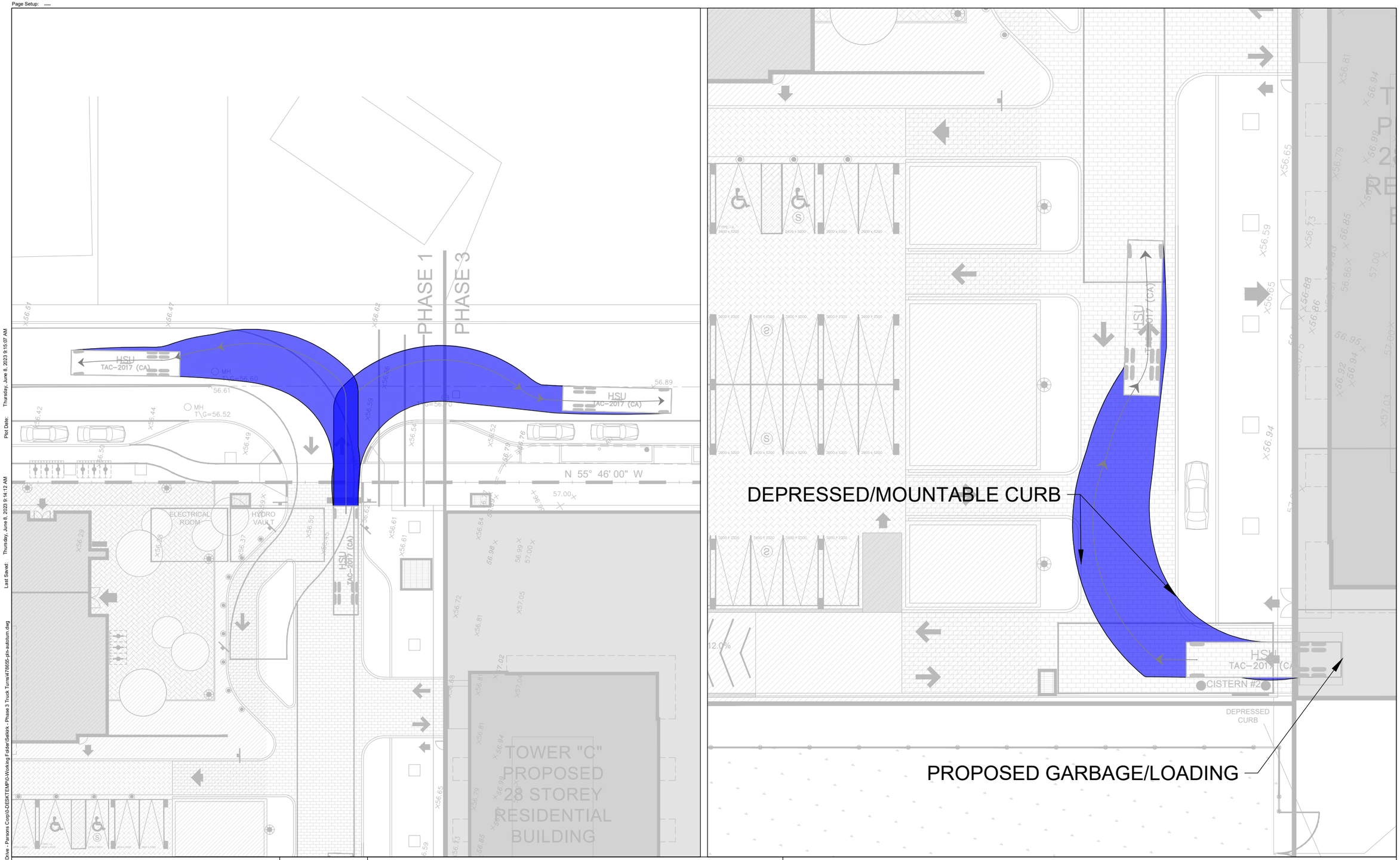
HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: HSU IN		
Client	Date: June 8, 2023	Figure Number: 001
Project Number: 478655	Project Description: 29 Selkirk - Phase 3	

Page Setup: ----



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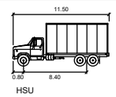
PARSONS

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



Not to Scale

Drawing Description: HSU OUT		
Client	Date: June 8, 2023	Figure Number: 002
Project Number: 478655	Project Description: 29 Selkirk - Phase 3	

APPENDIX D

RESIDENTIAL TDM MEASURES CHECKLIST

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)	☐

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)*	☑ *To be provided at main entries.*
	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)*	☑ *To be provided at main entries.*
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)*	☑ *Will be sought for during construction, if available.*
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	☑ *Car sharing to be included, provider to be determined.*
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)*	☑ *Residential costs to be unbundled.*

			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	☑ *To be provided on move-in.*
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

APPENDIX E

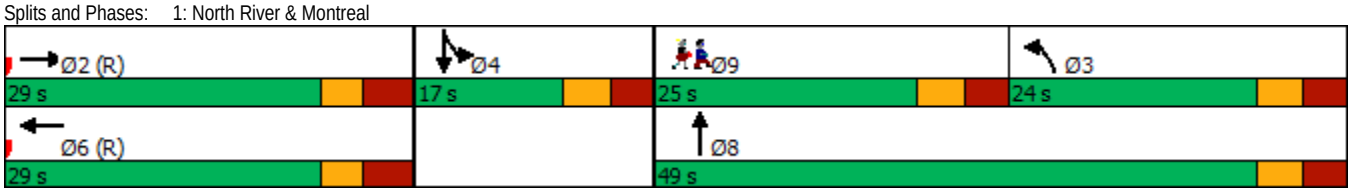
SYNCHRO ANALYSIS REPORTS

Lane Group	EBT	WBT	NBL	NBT	SBT	Ø9
Lane Configurations						
Traffic Volume (vph)	402	585	234	10	59	
Future Volume (vph)	402	585	234	10	59	
Lane Group Flow (vph)	868	664	260	44	102	
Turn Type	NA	NA	Prot	NA	NA	
Protected Phases	2	6	3	8	4	9
Permitted Phases						
Detector Phase	2	6	3	8	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	21.7	21.7	11.5	24.5	16.5	24.5
Total Split (s)	29.0	29.0	24.0	49.0	17.0	25.0
Total Split (%)	30.5%	30.5%	25.3%	51.6%	17.9%	26%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.7	3.7	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.7	6.7	6.5	6.5	6.5	
Lead/Lag			Lag			Lead
Lead-Lag Optimize?			Yes			Yes
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effct Green (s)	44.6	44.6	18.8	23.7	10.3	
Actuated g/C Ratio	0.47	0.47	0.20	0.25	0.11	
v/c Ratio	0.62	0.42	0.77	0.11	0.53	
Control Delay	26.0	21.7	52.8	10.0	47.0	
Queue Delay	0.0	1.3	0.0	0.0	0.0	
Total Delay	26.0	23.0	52.8	10.0	47.0	
LOS	C	C	D	B	D	
Approach Delay	26.0	23.0		46.6	47.0	
Approach LOS	C	C		D	D	
Queue Length 50th (m)	61.5	41.3	44.2	1.6	16.3	
Queue Length 95th (m)	#141.9	#88.2	#84.7	6.9	32.4	
Internal Link Dist (m)	105.3	52.9		0.1	56.2	
Turn Bay Length (m)			35.0			
Base Capacity (vph)	1389	1583	348	694	197	
Starvation Cap Reductn	0	674	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.62	0.73	0.75	0.06	0.52	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: North River & Montreal



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	431	53	689	19	38
Future Volume (vph)	431	53	689	19	38
Lane Group Flow (vph)	577	0	825	21	42
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	2		6	8	
Permitted Phases		6			8
Detector Phase	2	6	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.9	15.9	15.9	19.5	19.5
Total Split (s)	56.0	56.0	56.0	24.0	24.0
Total Split (%)	70.0%	70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	67.2		67.2	10.0	10.0
Actuated g/C Ratio	0.84		0.84	0.12	0.12
v/c Ratio	0.21		0.33	0.10	0.19
Control Delay	2.5		3.3	32.4	12.9
Queue Delay	0.3		0.0	0.0	0.0
Total Delay	2.8		3.3	32.4	12.9
LOS	A		A	C	B
Approach Delay	2.8		3.3	19.4	
Approach LOS	A		A	B	
Queue Length 50th (m)	10.5		19.6	2.9	0.0
Queue Length 95th (m)	15.3		27.0	9.2	8.6
Internal Link Dist (m)	52.9		246.0	77.9	
Turn Bay Length (m)					
Base Capacity (vph)	2762		2474	391	383
Starvation Cap Reductn	1494		0	0	0
Spillback Cap Reductn	0		0	0	0
Storage Cap Reductn	0		0	0	0
Reduced v/c Ratio	0.46		0.33	0.05	0.11

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.33	
Intersection Signal Delay: 3.8	Intersection LOS: A
Intersection Capacity Utilization 72.8%	ICU Level of Service C
Analysis Period (min) 15	

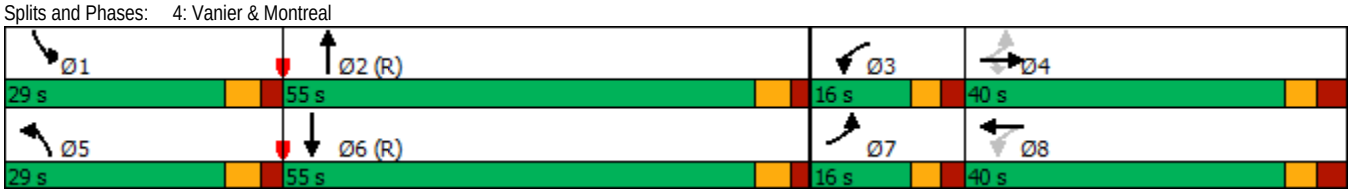
Splits and Phases: 2: Montgomery & Montreal

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	39	316	150	165	484	183	857	213	1096
Future Volume (vph)	39	316	150	165	484	183	857	213	1096
Lane Group Flow (vph)	43	351	167	183	754	203	1136	237	1374
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.7	39.6	39.6	10.7	39.6	11.1	28.9	11.1	28.9
Total Split (s)	16.0	40.0	40.0	16.0	40.0	29.0	55.0	29.0	55.0
Total Split (%)	11.4%	28.6%	28.6%	11.4%	28.6%	20.7%	39.3%	20.7%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.4	3.3	3.3	2.4	3.3	2.4	2.2	2.4	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.6	6.6	5.7	6.6	6.1	5.9	6.1	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	39.8	31.0	31.0	46.6	37.0	20.4	51.2	22.0	52.7
Actuated g/C Ratio	0.28	0.22	0.22	0.33	0.26	0.15	0.37	0.16	0.38
v/c Ratio	0.27	0.89	0.38	0.82	0.87	0.82	0.66	0.89	0.76
Control Delay	34.1	77.0	8.5	64.6	58.9	91.5	34.5	90.8	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	77.0	8.5	64.6	58.9	91.5	34.5	90.8	41.9
LOS	C	E	A	E	E	F	C	F	D
Approach Delay		53.3			60.0		43.1		49.1
Approach LOS		D			E		D		D
Queue Length 50th (m)	7.8	92.8	0.0	36.3	101.8	59.7	55.9	64.6	124.2
Queue Length 95th (m)	16.4	#139.7	18.3	#69.7	#144.2	m79.8	72.3	#109.4	144.1
Internal Link Dist (m)		246.0			113.1		139.9		106.8
Turn Bay Length (m)	35.0			40.0		95.0		90.0	
Base Capacity (vph)	190	425	464	222	864	277	1740	277	1800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.83	0.36	0.82	0.87	0.73	0.65	0.86	0.76

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 50.1	Intersection LOS: D
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal

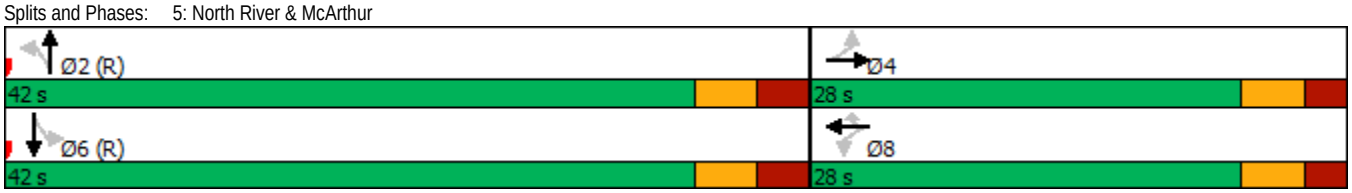


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	8	9	165	3	125	332	102
Future Volume (vph)	1	6	8	9	165	3	125	332	102
Lane Group Flow (vph)	0	11	0	19	183	0	174	0	486
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6	31.1	31.1	31.1	31.1
Total Split (s)	28.0	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.8	2.8	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.6		5.6	5.6		6.1		6.1
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		12.0		12.0	12.0		46.3		46.3
Actuated g/C Ratio		0.17		0.17	0.17		0.66		0.66
v/c Ratio		0.04		0.07	0.47		0.15		0.66
Control Delay		19.2		21.0	14.7		5.0		14.7
Queue Delay		0.0		0.0	0.0		0.0		0.0
Total Delay		19.2		21.0	14.7		5.0		14.7
LOS		B		C	B		A		B
Approach Delay		19.2		15.3			5.0		14.7
Approach LOS		B		B			A		B
Queue Length 50th (m)		0.9		2.5	10.5		5.5		28.5
Queue Length 95th (m)		4.0		m5.3	m45.4		17.7		#102.4
Internal Link Dist (m)		19.4		126.4			86.5		58.5
Turn Bay Length (m)					100.0				
Base Capacity (vph)		535		505	575		1123		737
Starvation Cap Reductn		0		0	0		0		0
Spillback Cap Reductn		0		0	0		0		0
Storage Cap Reductn		0		0	0		0		0
Reduced v/c Ratio		0.02		0.04	0.32		0.15		0.66

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: North River & McArthur



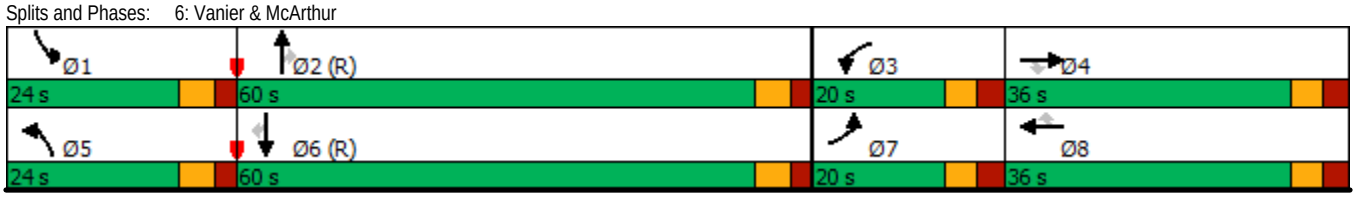
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	112	279	209	191	104	220	1044	225	140	1207	60
Future Volume (vph)	34	112	279	209	191	104	220	1044	225	140	1207	60
Lane Group Flow (vph)	38	124	310	232	212	116	244	1160	250	156	1341	67
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.0	36.0	20.0	36.0	36.0	24.0	60.0	60.0	24.0	60.0	60.0
Total Split (%)	14.3%	25.7%	25.7%	14.3%	25.7%	25.7%	17.1%	42.9%	42.9%	17.1%	42.9%	42.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.6	22.4	22.4	13.2	29.4	29.4	23.8	63.5	63.5	16.3	55.9	55.9
Actuated g/C Ratio	0.06	0.16	0.16	0.09	0.21	0.21	0.17	0.45	0.45	0.12	0.40	0.40
v/c Ratio	0.37	0.44	0.72	0.75	0.57	0.31	0.85	0.75	0.36	0.79	0.99	0.11
Control Delay	73.2	53.6	27.4	77.1	55.5	8.9	82.0	38.0	13.9	86.6	50.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	53.6	27.4	77.1	55.5	8.9	82.0	38.0	13.9	86.6	50.2	3.1
LOS	E	D	C	E	E	A	F	D	B	F	D	A
Approach Delay		38.0			54.8			40.8			51.8	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	9.6	32.5	28.9	32.6	50.2	0.0	~77.9	156.9	20.3	45.6	~93.1	0.2
Queue Length 95th (m)	m16.6	m44.6	59.8	46.8	77.8	14.7	#131.4	187.7	43.3	m60.4	#242.5	m2.5
Internal Link Dist (m)		119.1			163.5			123.8			129.2	
Turn Bay Length (m)	40.0		80.0	100.0		75.0	55.0		55.0	85.0		110.0
Base Capacity (vph)	167	379	493	324	408	401	288	1537	704	216	1354	637
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.63	0.72	0.52	0.29	0.85	0.75	0.36	0.72	0.99	0.11

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 46.4 — Intersection LOS: D
Intersection Capacity Utilization 93.2% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Vanier & McArthur



Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	371	258	10
Future Volume (vph)	371	258	10
Lane Group Flow (vph)	423	375	29
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 42.2%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	371	258	79	10	16
Future Vol, veh/h	10	371	258	79	10	16
Conflicting Peds, #/hr	91	0	0	91	1	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	412	287	88	11	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	466	0	-	0	857	433
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	435	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1095	-	-	-	328	623
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	653	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1011	-	-	-	276	570
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1011	-	-	-	404
HCM Lane V/C Ratio	0.011	-	-	-	0.072
HCM Control Delay (s)	8.6	0	-	-	14.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	377	337	4
Future Volume (vph)	377	337	4
Lane Group Flow (vph)	419	374	8
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 30.9%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	377	337	0	4	4
Future Vol, veh/h	0	377	337	0	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	419	374	0	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	374	0	-	0	793	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	419	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1184	-	-	-	358	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1184	-	-	-	358	672
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	664	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1184	-	-	-	467
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	12.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	27	34	235	397
Future Volume (vph)	27	34	235	397
Lane Group Flow (vph)	30	38	262	441
Sign Control	Stop		Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 23.3%		ICU Level of Service A
Analysis Period (min) 15		

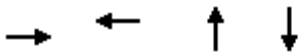
Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	34	235	1	0	397
Future Vol, veh/h	27	34	235	1	0	397
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	38	261	1	0	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	576	352	0	0	-	-
Stage 1	352	-	-	-	-	-
Stage 2	224	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	463	691	-	-	0	-
Stage 1	711	-	-	-	0	-
Stage 2	793	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	426	638	-	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	-	426	638	-
HCM Lane V/C Ratio	-	-	0.07	0.059	-
HCM Control Delay (s)	-	-	14.1	11	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	36	28	29	44
Future Volume (vph)	36	28	29	44
Lane Group Flow (vph)	100	69	54	121
Sign Control	Stop	Stop	Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 28.3%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	36	18	5	28	29	14	29	5	44	44	21
Future Vol, veh/h	36	36	18	5	28	29	14	29	5	44	44	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	40	20	6	31	32	16	32	6	49	49	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	258	229	61	256	237	35	72	0	0	38	0	0
Stage 1	159	159	-	67	67	-	-	-	-	-	-	-
Stage 2	99	70	-	189	170	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	695	671	1004	697	664	1038	1528	-	-	1572	-	-
Stage 1	843	766	-	943	839	-	-	-	-	-	-	-
Stage 2	907	837	-	813	758	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	627	641	1004	629	635	1038	1528	-	-	1572	-	-
Mov Cap-2 Maneuver	627	641	-	629	635	-	-	-	-	-	-	-
Stage 1	834	741	-	933	830	-	-	-	-	-	-	-
Stage 2	837	828	-	729	733	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	10.1	2.2	3
HCM LOS	B	B		

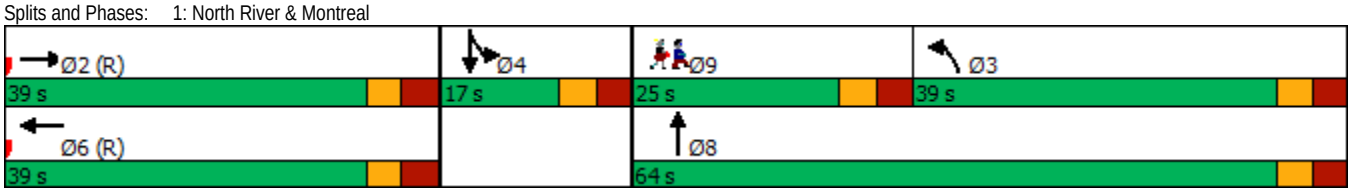
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1528	-	-	684	775	1572	-	-
HCM Lane V/C Ratio	0.01	-	-	0.146	0.089	0.031	-	-
HCM Control Delay (s)	7.4	0	-	11.2	10.1	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0.1	-	-

Lane Group	EBT	WBT	NBL	NBT	SBT	Ø9
Lane Configurations						
Traffic Volume (vph)	583	620	356	17	65	
Future Volume (vph)	583	620	356	17	65	
Lane Group Flow (vph)	1186	693	396	53	118	
Turn Type	NA	NA	Prot	NA	NA	
Protected Phases	2	6	3	8	4	9
Permitted Phases						
Detector Phase	2	6	3	8	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	21.7	21.7	11.5	24.5	16.5	24.5
Total Split (s)	39.0	39.0	39.0	64.0	17.0	25.0
Total Split (%)	32.5%	32.5%	32.5%	53.3%	14.2%	21%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.7	3.7	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.7	6.7	6.5	6.5	6.5	
Lead/Lag			Lag			Lead
Lead-Lag Optimize?			Yes			Yes
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effct Green (s)	52.9	52.9	32.1	37.0	10.4	
Actuated g/C Ratio	0.44	0.44	0.27	0.31	0.09	
v/c Ratio	0.93	0.47	0.87	0.11	0.76	
Control Delay	45.9	27.3	62.3	11.6	80.0	
Queue Delay	0.0	11.8	0.0	0.0	0.0	
Total Delay	45.9	39.1	62.3	11.6	80.0	
LOS	D	D	E	B	E	
Approach Delay	45.9	39.1		56.4	80.0	
Approach LOS	D	D		E	E	
Queue Length 50th (m)	130.4	56.7	87.0	3.2	25.8	
Queue Length 95th (m)	#246.3	101.0	#139.6	9.1	#55.3	
Internal Link Dist (m)	105.3	52.9		0.4	56.2	
Turn Bay Length (m)			35.0			
Base Capacity (vph)	1279	1490	479	734	156	
Starvation Cap Reductn	0	773	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.93	0.97	0.83	0.07	0.76	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 47.5 — Intersection LOS: D
Intersection Capacity Utilization 73.4% — ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: North River & Montreal



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	552	56	580	108	66
Future Volume (vph)	552	56	580	108	66
Lane Group Flow (vph)	721	0	706	120	73
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	2		6	8	
Permitted Phases		6			8
Detector Phase	2	6	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.9	15.9	15.9	19.5	19.5
Total Split (s)	76.0	76.0	76.0	24.0	24.0
Total Split (%)	76.0%	76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	75.7		75.7	12.9	12.9
Actuated g/C Ratio	0.76		0.76	0.13	0.13
v/c Ratio	0.29		0.66	0.55	0.29
Control Delay	4.1		10.1	50.1	12.2
Queue Delay	1.5		0.0	0.0	0.0
Total Delay	5.6		10.1	50.1	12.2
LOS	A		B	D	B
Approach Delay	5.6		10.1	35.8	
Approach LOS	A		B	D	
Queue Length 50th (m)	16.7		53.0	22.3	0.0
Queue Length 95th (m)	28.4		107.9	37.8	11.6
Internal Link Dist (m)	52.9		171.6	77.9	
Turn Bay Length (m)					
Base Capacity (vph)	2498		1074	313	329
Starvation Cap Reductn	1533		0	0	0
Spillback Cap Reductn	0		0	0	0
Storage Cap Reductn	0		0	0	0
Reduced v/c Ratio	0.75		0.66	0.38	0.22

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 87.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	51	369	178	156	338	233	1011	142	1019
Future Volume (vph)	51	369	178	156	338	233	1011	142	1019
Lane Group Flow (vph)	57	410	198	173	596	259	1356	158	1238
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.7	39.6	39.6	10.7	39.6	11.1	28.9	11.1	28.9
Total Split (s)	12.0	40.0	40.0	12.0	40.0	34.0	54.0	34.0	54.0
Total Split (%)	8.6%	28.6%	28.6%	8.6%	28.6%	24.3%	38.6%	24.3%	38.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.4	3.3	3.3	2.4	3.3	2.4	2.2	2.4	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.6	6.6	5.7	6.6	6.1	5.9	6.1	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	41.0	33.2	33.2	46.7	39.0	25.0	53.8	18.3	47.1
Actuated g/C Ratio	0.29	0.24	0.24	0.33	0.28	0.18	0.38	0.13	0.34
v/c Ratio	0.27	0.97	0.42	0.94	0.65	0.86	0.75	0.71	0.77
Control Delay	35.2	89.4	10.9	92.7	43.7	87.4	34.9	75.5	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	89.4	10.9	92.7	43.7	87.4	34.9	75.5	44.9
LOS	D	F	B	F	D	F	C	E	D
Approach Delay		61.4			54.7		43.3		48.3
Approach LOS		E			D		D		D
Queue Length 50th (m)	10.6	113.1	4.1	~37.4	71.0	75.5	66.6	42.6	111.5
Queue Length 95th (m)	21.4	#177.0	25.1	#93.2	92.7	m84.8	m72.6	63.5	127.6
Internal Link Dist (m)		50.3			113.1		139.9		106.8
Turn Bay Length (m)	35.0			40.0		95.0		90.0	
Base Capacity (vph)	211	425	471	184	917	337	1812	337	1646
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.96	0.42	0.94	0.65	0.77	0.75	0.47	0.75

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 49.6 — Intersection LOS: D
Intersection Capacity Utilization 92.4% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	25	24	11	217	2	148	409	139
Future Volume (vph)	4	25	24	11	217	2	148	409	139
Lane Group Flow (vph)	0	39	0	39	241	0	206	0	609
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6	31.1	31.1	31.1	31.1
Total Split (s)	26.0	26.0	26.0	26.0	26.0	49.0	49.0	49.0	49.0
Total Split (%)	34.7%	34.7%	34.7%	34.7%	34.7%	65.3%	65.3%	65.3%	65.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.8	2.8	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.6		5.6	5.6		6.1		6.1
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		14.0		14.0	14.0		49.3		49.3
Actuated g/C Ratio		0.19		0.19	0.19		0.66		0.66
v/c Ratio		0.12		0.15	0.54		0.19		0.86
Control Delay		20.5		24.5	8.1		5.7		28.1
Queue Delay		0.0		0.0	0.0		0.0		0.0
Total Delay		20.5		24.5	8.1		5.7		28.1
LOS		C		C	A		A		C
Approach Delay		20.5		10.4			5.7		28.1
Approach LOS		C		B			A		C
Queue Length 50th (m)		4.1		5.0	0.0		6.7		46.5
Queue Length 95th (m)		10.1		11.0	15.5		20.3		#147.0
Internal Link Dist (m)		19.4		126.4			86.5		58.5
Turn Bay Length (m)					100.0				
Base Capacity (vph)		459		379	546		1113		708
Starvation Cap Reductn		0		0	0		0		0
Spillback Cap Reductn		0		0	0		0		0
Storage Cap Reductn		0		0	0		0		0
Reduced v/c Ratio		0.08		0.10	0.44		0.19		0.86

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 19.4	Intersection LOS: B
Intersection Capacity Utilization 81.9%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: North River & McArthur

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	246	472	333	218	170	206	1198	251	122	1178	66
Future Volume (vph)	55	246	472	333	218	170	206	1198	251	122	1178	66
Lane Group Flow (vph)	61	273	524	370	242	189	229	1331	279	136	1309	73
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.0	36.0	18.0	36.0	36.0	31.0	63.0	63.0	23.0	55.0	55.0
Total Split (%)	12.9%	25.7%	25.7%	12.9%	25.7%	25.7%	22.1%	45.0%	45.0%	16.4%	39.3%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	9.8	29.8	29.8	11.8	34.3	34.3	22.4	58.8	58.8	15.0	51.4	51.4
Actuated g/C Ratio	0.07	0.21	0.21	0.08	0.24	0.24	0.16	0.42	0.42	0.11	0.37	0.37
v/c Ratio	0.52	0.72	1.07	1.34	0.55	0.39	0.85	0.94	0.42	0.75	1.05	0.13
Control Delay	77.7	63.2	85.2	220.7	53.6	8.5	83.1	51.9	15.8	81.8	73.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	63.2	85.2	220.7	53.6	8.5	83.1	51.9	15.8	81.8	73.0	2.0
LOS	E	E	F	F	D	A	F	D	B	F	E	A
Approach Delay		77.7			120.1			50.3			70.4	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	16.5	70.9	~99.4	~68.5	60.8	0.0	61.2	187.1	25.5	39.1	~204.5	0.3
Queue Length 95th (m)	31.3	102.8	#169.3	#100.2	90.7	20.3	#97.2	#236.7	49.7	m52.6	m#249.2	m2.0
Internal Link Dist (m)		119.1			163.5			123.8			129.2	
Turn Bay Length (m)	40.0		80.0	100.0		75.0	55.0		55.0	85.0		110.0
Base Capacity (vph)	142	379	492	277	437	483	301	1423	669	204	1243	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.72	1.07	1.34	0.55	0.39	0.76	0.94	0.42	0.67	1.05	0.13

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 72.2	Intersection LOS: E
Intersection Capacity Utilization 100.8%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Vanier & McArthur

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	474	292	26
Future Volume (vph)	474	292	26
Lane Group Flow (vph)	535	426	33
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 44.8%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	474	292	92	26	4
Future Vol, veh/h	7	474	292	92	26	4
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	527	324	102	29	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	502	0	-	0	994	460
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	543	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1062	-	-	-	272	601
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	582	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	994	-	-	-	236	558
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	545	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	994	-	-	-	256
HCM Lane V/C Ratio	0.008	-	-	-	0.13
HCM Control Delay (s)	8.7	0	-	-	21.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	496	384	8
Future Volume (vph)	496	384	8
Lane Group Flow (vph)	551	427	18
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 37.6%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	496	384	0	8	8
Future Vol, veh/h	0	496	384	0	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	551	427	0	9	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	427	0	-	0	978	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	551	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1132	-	-	-	278	628
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	577	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1132	-	-	-	278	628
Mov Cap-2 Maneuver	-	-	-	-	278	-
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	577	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1132	-	-	-	385
HCM Lane V/C Ratio	-	-	-	-	0.046
HCM Control Delay (s)	0	-	-	-	14.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	115	49	425	454
Future Volume (vph)	115	49	425	454
Lane Group Flow (vph)	128	54	472	504
Sign Control	Stop		Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 37.4%		ICU Level of Service A
Analysis Period (min) 15		

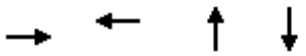
Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	49	425	0	0	454
Future Vol, veh/h	115	49	425	0	0	454
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	54	472	0	0	504

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	726	474	0	-	-	-
Stage 1	472	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	375	590	-	0	0	-
Stage 1	627	-	-	0	0	-
Stage 2	766	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	374	589	-	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	764	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	374	589	-
HCM Lane V/C Ratio	-	0.342	0.092	-
HCM Control Delay (s)	-	19.5	11.7	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1.5	0.3	-



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	40	77	87	65
Future Volume (vph)	40	77	87	65
Lane Group Flow (vph)	110	189	145	178
Sign Control	Stop	Stop	Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 40.3%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	40	20	5	77	87	38	87	5	65	65	31
Future Vol, veh/h	40	40	20	5	77	87	38	87	5	65	65	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	44	22	6	86	97	42	97	6	72	72	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	509	420	89	450	434	100	106	0	0	103	0	0
Stage 1	233	233	-	184	184	-	-	-	-	-	-	-
Stage 2	276	187	-	266	250	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	475	525	969	519	515	956	1485	-	-	1489	-	-
Stage 1	770	712	-	818	747	-	-	-	-	-	-	-
Stage 2	730	745	-	739	700	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	346	483	969	443	474	956	1485	-	-	1489	-	-
Mov Cap-2 Maneuver	346	483	-	443	474	-	-	-	-	-	-	-
Stage 1	747	675	-	793	725	-	-	-	-	-	-	-
Stage 2	561	723	-	639	664	-	-	-	-	-	-	-

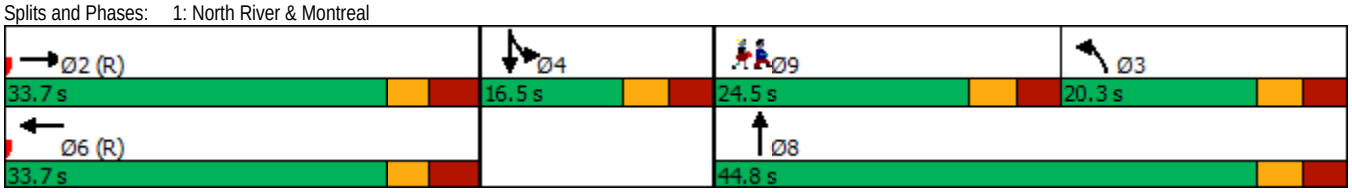
Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	13	2.2	3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1485	-	-	456	638	1489	-	-
HCM Lane V/C Ratio	0.028	-	-	0.244	0.294	0.049	-	-
HCM Control Delay (s)	7.5	0	-	15.4	13	7.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	1.2	0.2	-	-

Lane Group	EBT	WBT	NBL	NBT	SBT	Ø9
Lane Configurations						
Traffic Volume (vph)	420	613	240	10	59	
Future Volume (vph)	420	613	240	10	59	
Lane Group Flow (vph)	789	626	240	62	91	
Turn Type	NA	NA	Prot	NA	NA	
Protected Phases	2	6	3	8	4	9
Permitted Phases						
Detector Phase	2	6	3	8	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	21.7	21.7	11.5	24.5	16.5	24.5
Total Split (s)	33.7	33.7	20.3	44.8	16.5	24.5
Total Split (%)	35.5%	35.5%	21.4%	47.2%	17.4%	26%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.7	3.7	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.7	6.7	6.5	6.5	6.5	
Lead/Lag			Lag			Lead
Lead-Lag Optimize?			Yes			Yes
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effct Green (s)	38.2	38.2	15.7	30.4	10.0	
Actuated g/C Ratio	0.40	0.40	0.17	0.32	0.11	
v/c Ratio	0.68	0.46	0.86	0.12	0.49	
Control Delay	31.9	25.9	68.3	7.2	46.1	
Queue Delay	0.0	0.7	0.0	0.0	0.0	
Total Delay	31.9	26.6	68.3	7.2	46.1	
LOS	C	C	E	A	D	
Approach Delay	31.9	26.6		55.7	46.1	
Approach LOS	C	C		E	D	
Queue Length 50th (m)	74.8	52.7	44.4	1.1	14.6	
Queue Length 95th (m)	#112.6	71.1	#89.9	8.6	29.7	
Internal Link Dist (m)	105.3	52.9		6.0	56.2	
Turn Bay Length (m)			35.0			
Base Capacity (vph)	1155	1355	280	611	186	
Starvation Cap Reductn	0	400	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.68	0.66	0.86	0.10	0.49	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 34.8	Intersection LOS: C
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: North River & Montreal



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	460	45	689	47	71
Future Volume (vph)	460	45	689	47	71
Lane Group Flow (vph)	559	0	734	47	71
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	2		6	8	
Permitted Phases		6			8
Detector Phase	2	6	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.9	15.9	15.9	19.5	19.5
Total Split (s)	52.0	52.0	52.0	28.0	28.0
Total Split (%)	65.0%	65.0%	65.0%	35.0%	35.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	62.1		62.1	10.8	10.8
Actuated g/C Ratio	0.78		0.78	0.14	0.14
v/c Ratio	0.22		0.31	0.21	0.28
Control Delay	3.4		4.2	32.6	11.2
Queue Delay	0.5		0.0	0.0	0.0
Total Delay	3.8		4.2	32.6	11.2
LOS	A		A	C	B
Approach Delay	3.8		4.2	19.7	
Approach LOS	A		A	B	
Queue Length 50th (m)	10.2		16.5	6.5	0.0
Queue Length 95th (m)	18.6		29.1	15.1	10.3
Internal Link Dist (m)	52.9		246.0	77.9	
Turn Bay Length (m)					
Base Capacity (vph)	2538		2338	476	454
Starvation Cap Reductn	1448		0	0	0
Spillback Cap Reductn	0		0	0	0
Storage Cap Reductn	0		0	0	0
Reduced v/c Ratio	0.51		0.31	0.10	0.16

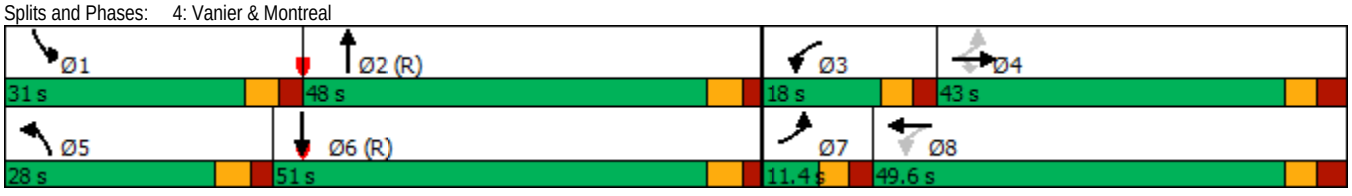
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 5.3	Intersection LOS: A
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	45	342	149	169	486	175	857	213	1098
Future Volume (vph)	45	342	149	169	486	175	857	213	1098
Lane Group Flow (vph)	45	342	149	169	680	175	1023	213	1238
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.7	39.6	39.6	10.7	39.6	11.1	28.9	11.1	28.9
Total Split (s)	11.4	43.0	43.0	18.0	49.6	28.0	48.0	31.0	51.0
Total Split (%)	8.1%	30.7%	30.7%	12.9%	35.4%	20.0%	34.3%	22.1%	36.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.4	3.3	3.3	2.4	3.3	2.4	2.2	2.4	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.6	6.6	5.7	6.6	6.1	5.9	6.1	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	38.5	31.4	31.4	50.5	39.8	18.6	50.3	21.5	53.2
Actuated g/C Ratio	0.28	0.22	0.22	0.36	0.28	0.13	0.36	0.15	0.38
v/c Ratio	0.25	0.86	0.34	0.68	0.73	0.78	0.60	0.82	0.68
Control Delay	31.4	72.3	7.0	45.9	47.2	91.0	36.0	81.0	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	72.3	7.0	45.9	47.2	91.0	36.0	81.0	39.7
LOS	C	E	A	D	D	F	D	F	D
Approach Delay		50.7			47.0		44.0		45.7
Approach LOS		D			D		D		D
Queue Length 50th (m)	7.8	90.2	0.0	31.8	84.6	51.4	53.0	57.1	108.5
Queue Length 95th (m)	16.0	122.6	14.5	48.5	103.4	75.5	67.6	#84.9	131.9
Internal Link Dist (m)		246.0			113.1		139.9		106.8
Turn Bay Length (m)	35.0			40.0		95.0		90.0	
Base Capacity (vph)	180	463	485	250	1001	265	1698	301	1817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.74	0.31	0.68	0.68	0.66	0.60	0.71	0.68

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 46.1	Intersection LOS: D
Intersection Capacity Utilization 91.8%	ICU Level of Service F
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Vanier & Montreal

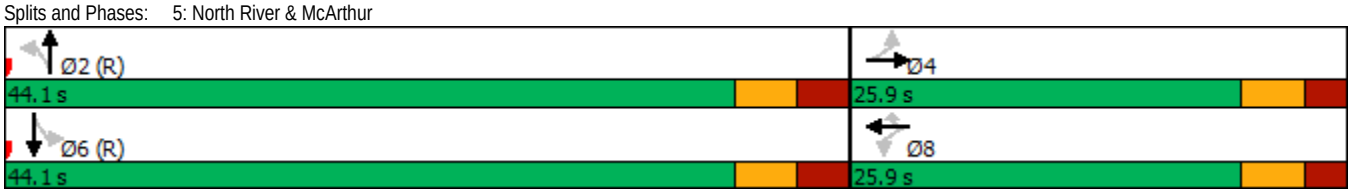


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	8	9	173	3	136	330	102
Future Volume (vph)	1	6	8	9	173	3	136	330	102
Lane Group Flow (vph)	0	10	0	17	173	0	168	0	436
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6	31.1	31.1	31.1	31.1
Total Split (s)	25.9	25.9	25.9	25.9	25.9	44.1	44.1	44.1	44.1
Total Split (%)	37.0%	37.0%	37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.8	2.8	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.6		5.6	5.6		6.1		6.1
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		14.0		14.0	14.0		44.3		44.3
Actuated g/C Ratio		0.20		0.20	0.20		0.63		0.63
v/c Ratio		0.03		0.05	0.42		0.16		0.62
Control Delay		16.8		21.9	14.0		6.0		14.6
Queue Delay		0.0		0.0	0.0		0.0		0.0
Total Delay		16.8		21.9	14.0		6.0		14.6
LOS		B		C	B		A		B
Approach Delay		16.8		14.7			6.0		14.6
Approach LOS		B		B			A		B
Queue Length 50th (m)		0.8		2.2	10.5		5.3		23.8
Queue Length 95th (m)		3.7		m5.1	m37.3		17.2		#76.8
Internal Link Dist (m)		19.4		126.4			86.5		58.5
Turn Bay Length (m)					100.0				
Base Capacity (vph)		478		462	518		1076		702
Starvation Cap Reductn		0		0	0		0		0
Spillback Cap Reductn		0		0	0		0		0
Storage Cap Reductn		0		0	0		0		0
Reduced v/c Ratio		0.02		0.04	0.33		0.16		0.62

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: North River & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	127	281	209	198	99	231	1041	225	145	1259	60
Future Volume (vph)	34	127	281	209	198	99	231	1041	225	145	1259	60
Lane Group Flow (vph)	34	127	281	209	198	99	231	1041	225	145	1259	60
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	13.4	36.2	36.2	16.1	38.9	38.9	27.0	65.6	65.6	22.1	60.7	60.7
Total Split (%)	9.6%	25.9%	25.9%	11.5%	27.8%	27.8%	19.3%	46.9%	46.9%	15.8%	43.4%	43.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	6.8	22.6	22.6	10.5	31.3	31.3	21.1	67.3	67.3	14.9	61.1	61.1
Actuated g/C Ratio	0.05	0.16	0.16	0.08	0.22	0.22	0.15	0.48	0.48	0.11	0.44	0.44
v/c Ratio	0.41	0.44	0.66	0.85	0.50	0.25	0.90	0.64	0.30	0.81	0.85	0.09
Control Delay	86.5	51.8	21.8	92.0	52.0	5.7	94.1	31.2	9.8	95.5	27.5	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	51.8	21.8	92.0	52.0	5.7	94.1	31.2	9.8	95.5	27.5	1.0
LOS	F	D	C	F	D	A	F	C	A	F	C	A
Approach Delay		35.4			59.5			37.7			33.1	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	9.2	33.9	21.1	30.1	47.6	0.0	63.9	124.2	12.3	42.3	53.2	0.0
Queue Length 95th (m)	m17.7	43.9	39.4	#53.5	72.3	9.7	#112.3	149.6	31.0	m#68.8	#215.2	m1.0
Internal Link Dist (m)		119.1			163.5			123.8			129.2	
Turn Bay Length (m)	40.0		80.0	100.0		75.0	55.0		55.0	85.0		110.0
Base Capacity (vph)	87	382	490	247	416	407	260	1629	744	193	1480	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.33	0.57	0.85	0.48	0.24	0.89	0.64	0.30	0.75	0.85	0.09

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 38.5 Intersection LOS: D
Intersection Capacity Utilization 98.6% ICU Level of Service F
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Vanier & McArthur

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	369	266	10
Future Volume (vph)	369	266	10
Lane Group Flow (vph)	381	355	26
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 43.8%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	369	266	89	10	16
Future Vol, veh/h	12	369	266	89	10	16
Conflicting Peds, #/hr	91	0	0	91	1	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	369	266	89	10	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	446	0	-	0	796	413
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	394	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1114	-	-	-	356	639
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1028	-	-	-	299	584
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	629	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1028	-	-	-	427
HCM Lane V/C Ratio	0.012	-	-	-	0.061
HCM Control Delay (s)	8.5	0	-	-	14
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	375	356	23
Future Volume (vph)	375	356	23
Lane Group Flow (vph)	375	356	27
Sign Control	Free	Free	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 30.8%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	375	356	0	23	4
Future Vol, veh/h	0	375	356	0	23	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	375	356	0	23	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	356	0	-	0	731	356
Stage 1	-	-	-	-	356	-
Stage 2	-	-	-	-	375	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1203	-	-	-	389	688
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	695	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1203	-	-	-	389	688
Mov Cap-2 Maneuver	-	-	-	-	389	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	695	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1203	-	-	-	416
HCM Lane V/C Ratio	-	-	-	-	0.065
HCM Control Delay (s)	0	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	WBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	27	254	395
Future Volume (vph)	27	254	395
Lane Group Flow (vph)	73	254	395
Sign Control	Stop	Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 25.3%		ICU Level of Service A
Analysis Period (min) 15		

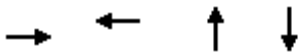
Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	46	254	0	0	395
Future Vol, veh/h	27	46	254	0	0	395
Conflicting Peds, #/hr	3	0	0	110	110	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	46	254	0	0	395

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	455	254	0	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	548	784	-	0	0	-
Stage 1	788	-	-	0	0	-
Stage 2	814	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	546	784	-	-	-	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	675	-
HCM Lane V/C Ratio	-	0.108	-
HCM Control Delay (s)	-	11	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	36	40	29	59
Future Volume (vph)	36	40	29	59
Lane Group Flow (vph)	100	94	48	124
Sign Control	Stop	Stop	Free	Free

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 29.5%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	36	18	9	40	45	14	29	5	44	59	21
Future Vol, veh/h	46	36	18	9	40	45	14	29	5	44	59	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	36	18	9	40	45	14	29	5	44	59	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	260	220	70	245	228	32	80	0	0	34	0	0
Stage 1	158	158	-	60	60	-	-	-	-	-	-	-
Stage 2	102	62	-	185	168	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	693	678	993	709	671	1042	1518	-	-	1578	-	-
Stage 1	844	767	-	951	845	-	-	-	-	-	-	-
Stage 2	904	843	-	817	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	614	652	993	648	646	1042	1518	-	-	1578	-	-
Mov Cap-2 Maneuver	614	652	-	648	646	-	-	-	-	-	-	-
Stage 1	836	745	-	942	837	-	-	-	-	-	-	-
Stage 2	816	835	-	741	737	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	10.2	2.2	2.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1518	-	-	674	790	1578	-	-
HCM Lane V/C Ratio	0.009	-	-	0.148	0.119	0.028	-	-
HCM Control Delay (s)	7.4	0	-	11.3	10.2	7.3	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.4	0.1	-	-

Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	67	71	105
Future Volume (vph)	67	71	105
Lane Group Flow (vph)	84	84	144
Sign Control	Stop	Free	Free

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 27.3%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	67	17	13	71	105	39
Future Vol, veh/h	67	17	13	71	105	39
Conflicting Peds, #/hr	0	0	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	17	13	71	105	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	145	164	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	746	902	1414	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	714	887	1390	-	-	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	911	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.2	0
HCM LOS	B		

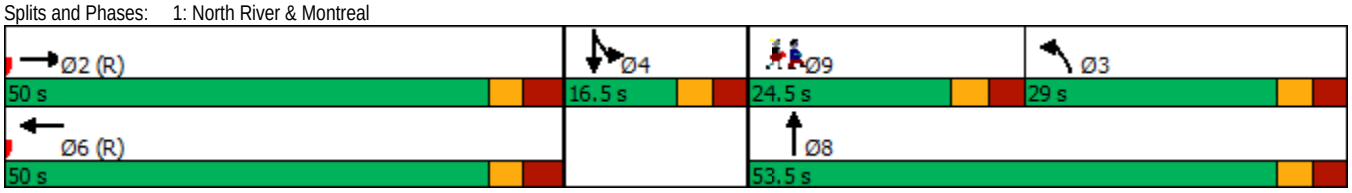
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1390	-	743	-	-
HCM Lane V/C Ratio	0.009	-	0.113	-	-
HCM Control Delay (s)	7.6	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBT	WBT	NBL	NBT	SBT	Ø9
Lane Configurations						
Traffic Volume (vph)	621	641	350	17	65	
Future Volume (vph)	621	641	350	17	65	
Lane Group Flow (vph)	1091	645	350	92	107	
Turn Type	NA	NA	Prot	NA	NA	
Protected Phases	2	6	3	8	4	9
Permitted Phases						
Detector Phase	2	6	3	8	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	21.7	21.7	11.5	24.5	16.5	24.5
Total Split (s)	50.0	50.0	29.0	53.5	16.5	24.5
Total Split (%)	41.7%	41.7%	24.2%	44.6%	13.8%	20%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.7	3.7	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.7	6.7	6.5	6.5	6.5	
Lead/Lag			Lag			Lead
Lead-Lag Optimize?			Yes			Yes
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effct Green (s)	47.3	47.3	28.3	43.0	10.0	
Actuated g/C Ratio	0.39	0.39	0.24	0.36	0.08	
v/c Ratio	0.99	0.48	0.88	0.17	0.73	
Control Delay	61.2	29.5	69.0	8.1	77.9	
Queue Delay	0.0	16.6	0.0	0.0	0.0	
Total Delay	61.2	46.1	69.0	8.1	77.9	
LOS	E	D	E	A	E	
Approach Delay	61.2	46.1		56.3	77.9	
Approach LOS	E	D		E	E	
Queue Length 50th (m)	~150.8	62.5	~93.7	2.5	23.1	
Queue Length 95th (m)	#191.8	80.5	#151.0	12.8	#50.8	
Internal Link Dist (m)	105.3	52.9		6.0	56.2	
Turn Bay Length (m)			35.0			
Base Capacity (vph)	1105	1332	399	580	146	
Starvation Cap Reductn	0	680	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.99	0.99	0.88	0.16	0.73	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 56.8	Intersection LOS: E
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: North River & Montreal



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	610	72	568	141	72
Future Volume (vph)	610	72	568	141	72
Lane Group Flow (vph)	730	0	640	141	72
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	2		6	8	
Permitted Phases		6			8
Detector Phase	2	6	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.9	15.9	15.9	19.5	19.5
Total Split (s)	77.0	77.0	77.0	23.0	23.0
Total Split (%)	77.0%	77.0%	77.0%	23.0%	23.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	74.7		74.7	13.9	13.9
Actuated g/C Ratio	0.75		0.75	0.14	0.14
v/c Ratio	0.30		0.63	0.60	0.29
Control Delay	4.4		10.2	50.7	11.9
Queue Delay	1.5		0.0	0.0	0.0
Total Delay	5.9		10.2	50.7	11.9
LOS	A		B	D	B
Approach Delay	5.9		10.2	37.6	
Approach LOS	A		B	D	
Queue Length 50th (m)	17.8		48.4	26.1	0.0
Queue Length 95th (m)	30.5		99.2	42.8	11.4
Internal Link Dist (m)	52.9		179.6	77.9	
Turn Bay Length (m)					
Base Capacity (vph)	2451		1021	300	300
Starvation Cap Reductn	1473		0	0	0
Spillback Cap Reductn	0		0	0	0
Storage Cap Reductn	0		0	0	0
Reduced v/c Ratio	0.75		0.63	0.47	0.24

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 89.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal

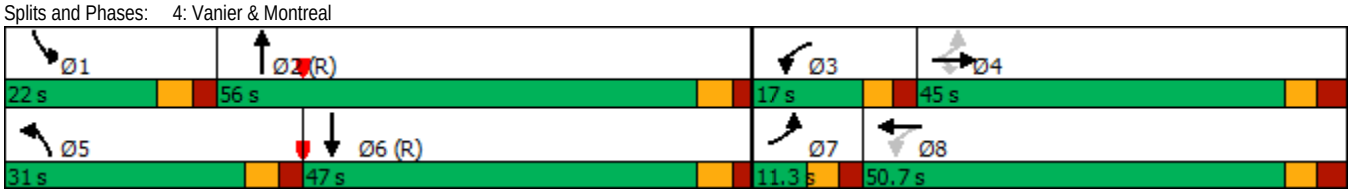
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	54	378	171	163	353	223	1011	98	1023
Future Volume (vph)	54	378	171	163	353	223	1011	98	1023
Lane Group Flow (vph)	54	378	171	163	551	223	1221	98	1134
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.7	39.6	39.6	10.7	39.6	11.1	28.9	11.1	28.9
Total Split (s)	11.3	45.0	45.0	17.0	50.7	31.0	56.0	22.0	47.0
Total Split (%)	8.1%	32.1%	32.1%	12.1%	36.2%	22.1%	40.0%	15.7%	33.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.4	3.3	3.3	2.4	3.3	2.4	2.2	2.4	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.6	6.6	5.7	6.6	6.1	5.9	6.1	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	40.9	33.9	33.9	51.9	41.5	22.1	57.5	12.9	48.2
Actuated g/C Ratio	0.29	0.24	0.24	0.37	0.30	0.16	0.41	0.09	0.34
v/c Ratio	0.23	0.88	0.36	0.71	0.57	0.84	0.63	0.63	0.69
Control Delay	29.9	72.1	7.7	47.7	37.5	86.4	41.2	78.8	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	72.1	7.7	47.7	37.5	86.4	41.2	78.8	43.0
LOS	C	E	A	D	D	F	D	E	D
Approach Delay		50.1			39.8		48.2		45.9
Approach LOS		D			D		D		D
Queue Length 50th (m)	9.4	99.5	0.0	30.3	58.1	65.2	65.1	26.5	102.4
Queue Length 95th (m)	18.2	134.9	17.3	#47.5	74.7	m79.9	84.1	45.0	123.6
Internal Link Dist (m)		42.4			113.1		139.9		106.8
Turn Bay Length (m)	35.0			40.0		95.0		90.0	
Base Capacity (vph)	232	489	510	232	1029	301	1933	192	1646
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.77	0.34	0.70	0.54	0.74	0.63	0.51	0.69

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 46.3 — Intersection LOS: D
Intersection Capacity Utilization 92.8% — ICU Level of Service F
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	25	24	11	236	2	170	405	139
Future Volume (vph)	4	25	24	11	236	2	170	405	139
Lane Group Flow (vph)	0	35	0	35	236	0	208	0	545
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6	31.1	31.1	31.1	31.1
Total Split (s)	25.6	25.6	25.6	25.6	25.6	49.4	49.4	49.4	49.4
Total Split (%)	34.1%	34.1%	34.1%	34.1%	34.1%	65.9%	65.9%	65.9%	65.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.8	2.8	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.6		5.6	5.6		6.1		6.1
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		14.0		14.0	14.0		49.3		49.3
Actuated g/C Ratio		0.19		0.19	0.19		0.66		0.66
v/c Ratio		0.11		0.14	0.54		0.19		0.78
Control Delay		20.5		24.3	8.5		5.8		22.0
Queue Delay		0.0		0.0	0.0		0.0		0.0
Total Delay		20.5		24.3	8.5		5.8		22.0
LOS		C		C	A		A		C
Approach Delay		20.5		10.5			5.8		22.0
Approach LOS		C		B			A		C
Queue Length 50th (m)		3.7		4.5	0.0		6.9		37.2
Queue Length 95th (m)		9.4		10.2	15.5		20.7		#127.2
Internal Link Dist (m)		19.4		126.4			86.5		58.5
Turn Bay Length (m)					100.0				
Base Capacity (vph)		444		370	521		1113		696
Starvation Cap Reductn		0		0	0		0		0
Spillback Cap Reductn		0		0	0		0		0
Storage Cap Reductn		0		0	0		0		0
Reduced v/c Ratio		0.08		0.09	0.45		0.19		0.78

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 82.5%	ICU Level of Service E
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: North River & McArthur

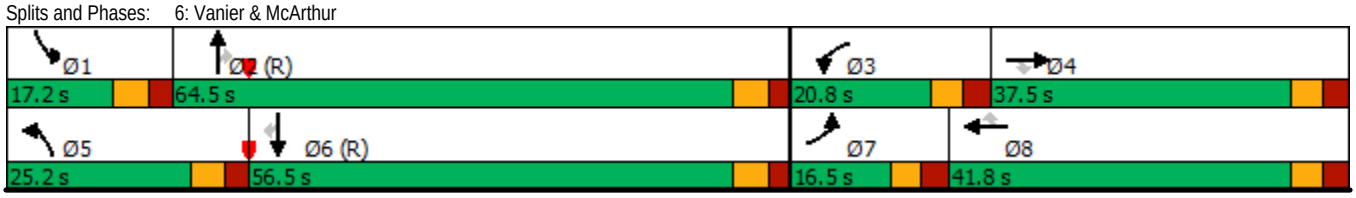
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	258	472	333	234	163	231	1195	251	120	1205	66
Future Volume (vph)	55	258	472	333	234	163	231	1195	251	120	1205	66
Lane Group Flow (vph)	55	258	472	333	234	163	231	1195	251	120	1205	66
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	16.5	37.5	37.5	20.8	41.8	41.8	25.2	64.5	64.5	17.2	56.5	56.5
Total Split (%)	11.8%	26.8%	26.8%	14.9%	29.9%	29.9%	18.0%	46.1%	46.1%	12.3%	40.4%	40.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	9.0	31.3	31.3	14.6	39.4	39.4	19.1	58.4	58.4	11.1	50.4	50.4
Actuated g/C Ratio	0.06	0.22	0.22	0.10	0.28	0.28	0.14	0.42	0.42	0.08	0.36	0.36
v/c Ratio	0.51	0.65	1.04	0.97	0.47	0.32	1.00	0.85	0.38	0.90	0.99	0.12
Control Delay	79.5	58.0	81.8	104.3	46.8	7.0	118.9	43.6	13.1	117.9	54.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	58.0	81.8	104.3	46.8	7.0	118.9	43.6	13.1	117.9	54.0	1.3
LOS	E	E	F	F	D	A	F	D	B	F	D	A
Approach Delay		73.8			64.1			49.4			57.0	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	14.9	65.4	~94.4	48.1	55.8	0.0	64.9	155.1	18.4	35.0	79.1	0.1
Queue Length 95th (m)	29.2	95.4	#162.0	#78.6	82.9	16.2	#118.5	185.2	40.0	m#64.1	#213.6	m1.9
Internal Link Dist (m)		119.1			163.5			123.8			129.2	
Turn Bay Length (m)	40.0		80.0	100.0		75.0	55.0		55.0	85.0		110.0
Base Capacity (vph)	124	398	456	342	501	512	231	1414	667	134	1220	562
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.65	1.04	0.97	0.47	0.32	1.00	0.85	0.38	0.90	0.99	0.12

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 58.2 Intersection LOS: E
Intersection Capacity Utilization 103.1% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Vanier & McArthur



Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	470	311	26
Future Volume (vph)	470	311	26
Lane Group Flow (vph)	481	425	30
Sign Control	Free	Free	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	470	311	114	26	4
Future Vol, veh/h	11	470	311	114	26	4
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	470	311	114	26	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	501	0	-	0	936	453
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	492	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1063	-	-	-	294	607
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	995	-	-	-	254	564
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	576	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	995	-	-	-	274
HCM Lane V/C Ratio	0.011	-	-	-	0.109
HCM Control Delay (s)	8.7	0	-	-	19.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	492	424	24
Future Volume (vph)	492	424	24
Lane Group Flow (vph)	492	424	32
Sign Control	Free	Free	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 37.3%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	492	424	0	24	8
Future Vol, veh/h	0	492	424	0	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	492	424	0	24	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	916	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	492	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	302	630
Stage 1	0	-	-	0	660	-
Stage 2	0	-	-	0	615	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	302	630
Mov Cap-2 Maneuver	-	-	-	-	302	-
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	615	-

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

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	347
HCM Lane V/C Ratio	-	-	0.092
HCM Control Delay (s)	-	-	16.4
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Lane Group	WBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	115	466	450
Future Volume (vph)	115	466	450
Lane Group Flow (vph)	172	466	450
Sign Control	Stop	Free	Free

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

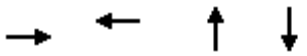
Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	57	466	0	0	450
Future Vol, veh/h	115	57	466	0	0	450
Conflicting Peds, #/hr	2	2	0	85	85	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	115	57	466	0	0	450

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	693	468	0	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	393	594	-	0	0	-
Stage 1	631	-	-	0	0	-
Stage 2	790	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	392	593	-	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	631	-	-	-	-	-
Stage 2	788	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	442	-
HCM Lane V/C Ratio	-	0.389	-
HCM Control Delay (s)	-	18.2	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	1.8	-



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	40	85	87	78
Future Volume (vph)	40	85	87	78
Lane Group Flow (vph)	122	191	130	174
Sign Control	Stop	Stop	Free	Free

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	40	20	8	85	98	38	87	5	65	78	31
Future Vol, veh/h	62	40	20	8	85	98	38	87	5	65	78	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	62	40	20	8	85	98	38	87	5	65	78	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	481	392	94	420	405	90	109	0	0	92	0	0
Stage 1	224	224	-	166	166	-	-	-	-	-	-	-
Stage 2	257	168	-	254	239	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	495	544	963	544	535	968	1481	-	-	1503	-	-
Stage 1	779	718	-	836	761	-	-	-	-	-	-	-
Stage 2	748	759	-	750	708	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	366	505	963	473	496	968	1481	-	-	1503	-	-
Mov Cap-2 Maneuver	366	505	-	473	496	-	-	-	-	-	-	-
Stage 1	758	685	-	813	740	-	-	-	-	-	-	-
Stage 2	579	739	-	660	675	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	12.7	2.2	2.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1481	-	-	453	660	1503	-	-
HCM Lane V/C Ratio	0.026	-	-	0.269	0.289	0.043	-	-
HCM Control Delay (s)	7.5	0	-	15.9	12.7	7.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	1.2	0.1	-	-

Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	79	181	153
Future Volume (vph)	79	181	153
Lane Group Flow (vph)	96	206	241
Sign Control	Stop	Free	Free

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	79	17	25	181	153	88
Future Vol, veh/h	79	17	25	181	153	88
Conflicting Peds, #/hr	0	0	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	79	17	25	181	153	88

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	448	217	261	0	-	0
Stage 1	217	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	568	823	1303	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	537	809	1281	-	-	-
Mov Cap-2 Maneuver	537	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	793	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1281	-	571	-	-
HCM Lane V/C Ratio	0.02	-	0.168	-	-
HCM Control Delay (s)	7.9	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-