PROPOSED RESIDENTIAL DEVELOPMENT

5497 MANOTICK MAIN STREET

TRAFFIC IMPACT ASSESSMENT
DESIGN REVIEW

VERSION 2.1

Presented to:

Ms. Josiane Gervais, P.Eng, M.Eng
Project Manager, Transportation Approvals
City of Ottawa
110 Laurier Avenue
Ottawa, Ontario K1P 1J1

October 14, 2021

Castleglenn Consultants
Engineers, Project Managers & Planners

Project 7261

CASTLEGLENN CONSULTANTS LTD.

THIRD PARTY DISCLAIMER

This study has been prepared by Castleglenn Consultants Inc. ("CGI") for the benefit of the Client to whom it is addressed. The information and data contained herein represents CGI's best professional judgment in light of the knowledge and information available to CGI at the time of preparation. Except as required by law, this study and the information and data contained herein are to be treated as confidential and may be used and relied upon only by the Client, its officers and employees. CGI denies any liability whatsoever to other parties who may obtain access to this study for any injury, loss or damage suffered by such parties arising from their use of, or reliance upon, this study or any of its contents without the express written consent of CGI and the Client.

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

1.0 EXISTING AND PLANNED CONDITIONS

1.1 PROPOSED DEVELOPMENT

Exhibit 1-1 illustrates the general location of the proposed residential development located at 5497 Manotick Main Street. The proposed site is located west of Manotick Main Street and would involve removal of the existing building to accommodate the proposed development application.

Exhibit 1-2 illustrates the proposed site plan (August, 2021) highlighting the location of the existing site access to the property (See Appendix "D" for Site Plan). The development when completed would provide for 21 low-rise apartment dwelling units.

The development provides for 10 above ground and 16 underground parking stalls. The entire development would be constructed in a single phase and is anticipated to begin occupancy in 2022.

The proposed development is located within the General Urban Area. A review of the current Zoning By-law indicates a "*VM9 – Village Residential Zone*" designation. This study is in support of a Site Plan Control application.

Exhibit 1-1: Proposed Development's Location

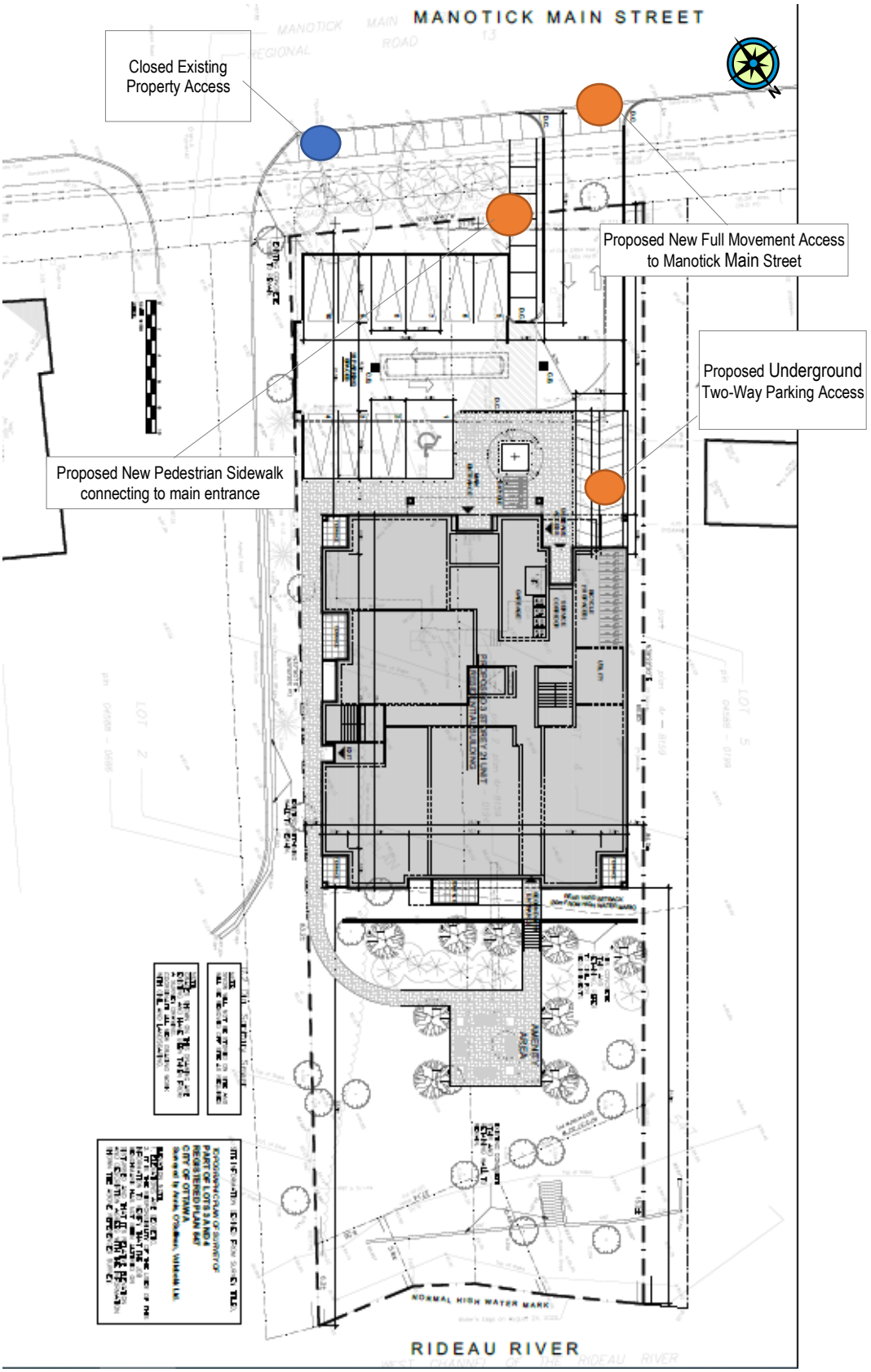


Exhibit 1-2: Proposed 5497 Manotick Main Street: Site Plan (August 2021)

1.2 EXISTING CONDITIONS

Study Area Roadways: The City of Ottawa TMP (Map 8 and 9) was referenced along with a desktop review of aerial photography to document the existing roadways that would serve the proposed development:

- *Manotick Main Street* is an existing north-south arterial roadway which becomes Rideau Valley Drive and Longfields Drive to the north, and Rideau Valley Drive to the south terminating at Roger Stevens Drive near Kars. In the vicinity of the proposed development, Manotick Main Street is characterized by:
  - a 4-lane undivided arterial cross-section north of the Maple Avenue-Bridge Street intersection;
  - a sidewalk and boulevard configuration located on the west side of the corridor.
  - The lack of sidewalk between the existing site access and the south side of the adjacent commercial accesss along the east side of the corridor; and
  - a 50 km/hr posted speed limit.

Area Traffic Management: ATM strategies have not been identified for the boundary roads within the study area.

Adjacent Driveways: The following land uses access Manotick Main Street within 200m of the proposed development (From north to south):

- 5491 and 5495 Manotick Main Street – Residential dwellings that are located to the immediate north of the site. Each dwelling is provided their own respective driveway;
- 5495, 5500, 5506 and 5510 Manotick Main Street – Low-rise commercial office spaces that are each provided their own driveway accesses opposite the proposed development; and
- 5501 Manotick Main Street (Manotick Main Commercial Plaza) – An access to the retail plaza is provided immediately to the south of the proposed development, across from Highcroft Drive.

Study Area Intersections: *Manotick Main Street / Bridge Street-Maple Avenue:* This intersection is a 4-leg traffic signal-controlled intersection with pedestrian provisions on all legs of the intersection.

- The eastbound approach provides for an auxiliary left turn bay and one shared EB-Th/RT lane.
- The westbound approach provides for one auxiliary WB-LT lane, one WB-Th lane and one auxiliary WB-RT lane.
- The northbound approach provides for one NB-Th lane and one NB-RT lane, and left turns are prohibited except for buses.
- The southbound approach provides for one SB-LT lane and one shared SB-Th/RT lane.

Existing Cycling Facilities: The City of Ottawa's Transportation Master Plan "*Map 2: Cycling Network – Primary Rural (with Scenic Entry Routes)"* indicates that Manotick Main Street and Bridge Street are designated as cycling "*Spine Routes*". In terms of cycling demand, the only information that was available to review included a traffic count that was performed on Wednesday December 11th 2019 at the Manotick Main Street/ Bridge Street-Maple Avenue intersection which indicated no cyclist activity at the intersection. (This is likely attributed to Winter conditions.)

Existing Pedestrian Facilities: A review of the site found that a sidewalk along the east side of Manotick Main Street is not present fronting the proposed site. However, from a point south of the development a sidewalk exists fronting the retail plaza that connects to the Manotick Main Street / Bridge Street-Maple Avenue intersection.

A review of the December 11th, 2019 Manotick Main Street / Bridge Street-Maple Avenue intersection traffic counts indicated that:

- 1 pedestrian crossed north-south on Bridge Street-Maple Avenue in the AM peak hour;
- 3 pedestrians crossed north-south on Bridge Street-Maple Avenue in the PM peak hour;
- 3 pedestrians crossed east-west on Manotick Main Street in the AM peak hour; and
- 1 pedestrian crossed east-west on Manotick Main Street in the PM peak hour.

The above pedestrian traffic volumes can be considered low recognizing the timing of the traffic count during winter conditions.

Existing Transit Provisions: Exhibit 1-3 illustrates the transit routes (Routes 176, 299 and 305) within the study area in the vicinity of the proposed development.

OC Transpo schedules were reviewed for each of the above routes serving the area in the vicinity of the proposed development:

- *Route 176:* connects the proposed development to the Barrhaven Centre transitway station and travels east-west into the study area at the Manotick Main Street / Bridge Street-Maple Avenue intersection.
  - Route 176 runs only in the peak weekday periods from Monday-to-Friday with one-hour headways.
- *Route 305:* connects North Gower and Kars to Carlingwood through Manotick. The route runs east-west along Bridge Street.
  - Route 305 runs once in the morning and once in the afternoon on Fridays.
    - The route is scheduled in the morning at the nearby Ann/Beaverwood transit stop around 10:07AM and proceeds northwards to Carlingwood;
    - The route in the afternoon terminates at the Ann/Beaverwood transit stop at 3:12PM.
- *Route 299:* connects Manotick and the development to Hurdman Station and runs along Manotick Main Street as well as east-west at the Manotick Main Street / Bridge Street-Maple Avenue intersection.
  - Route 299 runs only in the weekday peak periods from Monday-to-Friday with roughly 50-minute headways.

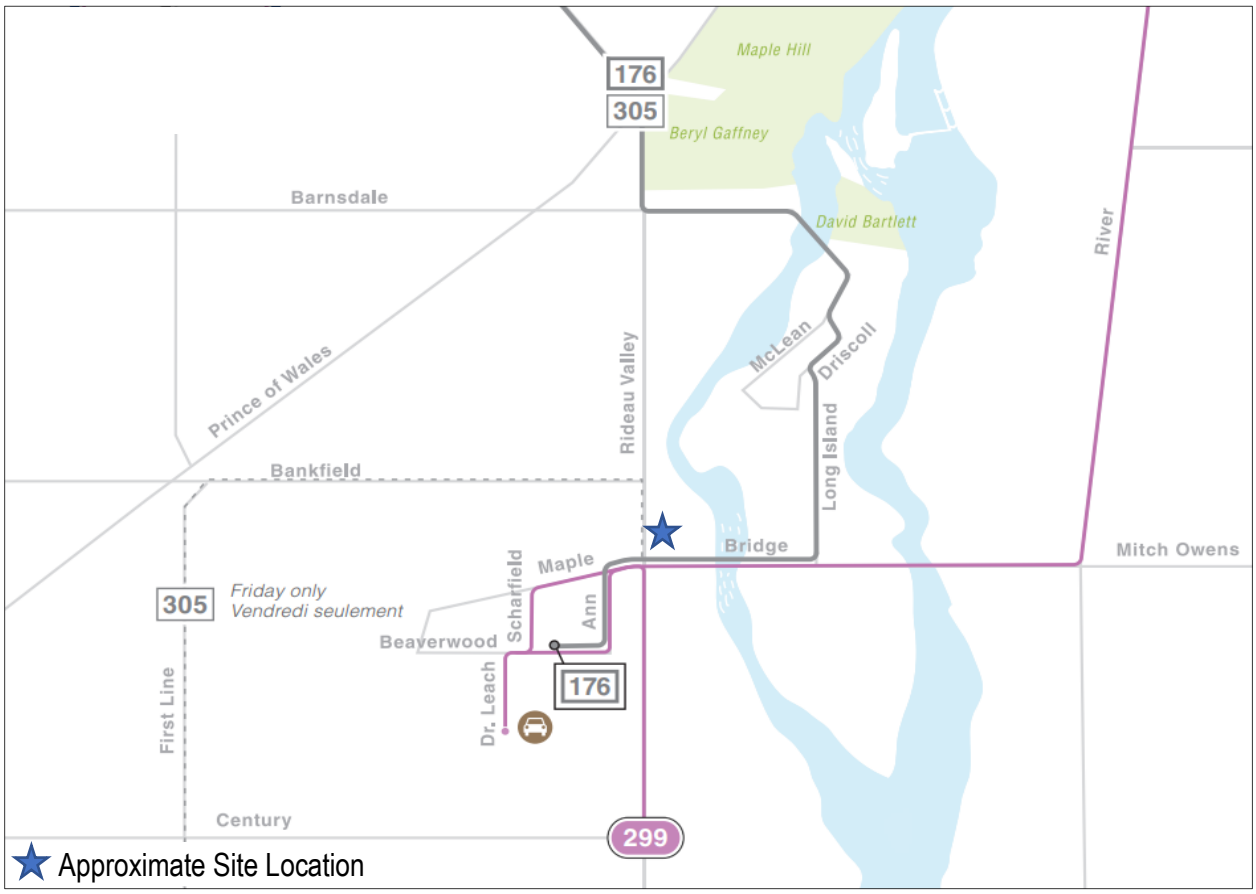


Exhibit 1-3: Existing Transit Routes

Existing (2020) Traffic Volumes: Exhibit 1-4 illustrates the existing morning and afternoon peak hour traffic volumes obtained from the City of Ottawa's Manotick Main Street/Bridge Street-Maple Avenue/ (City Count: December, 2019) traffic count.

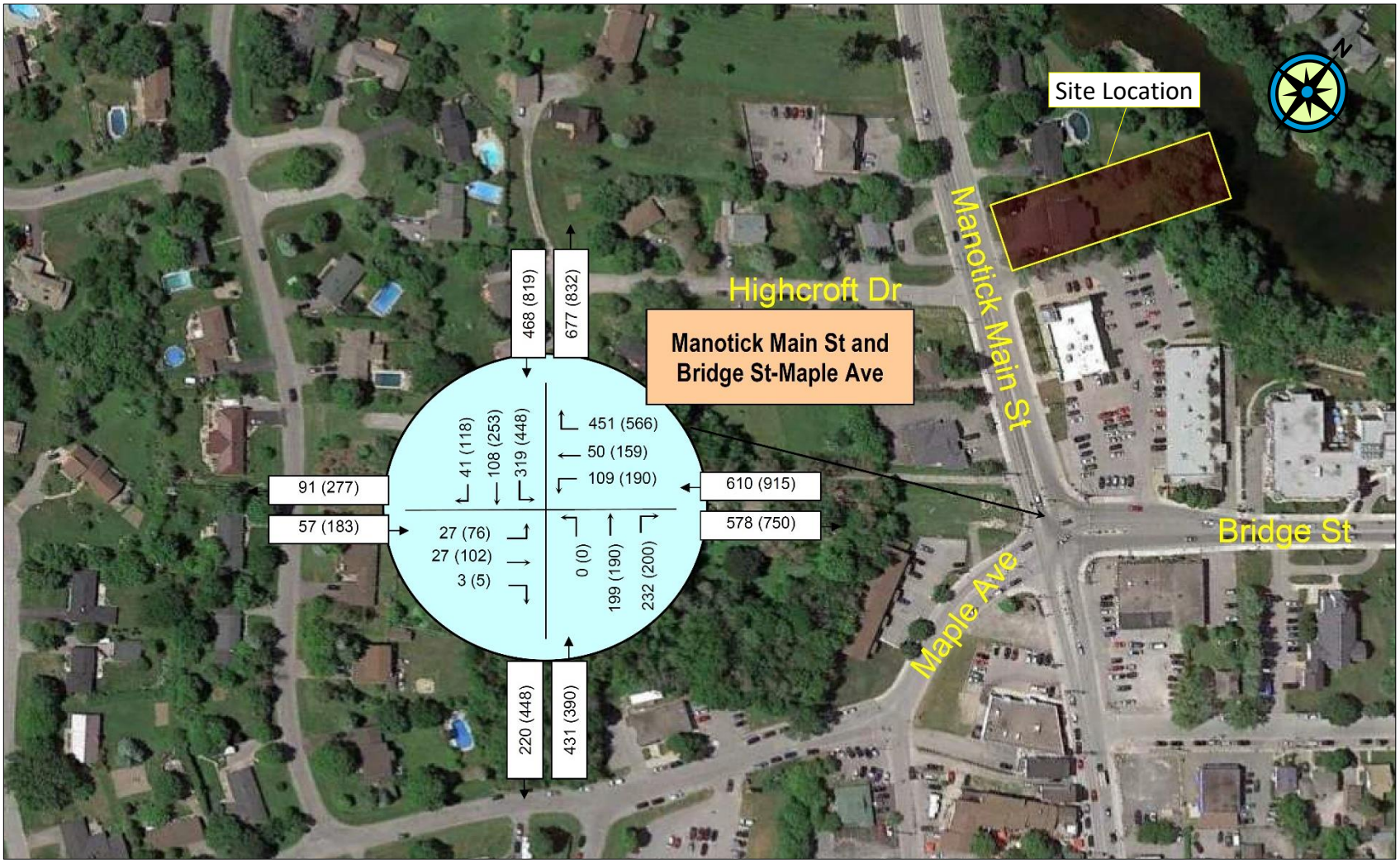
Collision History Review: For each intersection or road segment within the study area, a standard collision rate based on the number of collisions- per-million-entering-vehicles (MEV) was calculated. A collision rate greater than 1.0 collisions/MEV was considered to pose a potential safety concern.

The following provides a summary of the collision information collected and evaluated:

- *Manotick Main Street/Bridge Street-Maple Avenue intersection:* A total of 20 collisions occurred at this intersection in the past 5 years.
  - 35% (7) of the collisions were rear-end collisions;
  - 40% (8) of the collisions were turning movement collisions;
  - All 20 of the collisions were found to result in property damage only (PDO); and
  - A collision rate of 0.44 collisions/MEV was calculated.

- *Manotick Main Street between Highcroft Drive and Bridge Street-Maple Avenue (fronting the site):* A total of 5 collisions were found to occur:
  - all 5 of the collisions involve property damage only (PDO); and
  - A collision rate for this segment was found to be 0.25/MEV.

A review of the available collision information indicated that there appears to be no discernable pattern given the incidence of collisions over the 5-year period.



Morning (Afternoon) – Vehicles-Per-Hour

Exhibit 1-4: Existing (2020) Peak Hour Traffic Volumes

1.3 PLANNED CONDITIONS

Planned Transportation Network Modifications: A review of the City of Ottawa's documents[1] indicated that no additional improvements to the road network or rapid transit/transit priority network are expected within the study area surrounding the proposed development.

Other Adjacent Development Initiatives: A review of adjacent developments planned within the immediate study area was undertaken as part of this scoping report:

- *1164-1166 Highcroft Drive* is a proposed development consisting of 11 single-family dwellings fronting onto Highcroft Drive and a private road;
- *5506 Manotick Main Street:* This proposed development is a four-unit commercial restaurant/retail/office building on the southwest corner of Highcroft Drive/Manotick Main Street, over 494m^2 (5,320 SF) of gross floor area;
- *5514 Manotick Main Street:* This proposed development is located on the northwest corner of the Manotick Main Street/Bridge Street-Maple Avenue intersection and proposes to develop a three-storey 12.5m high residential commercial
- *5536 Manotick Main Street:* This proposal intends to redevelop the existing site into a new two-storey commercial and office residential building with access from Manotick Main Street. The development gross floor area would provide for approximately 720 m^2 of commercial and office space;

External Development Initiatives: Two significant development initiatives have been identified south of the study area which are likely to increase north-south traffic adjacent to the proposed development:

- *5651 First Line – Mahogany Subdivision Stage 2, Minto* is currently in development of Stage 2, Phase 2 of a 5-phase residential subdivision bordered by Century Road East on the south, Manotick Main Street to the east and First Line Road to the west. The total unit count is projected to be less than 1,400 units with 50% of development traffic destined to/from the Manotick Main / Bridge Street intersection. Phase 2 of the development would consist of 347 single units and 99 townhouse units; and
- *5721, 5731, 5741 – Riverwalk Subdivision, EQ Homes* is an 85-unit residential subdivision location east of Manotick Main Street nearest the intersection of Century Road. It is expected that full build-out and occupation would be achieved within the 1-to-2 years;

1. City of Ottawa Transportation Master Plan (Nov. 2013) Map 11 (Road Network Affordable Transportation Network), Map 5 (Rapid Transit and Transit Priority Network – 2031 Affordable Network), Appendix "E" of the 2019 DC Background Study and other planning documents

2.0 STUDY AREA AND TIME PERIODS

2.1 STUDY AREA

Appendix "B" Screening Form indicates that the proposed 5497 Manotick Main Street development is not anticipated to generate traffic volumes that would satisfy the 60 person-trips during the weekday peak hours of travel demand trigger or threshold that would require a Design Review and Network Impact component.

However, Appendix "B" Screening Form does indicate that the development would meet the Location and Safety Triggers, that necessitate a Design Review.

The study area is proposed to include Manotick Main Street as the "Boundary Street" for further analysis.

Further analysis would address the following intersections in terms of traffic:

- Manotick Main Street/Bridge Street-Maple Avenue (Signalized); and
- Manotick Main Street/Highcroft Drive-Commercial Access.

2.2 TIME PERIODS

The study will analyze the morning and afternoon peak hours of travel demand as they were envisioned to represent the "worst-case" scenario in terms of weekday traffic volumes.

2.3 HORIZON YEARS

The small size of this development does not meet the travel demand triggers that would require a full traffic impact assessment. Recognizing this it is proposed that a single horizon year be analyzed that would represent a 2022 horizon-year corresponding to build-out of the proposed development. The City is requested to waive the requirement for a 5-year horizon analysis as impacts to Manotick Main Street traffic operations are anticipated to remain largely unaffected by the proposed development.

3.0 EXEMPTION REVIEW

Table 3.1 is an extract from the TIA Guidelines (2017) in regard to possible reduction in scope of work of the traffic study.

Castleglenn would request the City of Ottawa to provide exemptions for Elements 4.1.3, 4.2.2, 4.5, 4.6 and 4.8 as indicated within the table.

Given that the traffic study has scoped out of the "Network Impact" component of the traffic impact study, Module 3.1 is also considered to be exempt.

Table 3-1: Exemptions as per TIA Guidelines

Module	Element	Exemption Considerations	Include Module in TIA
Design Review Component			
4.1 Development Design	**4.1.2 Circulation and Access**	Required for site plan.	Yes
	4.1.3 New Street Networks	Only required for plans of subdivision	No
4.2 Parking	**4.2.1 Parking Supply**	Required for site plan.	Yes
	4.2.2 Spillover Parking	Parking supply not anticipated to exceed minimum	No
Network Impact Component			
4.5 Transportation Demand Management	**All elements**		No
4.6 Neighbourhood Traffic Management	**4.6.1 Adjacent Neighbourhoods**	The development trips are not anticipated to rely on any collector or local streets for access.	No
4.8 Network Concept		The proposed development is not anticipated to generate 200-person-trips more than the permitted zoning	No

4.0 BACKGROUND NETWORK TRAFFIC

4.1 CHANGES TO THE BACKGROUND TRAFFIC NETWORK

As indicated in Section 1.3, no significant changes are forecast within the background traffic network, particularly by the build-out forecast of 2022 for the proposed 5497 Manotick Main Street development.

4.2 HISTORICAL BACKGROUND GROWTH RATE

Table 4-1 presents the City of Ottawa TRANS Regional Model outputs for the SL49 screen line north of Manotick assuming the 2011 and 2031 morning peak hour runs to estimate background traffic growth in the study area. The table also indicates the Manotick Main Street link volumes north of Manotick for comparison purposes. The 2011 model assumes the Strandherd Bridge is not in place, while the bridge would be available in the 2031 model.

Table 4-1: TRANS Regional Model Outputs

Location	*2011 AM Pk Hr*	*2031 AM Pk Hr*	*Annual Growth*
SR41 Screenline	5,318	8,751	3.2%
Manotick Main Street	930	1174	1.3%

The land use for TAZ No. 4502 was reviewed to indicate a growth of approximately 1,350 households between 2011 and 2031. This includes growth in the Minto Mahogany and EQ Homes subdivision in south Manotick. This would represent an average annual growth of almost 7% in both population and households over the 20-year period.

Inspection of the table and the SL49 screen line found a 3.2% annual growth over the 20-year period. It is expected that the growth in south Manotick would be the main component of northbound traffic using Manotick Main Street and crossing the SR41 screen line. It could be anticipated that the traffic growth rate over the next decade would be greater than 3.2% as a significant number of units are anticipated to become occupied in the coming years.

4.3 ADJACENT DEVELOPMENT TRAFFIC

Section 1.3 described 4 adjacent developments within the study area that could be occupied by the date of occupancy for the proposed 5497 Manotick Main Street development (2022). A review of the development applications indicated that no TIA information nor specific occupancy information is available at this time for any of the 4 developments. The commercial/office/retail buildings were assumed to be restaurant-related on the ground floor and office-related on the second floor entirely for the purpose of trip generation. The future tenants can likely vary greatly from this assumption.

Table 4-2 summarizes the trip generation rates adopted for the adjacent study area developments. A "High Turn Over Restaurant" was considered a worst-case generation for the ground floor of each residential building along Manotick Main Street.

Table 4-3 indicates the anticipated forecast auto trips generated by the adjacent developments on the surrounding transportation network. This analysis assumes negligible internal capture rates and pass-by rates that could further limit the overall impact of each adjacent development on the surrounding network.

Table 4-2: Trip Generation Rates adopted for Adjacent Developments

Land Use	*Source*	*Independent Variable*	*Morning Peak Hour*			*Afternoon Peak Hour*		
			Rate	*In*	*Out*	*Rate*	*In*	*Out*
Small Office Building	ITE - Land Use 712	Gross Floor Area (1000 ft2)	1.54	60%	40%	3.73	46%	54%
Services - High Turnover (Sit-Down) Restaurant	ITE - Land Use 932	Gross Floor Area (1000 ft2)	9.94	55%	45%	9.77	62%	38%
Single-Detached Dwellings	TRANS (Table 6.2, 6.3)	Dwelling Units	0.7	29%	71%	0.9	62%	38%

The Rural Southwest TAZ (which includes areas such as Richmond to the west) from the 2011 TRANS OD survey was reviewed to determine the trip distribution and assignment for adjacent developments. Approximately 34% of outbound AM trips remained within the Rural Southwest Zone while the remaining 66% were destined to zones north of the study area. 40% of all trips were assumed to occur along the Manotick Main Street corridor fronting the proposed 5497 Manotick Main Street development.

This was found to result in an additional:

- 20 NB trips during the morning peak hour; and
- 25-to-32 trips in the afternoon peak hour.

This would be an equivalent background growth of 1.5%-to-1.9% per year along Manotick Main Street from the combined trip generation of adjacent developments.

Table 4-3: Adjacent Development Forecast Trip Generation

1164-1166 Highcroft Drive - Residential								
Land Use	***Source***	***Size***	***Morning Peak Hour (veh/hr)***			***Afternoon Peak Hour (veh/hr)***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Single-Detached Dwellings	TRANS (Table 6.2, 6.3)	11 Single Dwelling Units	3	5	8	7	3	10
5506 Manotick Main Street								
Land Use	***Source***	***Size***	***Morning Peak Hour (veh/hr)***			***Afternoon Peak Hour (veh/hr)***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Small Office Building	ITE - Land Use 712	2.65 thousand sq. ft.	3	2	5	5	5	10
Services - High Turnover (Sit-Down) Restaurant	ITE - Land Use 932	2.65 thousand sq. ft.	15	12	27	17	9	26
Total			18	14	32	22	14	36
5514 Manotick Main Street								
Land Use	***Source***	***Size***	***Morning Peak Hour (veh/hr)***			***Afternoon Peak Hour (veh/hr)***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Small Office Building	ITE - Land Use 712	3.65 thousand sq. ft.	4	2	6	7	7	14
Services - High Turnover (Sit-Down) Restaurant	ITE - Land Use 932	3.65 thousand sq. ft.	20	17	37	23	13	36
Total			24	19	43	30	20	50
5536 Manotick Main Street								
Land Use	***Source***	***Size***	***Morning Peak Hour (veh/hr)***			***Afternoon Peak Hour (veh/hr)***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
Medical-Dental Office Building	ITE - Land Use 720	2.4 thousand sq. ft.	3	1	4	5	4	9
Services - High Turnover (Sit-Down) Restaurant	ITE - Land Use 932	2.6 thousand of sq. ft.	15	11	26	16	10	26
Total			18	12	30	21	14	35
Grand Total			**63**	**50**	**113**	**80**	**51**	**131**

4.4 EXTERNAL DEVELOPMENT TRAFFIC

Section 1.3 described 2 external developments located south of the study area which could cause additional traffic growth along Manotick Main Street and Bridge Street.

Table 4-4 summarizes the trip generation from the EQ Homes Riverwalk development and the Minto Homes Mahogany Stage 2, Phase 2 development. It is expected that 100% of EQ Homes and 30% of Mahogany Phase 2 would be developed by the 2022 forecast horizon.

Table 4-4: Trip Generation Extracts for External Residential Developments

EQ Homes - 5741, 5731 and 5721 Manotick Main Street Auto Trip Generation[1]

Land Use	*Source*	*Size*	*Morning Peak Hour (veh/hr)*			*Afternoon Peak Hour (veh/hr)*		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Single Family Homes	ITE 210	30 units	7	24	31	22	14	36
Residential Condos/Towns	ITE 230	54 units	5	27	32	24	12	36
Total		84 units	12	51	63	46	26	72
Assigned to Manotick Main / Bridge Street[2]		90%	11	46	57	41	23	65

1. Referenced from Table 2 and Table 3, 5741, 5731, 5721 Manotick Main Street Transportation Brief, Novatech, July 2016
2. It would be expected that 70% of EQ Homes traffic would utilize Manotick Main Street

Minto Mahogany Stage 2, Phase 2 Trip Generation[3]

Land Use	*Source*	*Size*	*Morning Peak Hour (veh/hr)*			*Afternoon Peak Hour (veh/hr)*		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Single Family Homes	ITE 210	30 units	71	159	230	194	100	294
Residential Condos/Towns	ITE 230	54 units	8	39	47	37	40	57
Total		**84 units**	**79**	**199**	**278**	**231**	**120**	**351**
Assigned to Manotick Main		35%	28	70	97	81	42	123
Assigned to Bridge Street		15%	4	10	15	12	6	18

3. Referenced from Tables 5 and 6 of Minto Mahogany Stage 2 - Transportation Impact Study, Parsons, June 2017

Therefore, fronting the development, it is anticipated that Manotick Main Street would experience:

- During the morning peak hour, a two-way volume increase of 76 vehicles per hour; and
- During the afternoon peak hour, a two-way traffic volume increase of 91 vehicles per hour.

This would be an equivalent background growth of up to 3.6%-to-4.4% in the peak direction per year during the peak hour of travel demand for the next 2 years from the external developments along Manotick Main Street fronting the development.

5.0 DEMAND RATIONALIZATION

5.1 REVIEW OF EXISTING NETWORK CONSTRAINTS

Table 5-1 summarizes the intersection capacity analysis for the 2020 morning and afternoon peak hours of travel demand without the proposed 5497 Manotick Main Street or the adjacent development traffic. The table denotes the most critical movements at the study area intersections based on level-of-service (v/c ratio for traffic signals, delay for non-signalized).

The analysis was found to indicate, as regards City of Ottawa standards for overall intersection operations, that the Manotick Main Street / Bridge Street intersection would meet the target level of service of "D".

Table 5-1: Existing Intersection Capacity Analysis

Intersection	***Weekday Morning Peak Hour (Afternoon Peak Hour)***							
	Critical Movement					***Overall Intersection***		
	Approach / Movement	Queue Length (m)	Delay (seconds)	LOS	v/c	Delay (seconds)	LOS	v/c
Signalized								
Manotick Main Street / Bridget Street	***WB-Th (WB-Th)***	25 (72)	45 (62)	A (B)	0.22 (0.66)	22 (30)	D (D)	0.81 (0.83)
	SB-LT (SB-LT)	81 (125)	17 (31)	A (D)	0.55 (0.83)			
Unsignalized – STOP controlled								
Manotick Main Street / Highcroft Drive	***EB Approach (EB Approach)***	1 (2)	17 (29)	C (D)	0.03 (0.06)	--		

5.2 QUALITATIVE REVIEW OF FUTURE CONDITIONS

A review of the existing intersection capacity analysis indicates that the existing Manotick Main Street / Bridge Street intersection operates with acceptable levels of service, delay and v/c ratios that meet the target LOS "D".

By the 2022 horizon year, the 5 adjacent residential/commercial developments and 2 external residential developments are anticipated to increase the peak hour traffic volume in the north-south directions by up to 7% fronting the proposed development. While the existing transportation network is capable of accommodating additional growth, the combined external residential and adjacent developments are likely to increase delays at the Manotick Main Street / Bridge Street intersection and reduce gaps within the north-south traffic stream.

The proposed 5497 Manotick Main Street development is anticipated to generate a negligible amount of auto traffic onto the surrounding roadway network when compared to the forecast background growth.

6.0 ANALYSIS

6.1 DEVELOPMENT DESIGN

6.1.1 Design for Sustainable Modes

The proposed 5497 Manotick Main Street residential re-development:

- Provides 10 interior and sheltered cycling parking stalls for the residential unit portion of the development;
- Provides 4 cycle stalls fronting the development. It is recommended that cycle stalls also be located in the rear of the building to provide more secure bicycle parking for tenants; and
- Proposes to implement a 2.0m concrete sidewalk fronting the development with firm surface walkways connecting the building accesses to the street front. The sidewalk and curb are to be depressed and continuous across the site access.
- Proposes to implement a direct pedestrian connection of building's entrance to the street front by means of providing a concrete sidewalk with a depressed curb parallel to the parking access. Hatched pavement markings over the parking lot access and a depressed curb directly in front of the main entrance are also to be provided. These provisions ensure proper pedestrian connectivity of the development to the adjacent street network.

The above elements follow the City of Ottawa Planning and Design Guidelines.

Exhibit 6-1 illustrates the approximately 200m walking distance measured from the center of the proposed development to two transit stops west of the Manotick Main Street / Bridge Street (2847 and 2848). Concrete sidewalks connect the proposed development to these two stop locations. This achieves the standard of a 400m walking distance to transit.

The City of Ottawa's TDM-Supportive Development Design and Infrastructure Checklist has been completed and included with Appendix "F" for the residential development.

A review of the TDM Checklist indicated that the proposed site plan:

- provides satisfactory pedestrian circulation within the site which includes hard walking surfaces between doors and the rear-amenity area. The development should ensure that the amenity area is accessible to all users from both the rear and side doors;
- provides a concrete sidewalk connecting main entrance of the development to existing transit facilities south of the site; and
- meets minimum vehicle parking requirements while exceeding cycle stall requirements. The development proponent is recommended to afford 1 additional cycle stall indoors and additional cycle stalls in the rear of the building to promote cycling for the residential building.

6.1.2 Circulation and Access

The site proposes to relocate the access to the north of its current location. Regarding circulation, it is anticipated that:

- Waste collection refuse would be conducted at the street front. Manotick Main Street provides for two-lanes of northbound traffic which would allow vehicles to flow around the truck when waste pick up is required; and
- Deliveries to the site, such as tenant move-in vehicles, are anticipated to be infrequent. In the rare case of a large delivery vehicle (i.e. a medium size truck) the delivery would be accommodated on the street-front. The proponent is recommended to coordinate with tenants on how best to accommodate dwelling move-ins.

Exhibit 6-1: Local Transit Stops (200m Walking Distance)

6.2 PARKING

6.2.1 Motor Vehicle Parking

Parking is to be accommodated on-site by both above-ground stalls and underground stalls. 26 parking stalls are proposed to be available, which would consist of 10 surface stalls and 16 underground stalls contained within a single floor. The proposed site is located in Area "D - Rural' of Schedule 1A (Zoning By-law No.2008-250).

Table 6-1 summarizes the auto parking required and proposed supply for the development.

Table 6-1: Parking Requirements for the 5497 Manotick Main Street

Parking Type	*Rate*	*Unit*	*Parking Requirements*	*Provided Parking**
Residential - Tenant (Table 101)	1 stalls / unit	21 Units	21 Stalls	16 underground stalls for tenants
Residential - Visitor (Table 102)	0.2 stalls / unit		5 Stalls	10 Surface stalls for visitors/tenants
Total Parking Stalls			**26 Stalls Required**	**26 Stalls Provided**

Table 6-1 indicates that the proposed development includes 26 total parking stalls which meets the minimum parking requirements according to City of Ottawa By-law in Area 'D' for a residential development.

6.2.2 Bicycle Parking

As regards bicycle parking supply, a review of By-Law Section 111 indicates 0.50 bicycle parking spaces per-dwelling-unit for a residential apartment building. The bylaw requirements indicates that 11 bicycle spaces would be required for the residential component of the development.

The proposed site plan provides for 10 horizontal bicycle stalls located on the ground floor of the building. An additional 4 bicycle stalls are located on the front exterior of the building. It is recommended to locate additional bicycle stalls in the rear of the building to encourage tenant use and promote a safe parking area.

6.3 BOUNDARY STREET DESIGN

6.3.1 Mobility – Segment MMLOS Analysis

The Multi-Modal Level-of-Service (MMLOS) guidelines were used to evaluate the segment level of service for all modes of transportations along Manotick Main Street northbound fronting the site. The Manotick Main Street corridor was assumed to be an "Arterial Main Street" corridor for the purpose of MMLOS targets.

Table 6-2 summarizes the segment MMLOS analysis fronting the proposed development assuming the proposed conditions that include a 2.0m sidewalk fronting the site. For the pedestrian and bike LOS analysis, the analysis has adopted the assumption that the operating speed is 10 km/hr greater than the roadway posted speed[2].

Inspection of the analysis found:

- A PLOS of "E" due to the lack of boulevard, the operating speed of 60 km/hr, the lack of on-street parking and the presence of more than 3,000 vehicles per day on the curb lane of traffic to achieve a PLOS target of "C", a boulevard greater than 2.0m would be required. However, this boulevard would be inconsistent with the adjacent sidewalk segment and could pose design challenges when connecting both sidewalks;
- A BLOS "F" due to the mixed cycling and traffic flow and an operating speed equal to 60 km/hr. To achieve the BLOS target of "C", cycle lanes would be required along Manotick Main Street;
- No transit analysis was undertaken as there are no transit routes along this section of Manotrick Main Street; and
- Manotick Main Street was found to achieve a TkLOS "A" which exceeds the TkLOS "D" for a designated truck route.

2 Section 2.5, "*Addendum to MMLOS Guidelines"*, City of Ottawa, May 2017.

Table 6-2: Segment MMLOS for Manotick Main Street at Build-Out (2022)

Performance Measure	***Roadway Segments Adjacent to the Development***
	Northbound Manotick Main Street
Pedestrian LOS (PLOS)	
Sidewalk Width (m)	2.0
Boulevard Width (m)	0m
Average Daily Curb Lane Traffic Volume	~8,500
Presence of On-Street Parking	No
Operating Speed (km/h) Posted +10 km/hr	60
Segment PLOS	**E**
Target PLOS	C
Bicycle LOS (BLOS)	
Bikeway Type	Mixed Traffic
Number of Lanes per direction	2 (marked centreline)
Bike Lane Width (m)	N/A
Operating Speed (km/h) Posted +10 km/hr	60
Bike Lane Blockage	N/A
Segment BLOS	**F**
Target BLOS Spine Route	C
Transit LOS (TLOS)	
Facility Type	N/A
Level/Exposure to Parking/Driveway Friction	
Average Transit Travel Speed (km/h)	
Posted Speed Limit (km/h)	
Segment TLOS	
Target TLOS	
Truck LOS (TkLOS)	
Number of lanes (in each direction)	2
Curb Lane Width (m)	>3.7
Segment TkLOS	A
Target TkLOS	D

6.4 ACCESS INTERSECTIONS DESIGN

6.4.1 Location and Design of Site Access

The 5497 Manotick Main development proposes to relocate the existing property access approximately 17m north along Manotick Main Street to access the proposed parking facilities. The relocated access provides improved spacing to the adjacent commercial access for a more ideal access arrangement.

Inspection of the 5497 Manotick Main site access was found to indicate:

- the access is located approximately 120m north of the Manotick Main Street / Bridge Street intersection. This is within the SB-LT auxiliary lane of the adjacent intersection, which extends north as a continuous left-turn lane towards the Bankfield Road intersection. A review of the existing queue lengths found that during the morning peak hour, the 95th percentile queue could extend up to 140m along the Manotick Main Street corridor. The proposed development is not anticipated to involve such significant traffic volumes as to develop a significant safety concern between the site vehicles and the Manotick Main Street traffic;
- a clear throat length greater than 14m where, according to the Transportation Association of Canada (TAC) Table 8.9.10 recommends 15m from a residential property of less than 100 units accessing an arterial street. This throat length is considered acceptable given the site arrangement and the low number of residential units;
- direct sight lines between the access, the adjacent Commercial Plaza access, and to either direction along Manotick Main Street;
- the access is approximately 9.0m in width at the street front, which meets the maximum allowable width for a property access;
- the proposed site access is located effectively along the property line, measured where the property line intersects the curb edge at the street front. The minimum desired distance from the property line is identified as 3.0m as per section 25.1 p of the Private Approach By-Law. However, this separation is identified as an existing constraint where the full 3.0m is difficult to achieve given the adjacent access. The proposed access is anticipated to have suitable sight lines, would have a negligible impact on the adjacent access operates, and would continue to operate similar to the existing access configuration. Therefore, the proposed separation is considered acceptable;
- the access is located opposite 5500 Manotick Main (Coldwell Bankers) driveway along Manotick Main. Given the low development generated travels demands from the proposed development, conflicts with opposing accesses along Manotick Main Street are anticipated to be minimal; and
- a 6.0m drive aisle width for two-way travel that accesses less than 50 parking stalls. A 6.7m aisle width is provided to access parking stalls arranged at a 90^{0} angle.

6.4.2 Intersection Control

The proposed development would maintain STOP-control on the minor leg of the site access. No changes to the Manotick Main Street free-flow traffic are proposed, as traffic signals at this location would likely be a detriment to traffic flow.

The site access is anticipated to experience similar delays to the existing Highcroft Drive-Commercial Plaza intersection immediately to the south of the development. These delays were found to be manageable during the peak hours of travel demand.

7.0 TIA STRATEGY

7.1 RECOMMENDED IMPROVEMENTS

Should it be desired, it is recommended that the City of Ottawa undertake improvements to the adjacent 5511 Manotick Main Street access to provide a continuous depressed sidewalk and curb to connect with the existing sidewalk along the east side of Manotick Main Street. This improvement has been omitted from the site plan as it is believed to be an improvement undertaken by others.

7.2 CONCLUSION

The 5497 Manotick Main Street application proposes to re-develop the existing site into a residential building with 21 apartment units. The development is anticipated to generate negligible vehicle traffic volumes that would have an insignificant impact on the surrounding roadway network.

Should you have any questions or comments, please do not hesitate to contact us at your convenience.

Yours truly,

Mr. Arthur Gordon B.A. P.Eng
Principal Engineer
Castleglenn Consultants Inc.

Mr. Andrey Kirillov B.Eng
Transportation Planner
Castleglenn Consultants Inc.

APPENDIX A: CERTIFICATION FORM FOR TIA STUDY PROJECT MANAGER

TIA Plan Reports

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

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

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

CERTIFICATION

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

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

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at Ottawa (City) this 23 day of October, 20 20.

Name: Arthur Gordon
(Please Print)

Professional Title: Principal Engineer

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

Office Contact Information (Please Print)
Address: Suite 200 - 2460 Lancaster Road
City / Postal Code: Ottawa / K1B 4S5
Telephone / Extension: 613 - 731 - 4052
E-Mail Address: agordon@castleglenn.ca

Stamp

LICENSED PROFESSIONAL ENGINEER
A.E. GORDON
PROVINCE OF ONTARIO

APPENDIX B: SCREENING FORM

Castleglenn Consultants
Engineers, Project Managers & Planners

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

City of Ottawa 2017 TIA Guidelines Screening Form

Ms. Josiane Gervais, P.Eng, M.Eng
Project Manager, Infrastructure Approvals
Planning, Infrastructure and Economic Development
City of Ottawa, 110 Laurier Avenue West, Ottawa, ON K1P 1J1

September 20th, 2021

Please see below the completed screening form for the proposed mixed-use development located at 5497 Manotick Main Street. The proposed 5497 Manotick Main Street development is located approximately 110m north of the Manotick Main/Bridge Street intersection and is to be composed of 21 low-rise apartment dwelling units.
In summary, the development is not anticipated to generate sufficient two-way person-trips to meet the Trip Generation Trigger. However, the development was found to meet the Location and Safety Triggers. Therefore, a Design Review TIA is understood to be required.

1. Description of Proposed Development

Municipal Address	5497 Manotick Main Street
Description of Location	The proposed site is located west of Manotick Main Street and north of Bridge Street, across from Highcroft Drive. The site backs into the Rideau River.
Land Use Classification	Mixed-Use Residential and Retail – Village Mainstreet
Development Size (units)	21 Apartment Units
Development Size (m^2)	~2,170 m^2
Number of Accesses and Locations	The site proposes to one existing access from Manotick Main Street
Phase of Development	One Phase
Buildout Year	Estimated 2022

2. Trip Generation Trigger

The development will consist of 21 apartment residential units. At this time, the tenants for the retail development are unknown. However, it is highly likely that the development would produce less than 60 person-trips during the weekday peak hours of travel demand.

Therefore, **the Trip Generation Trigger is not satisfied.**

Castleglenn Consultants
Engineers, Project Managers & Planners

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or **Spine Bicycle Networks**?		X
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone? *	X	

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

The development proposes to use the existing access to the property. The development is located within a Design Priority Area (Manotick Village Core). Therefore, **the Location Trigger is satisfied.**

4. Safety Triggers

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

The existing property access is located approximately 110m north of the Manotick Main Street / Bridge Street intersection. The SB-LT auxiliary lane, that begins at Bankfield Road upstream, fronts the development Therefore, **the Safety Trigger is satisfied.**

Castleglenn Consultants
Engineers, Project Managers & Planners

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?		X
Does the development satisfy the Location Trigger?	X	
Does the development satisfy the Safety Trigger?	X	

Yours Truly,

Mr. Arthur Gordon B.A. P.Eng
Principal Engineer
Castleglenn Consultants Inc.

Mr. Jake Berube B.Eng. EIT
Traffic Planning Specialist
Castleglenn Consultants Inc.

APPENDIX C: EXISTING TRAFFIC VOLUMES, COLLISIONS AND TIMING PLAN

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Traffic Control: Traffic signal **Total Collisions:** 20

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-07, Tue,08:00	Clear	Rear end	P.D. only	Loose snow	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Pick-up truck	Other motor vehicle	
2014-Feb-03, Mon,10:07	Clear	Turning movement	P.D. only	Dry	West	Turning left	Truck - open	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	
2014-Feb-11, Tue,22:36	Clear	Turning movement	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2014-Jul-18, Fri,07:15	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2014-Oct-28, Tue,08:25	Rain	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2015-Feb-24, Tue,12:39	Clear	SMV other	P.D. only	Dry	West	Turning right	Truck and trailer	Pole (utility, power)	0
2015-Mar-10, Tue,15:12	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Passenger van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-May-15, Fri,14:27	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2015-Aug-04, Tue,23:09	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Sep-01, Tue,12:46	Clear	Turning movement	P.D. only	Dry	West	Turning right	Truck and trailer	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Mar-09, Wed,15:50	Clear	Angle	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-04, Sat,10:42	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Traffic Control: Traffic signal **Total Collisions:** 20

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-May-09, Tue,14:38	Clear	Angle	P.D. only	Dry	West	Turning right	Unknown	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-16, Fri,12:35	Clear	Rear end	P.D. only	Dry	South	Going ahead	Truck - dump	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-16, Sat,16:17	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2018-Jan-25, Thu,13:27	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Delivery van	Other motor vehicle	
2018-Mar-26, Mon,07:21	Clear	SMV other	P.D. only	Dry	South	Going ahead	Delivery van	Ran off road	0
2018-Jun-25, Mon,07:14	Clear	Rear end	P.D. only	Dry	East	Turning right	Unknown	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Oct-11, Thu,06:46	Rain	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-14, Wed,10:05	Clear	Sideswipe	P.D. only	Dry	South	Turning right	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: MANOTICK MAIN ST btwn HIGHCROFT DR & MAPLE AVE

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-11, Tue,06:35	Clear	Rear end	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Mar-17, Mon,16:02	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: MANOTICK MAIN ST btwn HIGHCROFT DR & MAPLE AVE

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Mar-18, Wed,17:21	Clear	Sideswipe	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-13, Sat,10:12	Rain	Angle	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-16, Fri,13:03	Clear	Angle	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

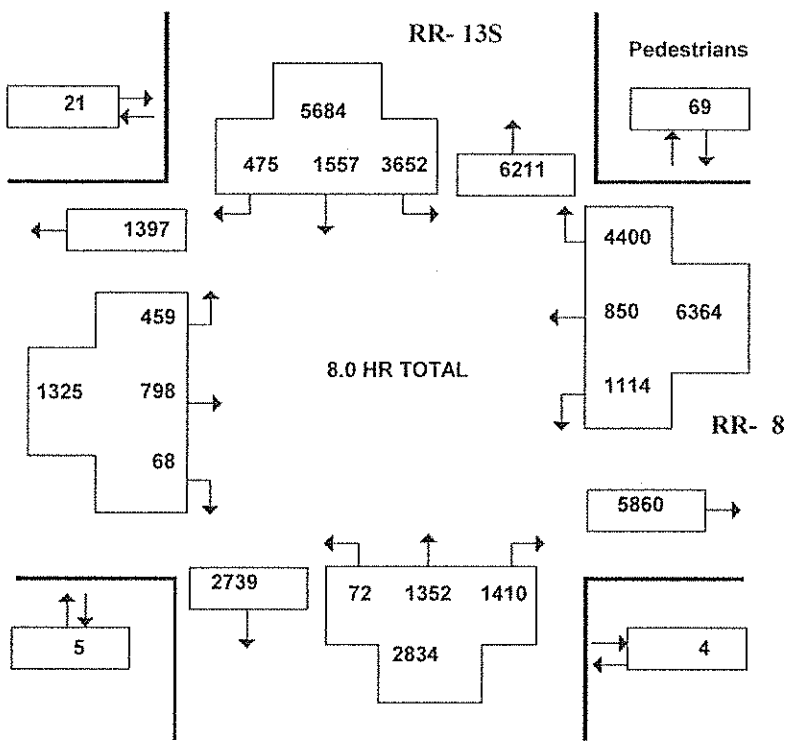
BRIDGE ST and MAIN ST

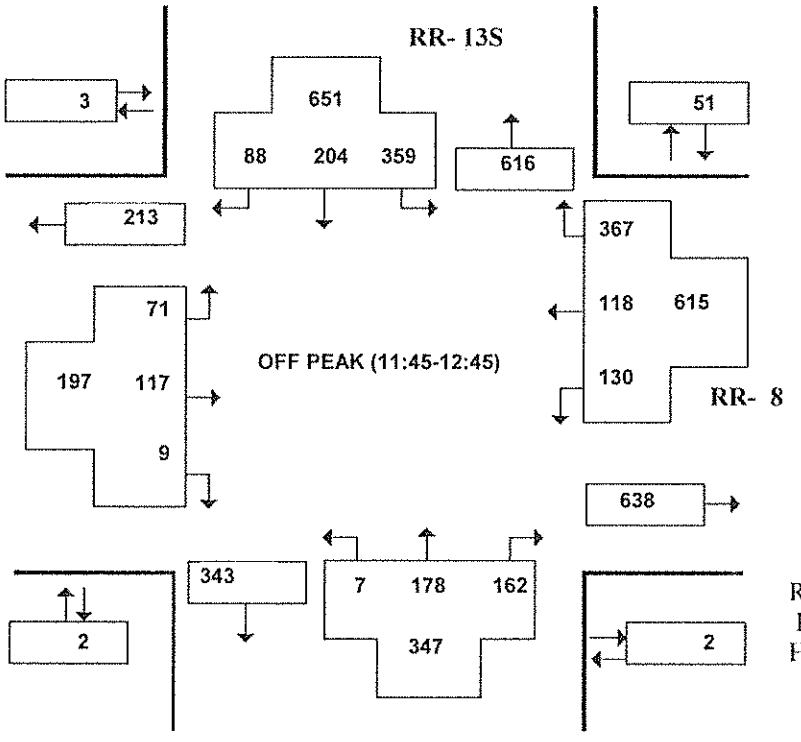
(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Tuesday in May is
9





Refer to Summary Page for Survey Hours.

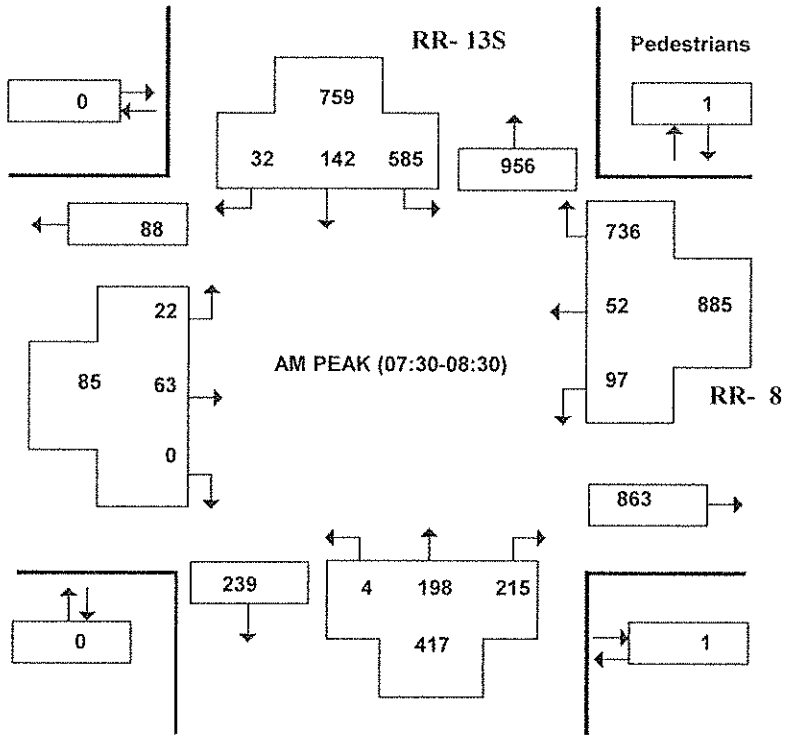
BRIDGE ST and MAIN ST

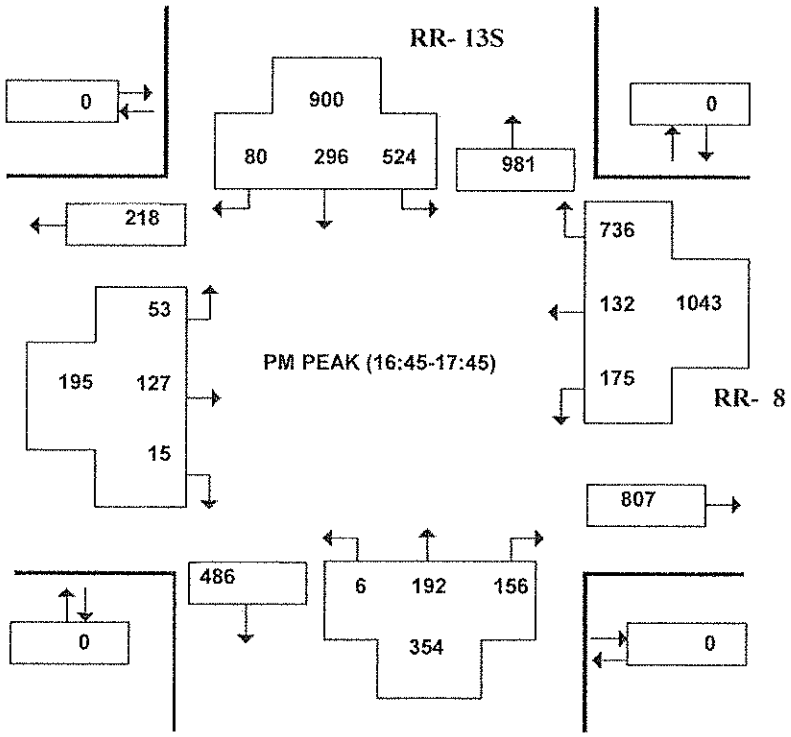
(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Tuesday in May is
9





Ottawa — *Public Works and Services Department*

Count ID 30325

Vehicular Turning Movements - Summary

BRIDGE ST and MAIN ST

(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Tuesday in May is
9

	RR- 13S									RR- 8									
	Northbound			SUB	Southbound			SUB	STR	Eastbound			SUB	Westbound			SUB	STR	GRAND
Time Period	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	TOT
07:00-08:00	7	187	209	**403**	538	100	26	**664**	**1067**	18	50	0	**68**	66	39	633	**738**	**806**	**1873**
08:00-09:00	7	186	180	**373**	511	141	43	**695**	**1068**	50	67	4	**121**	119	69	732	**920**	**1041**	**2109**
09:00-10:00	13	132	156	**301**	390	128	56	**574**	**875**	61	82	14	**157**	150	111	514	**775**	**932**	**1807**
11:30-12:30	6	194	167	**367**	336	181	87	**604**	**971**	81	123	11	**215**	123	117	343	**583**	**798**	**1769**
12:30-13:30	10	129	197	**336**	353	195	51	**599**	**935**	53	104	4	**161**	138	116	342	**596**	**757**	**1692**
15:00-16:00	14	173	190	**377**	493	277	71	**841**	**1218**	74	133	12	**219**	160	115	436	**711**	**930**	**2148**
16:00-17:00	10	185	154	**349**	518	276	63	**857**	**1206**	62	118	9	**189**	183	138	631	**952**	**1141**	**2347**
17:00-18:00	5	166	157	**328**	513	259	78	**850**	**1178**	60	121	14	**195**	175	145	769	**1089**	**1284**	**2462**
8.0 HR TOTAL	72	1352	1410	**2834**	3652	1557	475	**5684**	**8518**	459	798	68	**1325**	1114	850	4400	**6364**	**7689**	**16207**
EQU. 12 HR TOTAL	100	1879	1959	**3938**	5076	2164	660	**7900**	**11838**	638	1109	94	**1841**	1548	1181	6116	**8845**	**10686**	**22524**
AVG. 12 HR TOTAL	90	1691	1763	**3544**	4568	1947	594	**7109**	**10653**	574	998	84	**1656**	1393	1062	5504	**7959**	**9615**	**20268**
AVG. 24 HR TOTAL	117	2215	2309	**4641**	5984	2550	778	**9312**	**13953**	751	1307	110	**2168**	1824	1391	7210	**10425**	**12593**	**26546**
AM TOTAL (0700-0900)	14	373	389	**776**	1049	241	69	**1359**	**2135**	68	117	4	**189**	185	108	1365	**1658**	**1847**	**3982**
PM TOTAL (1530-1730)	19	379	318	**716**	989	571	134	**1694**	**2410**	126	264	24	**414**	367	259	1259	**1885**	**2299**	**4709**

Note: These values are calculated by multiplying the totals by the appropriate expansion factor.

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.

Note: These volumes were calculated by multiplying the Average Daily 12 hr totals by 1.31.

Ottawa

Public Works and Services Department

Count ID 30325

Vehicular Turning Movements (15 Min. Volumes)

BRIDGE ST and MAIN ST

(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012
Conditions: dry
Start Time: 07:00

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Tuesday in May is 9

	RR- 13S									RR- 8									
	Northbound				Southbound					Eastbound				Westbound					
Time Period	LT	ST	RT	SUB TOT	LT	ST	RT	SUB TOT	STR TOT	LT	ST	RT	SUB TOT	LT	ST	RT	SUB TOT	STR TOT	GRAND TOT
07:00-07:15	3	40	61	104	118	14	8	140	244	5	10	0	15	12	7	109	128	143	387
07:15-07:30	2	44	39	85	124	20	6	150	235	3	11	0	14	14	9	153	176	190	425
07:30-07:45	1	51	56	108	151	25	7	183	291	5	13	0	18	22	10	185	217	235	526
07:45-08:00	1	52	53	106	145	41	5	191	297	5	16	0	21	18	13	186	217	238	535
08:00-08:15	0	49	58	107	122	37	7	166	273	6	20	0	26	30	10	188	228	254	527
08:15-08:30	2	46	48	96	167	39	13	219	315	6	14	0	20	27	19	177	223	243	558
08:30-08:45	1	41	29	71	118	36	11	165	236	28	17	3	48	31	12	185	228	276	512
08:45-09:00	4	50	45	99	104	29	12	145	244	10	16	1	27	31	28	182	241	268	512
09:00-09:15	1	41	46	88	106	38	13	157	245	11	18	2	31	32	26	143	201	232	477
09:15-09:30	4	29	42	75	103	33	16	152	227	16	29	3	48	57	28	135	220	268	495
09:30-09:45	5	31	36	72	101	27	13	141	213	15	17	3	35	34	29	129	192	227	440
09:45-10:00	3	31	32	66	80	30	14	124	190	19	18	6	43	27	28	107	162	205	395
11:30-11:45	1	48	43	92	66	20	10	96	188	22	23	5	50	28	28	61	117	167	355
11:45-12:00	1	37	51	89	98	36	23	157	246	31	36	3	70	34	29	91	154	224	470
12:00-12:15	1	47	28	76	79	54	17	150	226	14	27	2	43	35	34	93	162	205	431
12:15-12:30	3	62	45	110	93	71	37	201	311	14	37	1	52	26	26	98	150	202	513
12:30-12:45	2	32	38	72	89	43	11	143	215	12	17	3	32	35	29	85	149	181	396
12:45-13:00	1	32	58	91	85	59	12	156	247	19	31	0	50	35	25	78	138	188	435
13:00-13:15	4	26	54	84	91	44	15	150	234	10	27	0	37	29	32	82	143	180	414
13:15-13:30	3	39	47	89	88	49	13	150	239	12	29	1	42	39	30	97	166	208	447
15:00-15:15	7	39	63	109	115	49	18	182	291	11	17	2	30	32	27	95	154	184	475
15:15-15:30	1	38	36	75	148	80	18	246	321	22	27	3	52	38	35	90	163	215	536
15:30-15:45	5	50	51	106	126	68	17	211	317	16	34	3	53	47	26	134	207	260	577
15:45-16:00	1	46	40	87	104	80	18	202	289	25	55	4	84	43	27	117	187	271	560
16:00-16:15	4	41	41	86	142	71	15	228	314	17	34	3	54	43	40	137	220	274	588
16:15-16:30	1	53	36	90	103	53	12	168	258	18	37	0	55	45	28	145	218	273	531
16:30-16:45	2	37	35	74	136	90	18	244	318	13	23	1	37	47	39	178	264	301	619
16:45-17:00	3	54	42	99	137	62	18	217	316	14	24	5	43	48	31	171	250	293	609
17:00-17:15	3	53	26	82	110	69	18	197	279	11	31	1	43	49	36	200	285	328	607
17:15-17:30	0	45	47	92	131	78	18	227	319	12	26	7	45	45	32	177	254	299	618
17:30-17:45	0	40	41	81	146	87	26	259	340	16	46	2	64	33	33	188	254	318	658
17:45-18:00	2	28	43	73	126	25	16	167	240	21	18	4	43	48	44	204	296	339	579

Approved by: MO

Printed on : 21/02/2013

Ottawa — *Public Works and Services Department*

Count ID 30325

Pedestrian Volume Summary Sheet - Hourly Volumes

BRIDGE ST and MAIN ST

(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012 **Conditions:** dry **Start Time:** 0700

Time Period	CROSSING RR- 13S N/B APPROACH	CROSSING RR- 13S S/B APPROACH	STREET TOTAL	CROSSING RR- 8 E/B APPROACH	CROSSING RR- 8 W/B APPROACH	STREET TOTAL	GRAND TOTAL
07:00-08:00	0	0	0	1	2	3	3
08:00-09:00	1	0	1	1	10	11	12
09:00-10:00	0	1	1	0	1	1	2
11:30-12:30	2	2	4	0	51	51	55
12:30-13:30	1	3	4	2	3	5	9
15:00-16:00	0	5	5	1	2	3	8
16:00-17:00	0	10	10	0	0	0	10
17:00-18:00	0	0	0	0	0	0	0
8.0 HR TOTAL	4	21	25	5	69	74	99

PEAK PERIOD SUMMARIES

AM PEAK PERIOD (7:00-9:00)							
07:00-07:15	0	0	0	0	0	0	0
07:15-07:30	0	0	0	1	2	3	3
07:30-07:45	0	0	0	0	0	0	0
07:45-08:00	0	0	0	0	0	0	0
08:00-08:15	0	0	0	0	0	0	0
08:15-08:30	1	0	1	0	1	1	2
08:30-08:45	0	0	0	1	9	10	10
08:45-09:00	0	0	0	0	0	0	0
TOTALS	1	0	1	2	12	14	15
OFF PEAK PERIOD (11:30-13:30)							
11:30-11:45	1	0	1	0	1	1	2
11:45-12:00	0	0	0	0	0	0	0
12:00-12:15	1	1	2	0	7	7	9
12:15-12:30	0	1	1	0	43	43	44
12:30-12:45	1	1	2	2	1	3	5
12:45-13:00	0	0	0	0	0	0	0
13:00-13:15	0	0	0	0	0	0	0
13:15-13:30	0	2	2	0	2	2	4
TOTALS	3	5	8	2	54	56	64
PM PEAK PERIOD (15:30-17:30)							
15:30-15:45	0	2	2	0	0	0	2
15:45-16:00	0	0	0	1	2	3	3
16:00-16:15	0	0	0	0	0	0	0
16:15-16:30	0	10	10	0	0	0	10
16:30-16:45	0	0	0	0	0	0	0
16:45-17:00	0	0	0	0	0	0	0
17:00-17:15	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0
TOTALS	0	12	12	1	2	3	15

Approved by: MO

Printed on : 21/02/2013

Public Works and Services Department

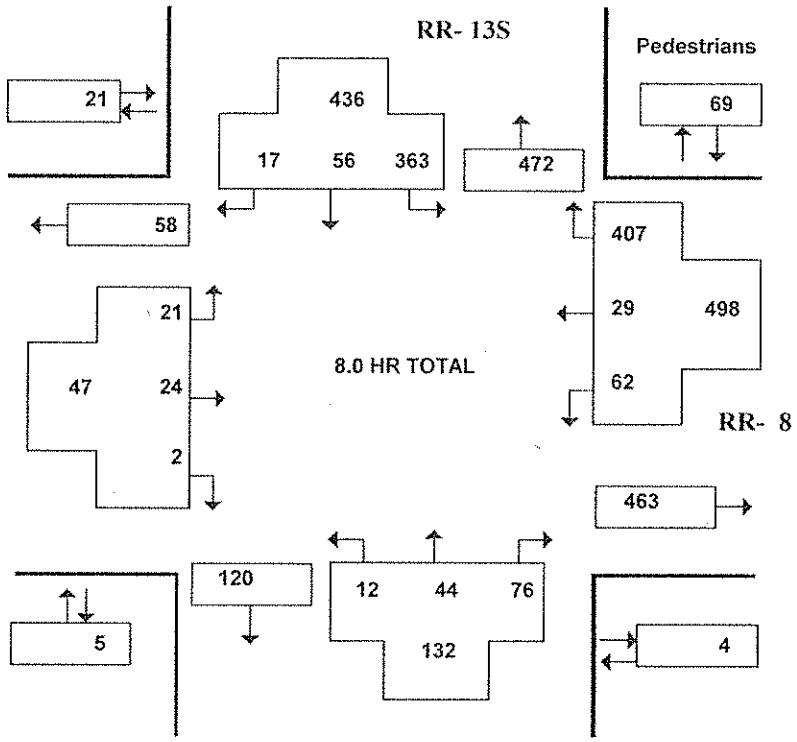
Count ID 30325

Heavy Vehicle Summary Sheet - Hourly Volumes

BRIDGE ST and MAIN ST

(ULRS Listing RR- 8 & RR- 13S)

Survey Date :Tuesday 29 May 2012 **Conditions : dry** **Start Time : 0700**



	RR- 13S									RR- 8									
	Northbound			SUB	Southbound			SUB	STR	Eastbound			SUB	Westbound			SUB	STR	GRAND
Time Period	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	TOT
07:00-08:00	6	10	11	27	40	10	1	51	78	2	4	0	6	5	2	92	99	105	183
08:00-09:00	2	7	14	23	42	10	4	56	79	6	3	0	9	12	4	74	90	99	178
09:00-10:00	4	5	18	27	41	5	3	49	76	2	2	0	4	12	2	48	62	66	142
11:30-12:30	0	5	6	11	46	8	4	58	69	3	3	1	7	9	1	29	39	46	115
12:30-13:30	0	5	9	14	43	4	0	47	61	3	2	0	5	1	5	45	51	56	117
15:00-16:00	0	7	9	16	60	6	3	69	85	1	5	0	6	10	4	45	59	65	150
16:00-17:00	0	3	5	8	55	9	0	64	72	1	2	1	4	11	8	50	69	73	145
17:00-18:00	0	2	4	6	36	4	2	42	48	3	3	0	6	2	3	24	29	35	83
8.0 HR TOTAL	12	44	76	132	363	56	17	436	568	21	24	2	47	62	29	407	498	545	1113

Heavy Vehicles are vehicles having one rear axle with four or more wheels, or having two or more rear axles. These vehicles include most O.C. Transpo, school and inter-city buses. Further, they ARE included in the Turning Movement Count Summary.

Approved by: MO

Printed on: 21/02/2013

Bicycle Volume Summary Sheet - Hourly Volumes

BRIDGE ST and MAIN ST

(ULRS Listing RR- 8 & RR- 13S)

Survey Date: Tuesday 29 May 2012 **Conditions:** dry **Start Time:** 0700

Time Period	NORTHBOUND APPROACH ON RR- 13S	SOUTHBOUND APPROACH ON RR- 13S	STREET TOTAL	EASTBOUND APPROACH ON RR- 8	WESTBOUND APPROACH ON RR- 8	STREET TOTAL	GRAND TOTAL
07:00-08:00	1	1	2	0	0	0	2
08:00-09:00	0	0	0	0	2	2	2
09:00-10:00	0	1	1	0	1	1	2
11:30-12:30	5	0	5	0	49	49	54
12:30-13:30	0	0	0	0	0	0	0
15:00-16:00	0	2	2	0	1	1	3
16:00-17:00	0	1	1	0	0	0	1
17:00-18:00	0	1	1	0	0	0	1
8.0 HR TOTAL	6	6	12	0	53	53	65

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

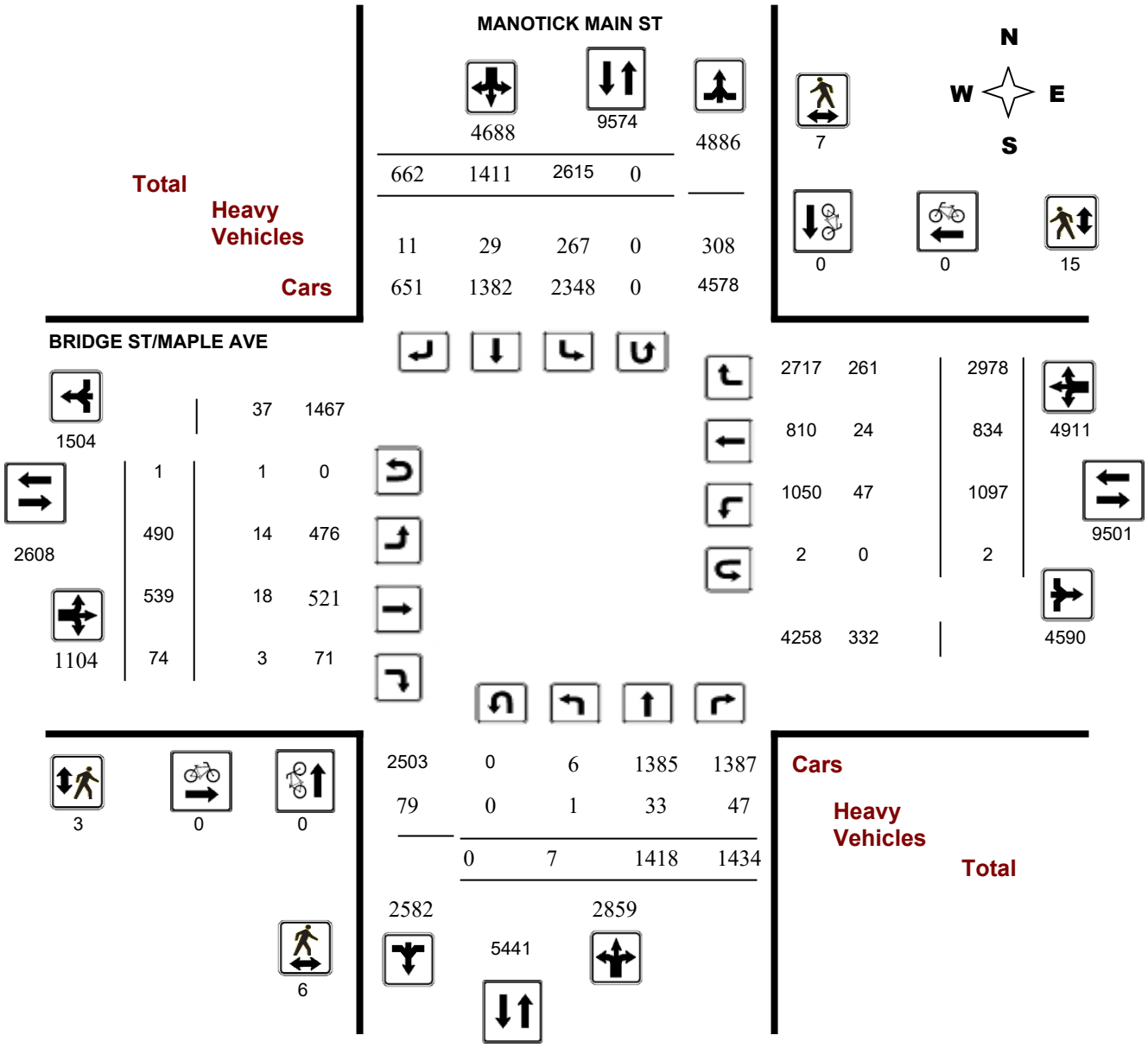
Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019
Start Time: 07:00
WO No: 39209
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

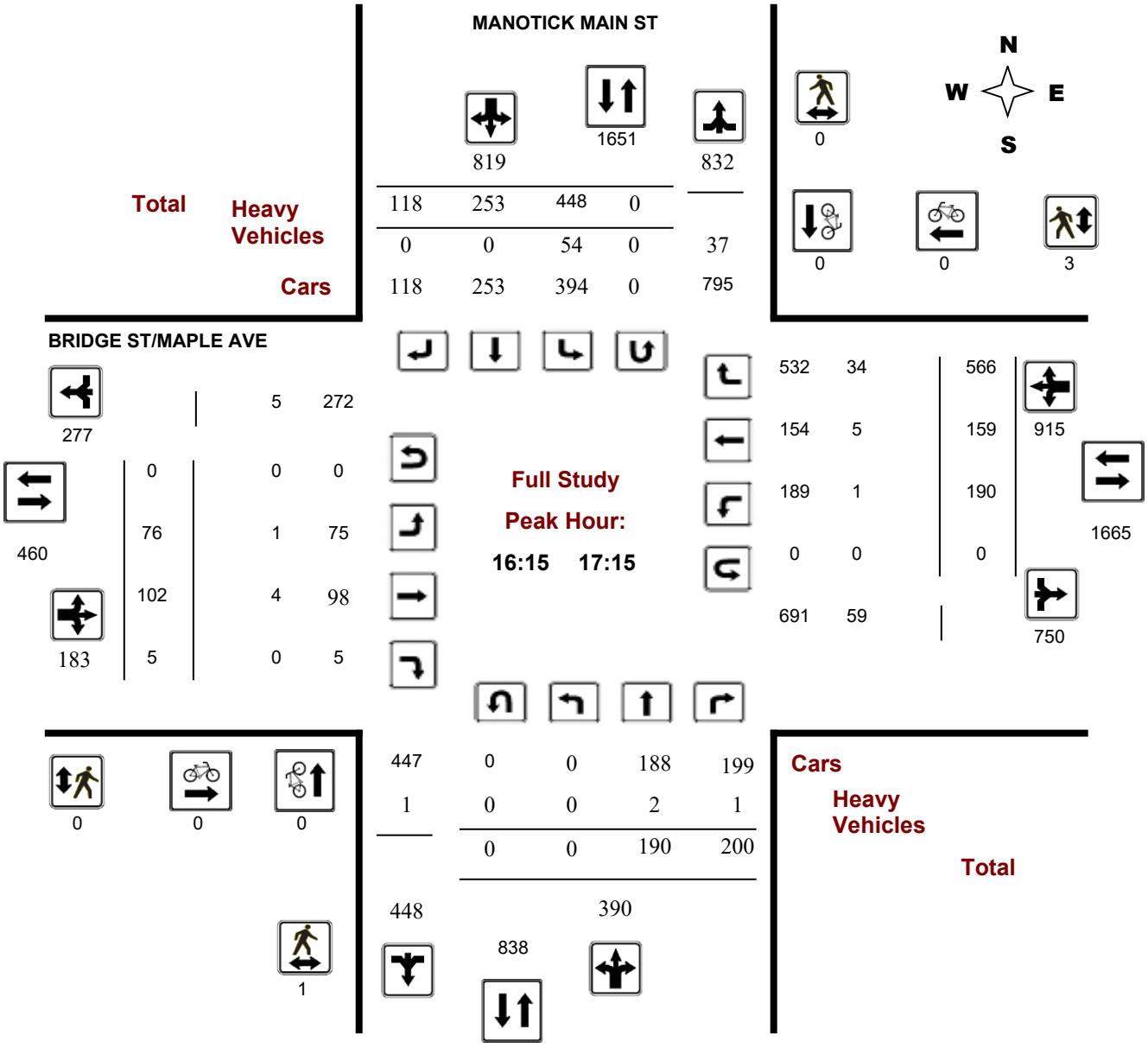
Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study Peak Hour Diagram



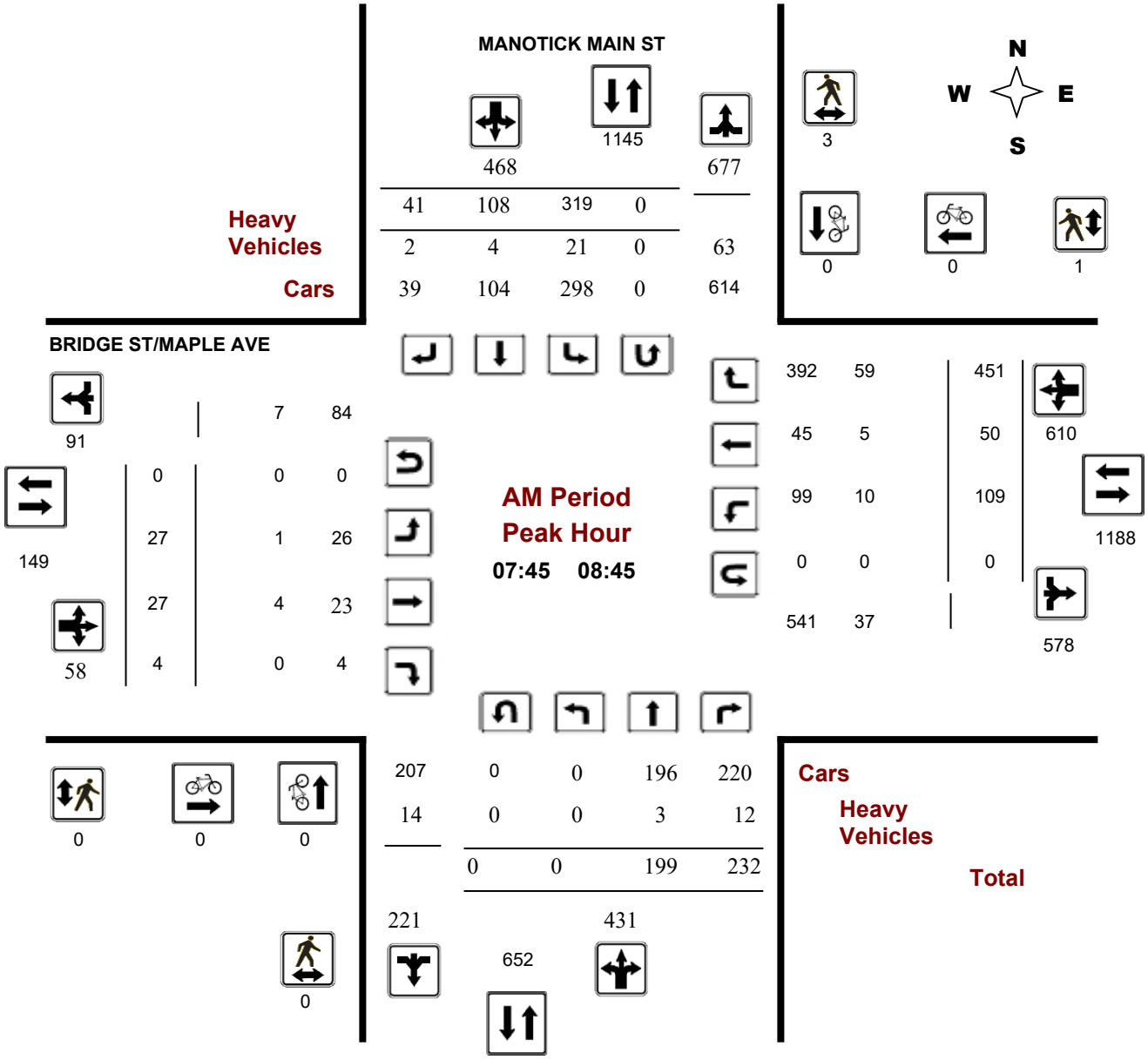
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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



Comments

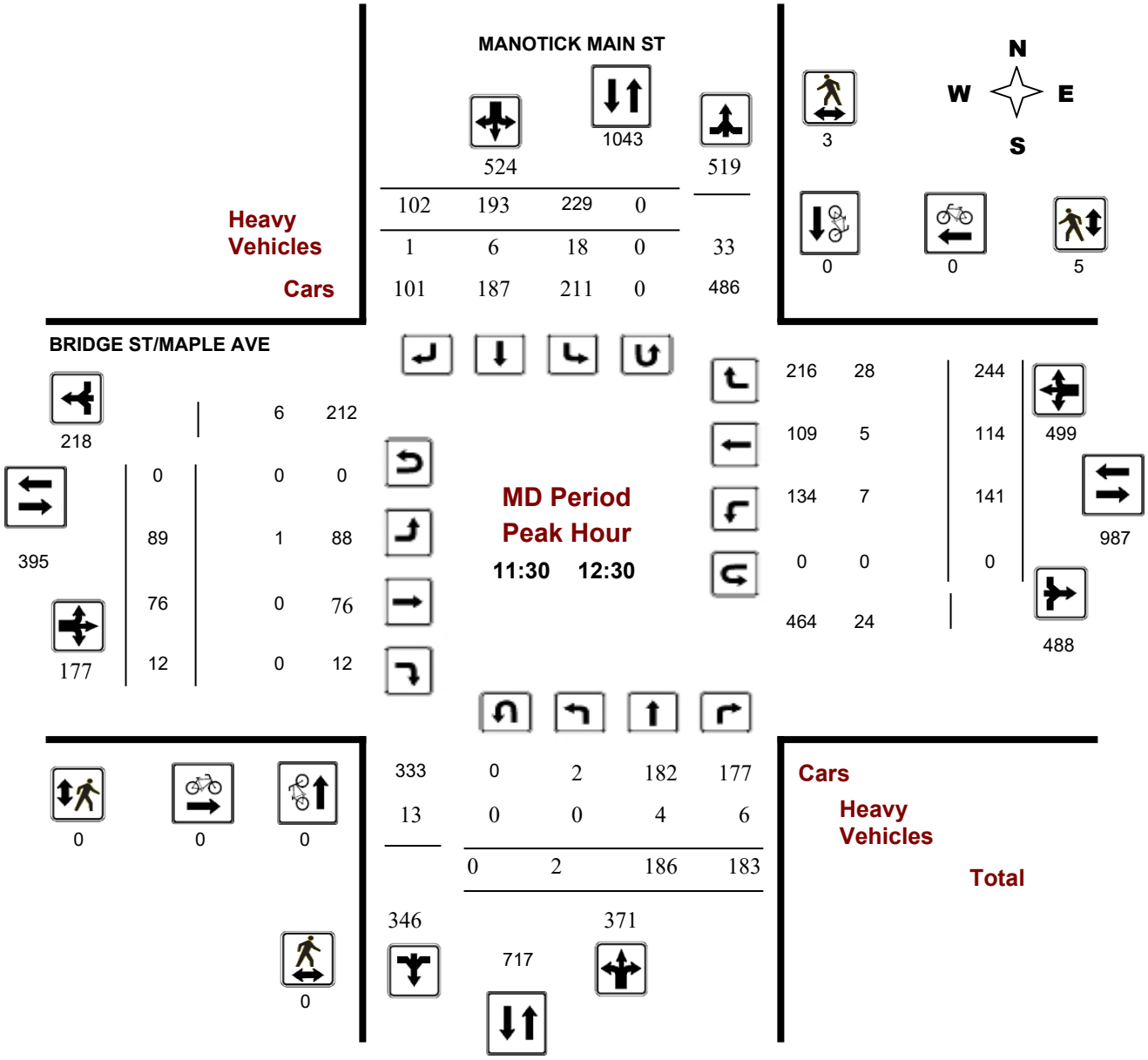
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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



Comments

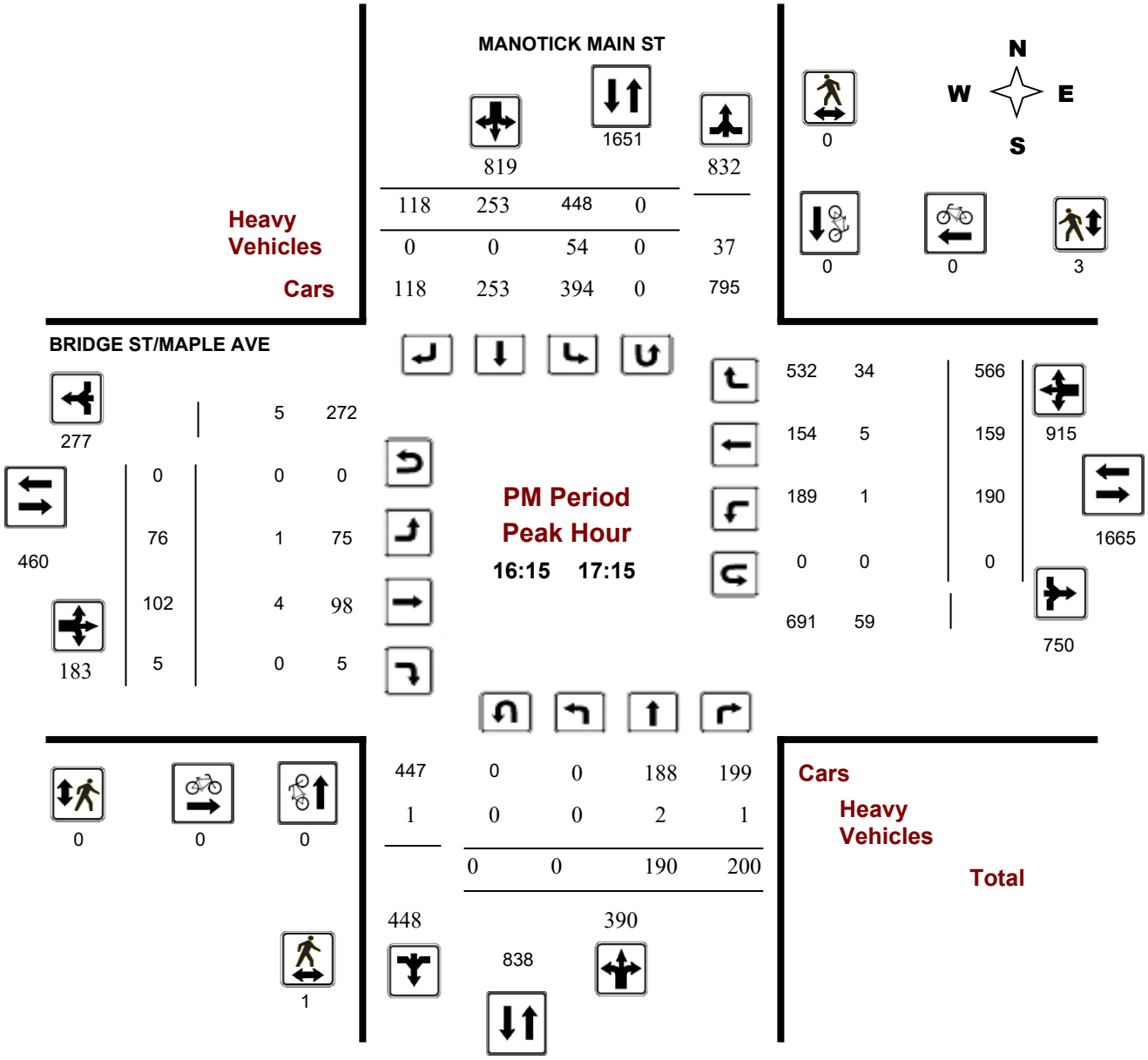
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 11, 2019

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 1 Westbound: 2

AADT Factor

1.00

	MANOTICK MAIN ST									BRIDGE ST/MAPLE AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	1	164	193	**358**	322	79	24	**425**	**783**	17	25	0	**42**	77	26	401	**504**	**546**	**1329**
08:00 09:00	0	190	212	**402**	297	121	52	**470**	**872**	31	26	7	**64**	115	69	434	**618**	**682**	**1554**
09:00 10:00	3	147	147	**297**	275	146	55	**476**	**773**	47	34	10	**91**	127	96	305	**528**	**619**	**1392**
11:30 12:30	2	186	183	**371**	229	193	102	**524**	**895**	89	76	12	**177**	141	114	244	**499**	**676**	**1571**
12:30 13:30	1	164	150	**315**	231	180	104	**515**	**830**	73	79	18	**170**	125	113	266	**504**	**674**	**1504**
15:00 16:00	0	198	171	**369**	434	200	117	**751**	**1120**	80	98	13	**191**	160	137	363	**660**	**851**	**1971**
16:00 17:00	0	192	188	**380**	475	249	126	**850**	**1230**	83	104	8	**195**	177	148	553	**878**	**1073**	**2303**
17:00 18:00	0	177	190	**367**	352	243	82	**677**	**1044**	70	97	6	**173**	175	131	412	**718**	**891**	**1935**
Sub Total	7	1418	1434	**2859**	2615	1411	662	**4688**	**7547**	490	539	74	**1103**	1097	834	2978	**4909**	**6012**	**13559**
U Turns	0			**0**	0			**0**	**0**	**1**			**1**	2			**2**	**3**	**3**
Total	7	1418	1434	**2859**	2615	1411	662	**4688**	**7547**	491	539	74	**1104**	1099	834	2978	**4911**	**6015**	**13562**
EQ 12Hr	10	1971	1993	**3974**	3635	1961	920	**6516**	**10490**	682	749	103	**1534**	1528	1159	4139	**6826**	**8360**	**18850**

Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**

AVG 12Hr	10	1971	1993	**3974**	3635	1961	920	**6516**	**10490**	682	749	103	**1534**	1528	1159	4139	**6826**	**8360**	**18850**

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **1.00**

AVG 24Hr	13	2582	2611	**5206**	4762	2569	1205	**8536**	**13742**	893	981	135	**2009**	2002	1518	5422	**8942**	**10951**	**24693**

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

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

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study 15 Minute Increments

		MANOTICK MAIN ST									BRIDGE ST/MAPLE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
17:45	18:00	0	53	38	91	78	66	29	173	**264**	18	20	3	41	40	32	77	149	**190**	**454**
07:00	07:15	0	24	43	67	79	13	3	95	**162**	3	8	0	11	20	5	78	103	**114**	**276**
07:15	07:30	1	40	43	84	76	20	6	102	**186**	2	6	0	8	17	6	93	116	**124**	**310**
07:30	07:45	0	46	41	87	80	24	2	106	**193**	9	4	0	13	16	7	120	143	**156**	**349**
07:45	08:00	0	54	66	120	87	22	13	122	**242**	3	7	0	10	24	8	110	142	**152**	**394**
08:00	08:15	0	48	85	133	64	27	11	102	**235**	6	12	1	19	37	16	119	172	**191**	**426**
08:15	08:30	0	50	41	91	85	24	9	118	**209**	5	5	2	12	25	11	122	158	**170**	**379**
08:30	08:45	0	47	40	87	83	35	8	126	**213**	13	3	1	17	23	15	100	138	**155**	**368**
08:45	09:00	0	45	46	91	65	35	24	124	**215**	7	6	3	16	30	27	93	150	**166**	**381**
09:00	09:15	1	38	51	90	74	35	13	122	**212**	17	8	3	28	38	26	72	136	**164**	**376**
09:15	09:30	0	43	26	69	74	31	11	116	**185**	10	8	2	20	36	21	77	134	**154**	**339**
09:30	09:45	0	32	31	63	62	34	12	108	**171**	9	10	1	20	27	21	82	130	**150**	**321**
09:45	10:00	2	34	39	75	65	46	19	130	**205**	12	8	4	24	26	28	74	128	**152**	**357**
11:30	11:45	1	54	49	104	63	46	29	138	**242**	27	21	0	48	32	33	77	142	**190**	**432**
11:45	12:00	0	44	37	81	61	55	29	145	**226**	21	18	1	40	41	29	45	115	**155**	**381**
12:00	12:15	0	34	48	82	50	50	19	119	**201**	25	17	4	46	31	33	63	127	**173**	**374**
12:15	12:30	1	54	49	104	55	42	25	122	**226**	16	20	7	43	37	19	59	115	**158**	**384**
12:30	12:45	1	47	43	91	53	50	17	120	**211**	19	18	5	42	26	24	79	129	**171**	**382**
12:45	13:00	0	38	39	77	54	51	32	137	**214**	13	24	6	43	37	31	77	145	**188**	**402**
13:00	13:15	0	45	31	76	64	36	25	125	**201**	18	11	3	32	33	29	43	105	**137**	**338**
13:15	13:30	0	34	37	71	60	43	30	133	**204**	23	26	4	53	29	29	67	125	**178**	**382**
15:00	15:15	0	59	32	91	90	36	27	153	**244**	20	26	3	49	31	16	81	128	**177**	**421**
15:15	15:30	0	48	41	89	122	42	29	193	**282**	20	20	4	44	48	37	74	159	**203**	**485**
15:30	15:45	0	37	54	91	118	53	24	195	**286**	21	25	1	47	39	44	88	171	**218**	**504**
15:45	16:00	0	54	44	98	104	69	37	210	**308**	19	27	5	51	44	40	120	204	**255**	**563**
16:00	16:15	0	50	45	95	124	56	31	211	**306**	26	36	3	65	42	26	106	174	**239**	**545**
16:15	16:30	0	48	50	98	130	64	18	212	**310**	16	23	2	41	45	28	150	223	**264**	**574**
16:30	16:45	0	57	43	100	122	51	36	209	**309**	24	16	0	40	39	47	148	234	**274**	**583**
16:45	17:00	0	37	50	87	99	78	41	218	**305**	17	29	3	49	51	47	149	247	**296**	**601**
17:00	17:15	0	48	57	105	97	60	23	180	**285**	19	34	0	53	55	37	119	211	**264**	**549**
17:15	17:30	0	44	55	99	103	66	19	188	**287**	16	22	3	41	38	25	131	194	**235**	**522**
17:30	17:45	0	32	40	72	74	51	11	136	**208**	17	21	0	38	42	37	85	164	**202**	**410**
Total:		7	1418	1434	2859	2615	1411	662	4688	**7547**	491	539	74	1104	1099	834	2978	4911	**7547**	**13,562**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study Cyclist Volume

Time Period		MANOTICK MAIN ST			BRIDGE ST/MAPLE AVE			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
17:45	18:00	0	0	**0**	0	0	**0**	**0**
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	0	0	**0**	**0**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
Total		0	0	**0**	0	0	**0**	**0**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study Pedestrian Volume

	MANOTICK MAIN ST			BRIDGE ST/MAPLE AVE			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	1	**1**	**1**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	3	**3**	0	0	**0**	**3**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
11:30 11:45	0	2	**2**	0	1	**1**	**3**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	1	**1**	0	1	**1**	**2**
12:15 12:30	0	0	**0**	0	3	**3**	**3**
12:30 12:45	2	0	**2**	0	1	**1**	**3**
12:45 13:00	0	0	**0**	1	3	**4**	**4**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	2	1	**3**	1	0	**1**	**4**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	0	**0**	0	1	**1**	**1**
15:45 16:00	1	0	**1**	1	0	**1**	**2**
16:00 16:15	0	0	**0**	0	1	**1**	**1**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	1	0	**1**	0	1	**1**	**2**
16:45 17:00	0	0	**0**	0	1	**1**	**1**
17:00 17:15	0	0	**0**	0	1	**1**	**1**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
Total	6	7	**13**	3	15	**18**	**31**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study Heavy Vehicles

		MANOTICK MAIN ST									BRIDGE ST/MAPLE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
17:45	18:00	0	0	1	**1**	7	0	0	**7**	**8**	0	0	0	**0**	0	0	2	**2**	**2**	**10**
07:00	07:15	0	0	1	**1**	9	0	0	**9**	**10**	0	1	0	**1**	5	2	8	**15**	**16**	**26**
07:15	07:30	1	2	2	**5**	8	3	1	**12**	**17**	0	1	0	**1**	3	0	8	**11**	**12**	**29**
07:30	07:45	0	1	3	**4**	7	1	0	**8**	**12**	0	0	0	**0**	2	0	17	**19**	**19**	**31**
07:45	08:00	0	0	5	**5**	4	1	2	**7**	**12**	0	1	0	**1**	2	1	15	**18**	**19**	**31**
08:00	08:15	0	0	6	**6**	7	2	0	**9**	**15**	0	1	0	**1**	2	3	17	**22**	**23**	**38**
08:15	08:30	0	1	1	**2**	7	1	0	**8**	**10**	0	2	0	**2**	4	0	16	**20**	**22**	**32**
08:30	08:45	0	2	0	**2**	3	0	0	**3**	**5**	1	0	0	**1**	2	1	11	**14**	**15**	**20**
08:45	09:00	0	2	4	**6**	7	1	1	**9**	**15**	0	1	0	**1**	2	1	13	**16**	**17**	**32**
09:00	09:15	0	2	2	**4**	5	1	0	**6**	**10**	2	0	1	**3**	4	0	5	**9**	**12**	**23**
09:15	09:30	0	0	0	**0**	6	2	2	**10**	**10**	2	0	0	**2**	1	0	6	**7**	**9**	**19**
09:30	09:45	0	1	1	**2**	9	1	1	**11**	**13**	0	1	0	**1**	0	1	8	**9**	**10**	**23**
09:45	10:00	0	1	0	**1**	5	1	2	**8**	**9**	3	0	0	**3**	1	0	6	**7**	**10**	**19**
11:30	11:45	0	2	2	**4**	6	1	1	**8**	**12**	0	0	0	**0**	2	1	15	**18**	**18**	**30**
11:45	12:00	0	2	1	**3**	2	0	0	**2**	**5**	0	0	0	**0**	1	1	5	**7**	**7**	**12**
12:00	12:15	0	0	1	**1**	7	2	0	**9**	**10**	1	0	0	**1**	2	2	5	**9**	**10**	**20**
12:15	12:30	0	0	2	**2**	3	3	0	**6**	**8**	0	0	0	**0**	2	1	3	**6**	**6**	**14**
12:30	12:45	0	3	2	**5**	7	1	0	**8**	**13**	1	1	0	**2**	0	0	11	**11**	**13**	**26**
12:45	13:00	0	0	1	**1**	4	1	0	**5**	**6**	0	0	0	**0**	1	0	7	**8**	**8**	**14**
13:00	13:15	0	1	1	**2**	3	0	0	**3**	**5**	1	0	0	**1**	1	0	5	**6**	**7**	**12**
13:15	13:30	0	4	1	**5**	3	1	1	**5**	**10**	0	1	0	**1**	0	0	6	**6**	**7**	**17**
15:00	15:15	0	3	2	**5**	10	0	0	**10**	**15**	1	1	0	**2**	1	0	11	**12**	**14**	**29**
15:15	15:30	0	0	1	**1**	12	1	0	**13**	**14**	0	1	1	**2**	1	0	4	**5**	**7**	**21**
15:30	15:45	0	1	4	**5**	21	1	0	**22**	**27**	0	1	1	**2**	2	1	7	**10**	**12**	**39**
15:45	16:00	0	3	1	**4**	16	2	0	**18**	**22**	0	1	0	**1**	4	1	5	**10**	**11**	**33**
16:00	16:15	0	0	0	**0**	15	1	0	**16**	**16**	0	0	0	**0**	0	0	7	**7**	**7**	**23**
16:15	16:30	0	1	0	**1**	23	0	0	**23**	**24**	1	1	0	**2**	0	1	5	**6**	**8**	**32**
16:30	16:45	0	1	0	**1**	13	0	0	**13**	**14**	0	2	0	**2**	0	2	19	**21**	**23**	**37**
16:45	17:00	0	0	1	**1**	9	0	0	**9**	**10**	0	0	0	**0**	0	1	4	**5**	**5**	**15**
17:00	17:15	0	0	0	**0**	9	0	0	**9**	**9**	0	1	0	**1**	1	1	6	**8**	**9**	**18**
17:15	17:30	0	0	1	**1**	11	1	0	**12**	**13**	1	0	0	**1**	0	1	3	**4**	**5**	**18**
17:30	17:45	0	0	0	**0**	9	0	0	**9**	**9**	0	0	0	**0**	1	2	1	**4**	**4**	**13**
Total:	None	1	33	47	**81**	267	29	11	**307**	**388**	14	18	3	**35**	47	24	261	**332**	**367**	**756**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BRIDGE ST/MAPLE AVE @ MANOTICK MAIN ST

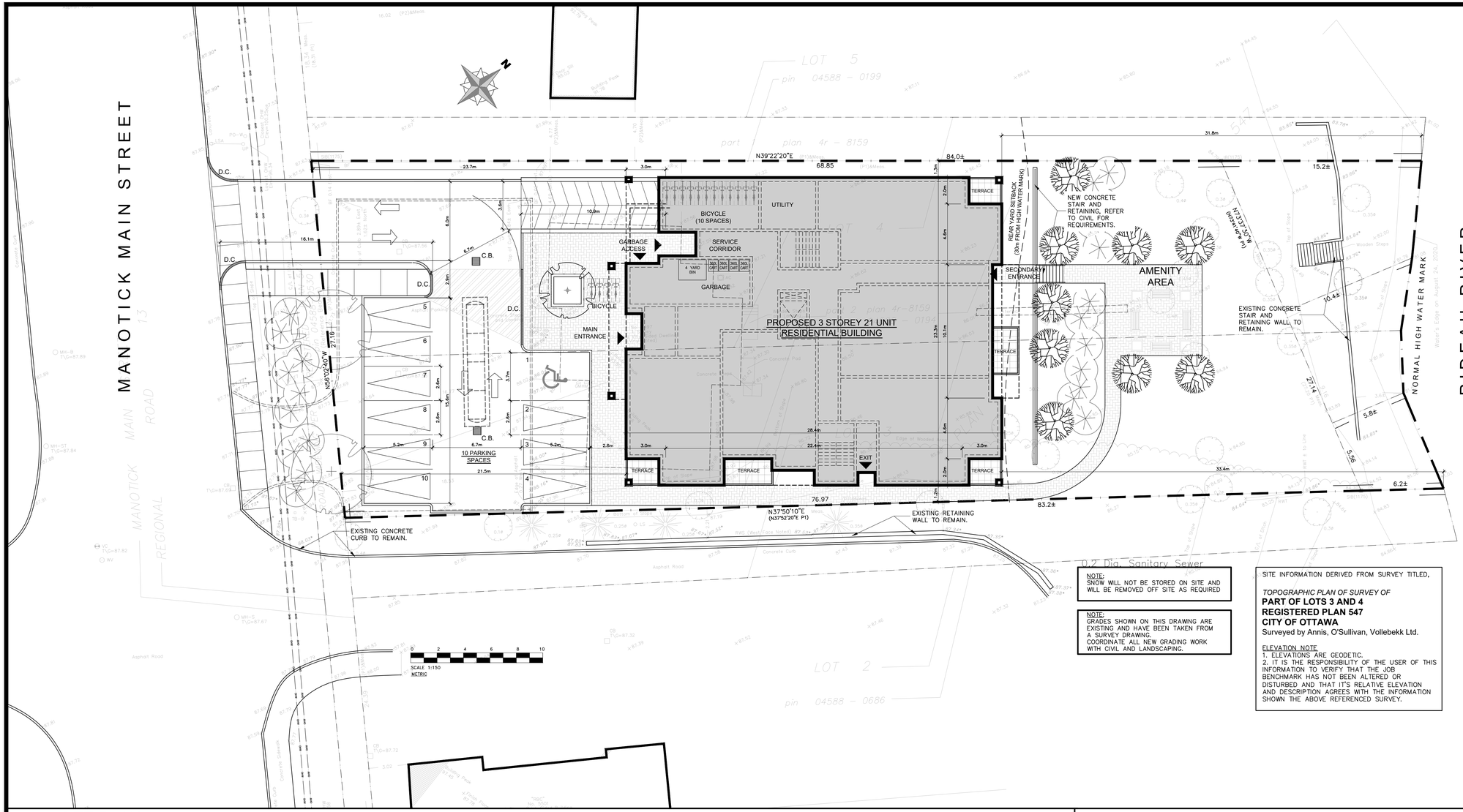
Survey Date: Wednesday, December 11, 2019 **WO No:** 39209

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

Full Study 15 Minute U-Turn Total

Time Period		MANOTICK MAIN ST		BRIDGE ST/MAPLE AVE		
		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
17:45	18:00	0	0	0	0	**0**
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	1	0	**1**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	1	**1**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	1	**1**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
Total		0	0	1	2	**3**

APPENDIX D: SITE PLAN



1 SP-01 **SITE PLAN**

SCALE = 1:150

NOTE:
SNOW WILL NOT BE STORED ON SITE AND WILL BE REMOVED OFF SITE AS REQUIRED

NOTE:
GRADES SHOWN ON THIS DRAWING ARE EXISTING AND HAVE BEEN TAKEN FROM A SURVEY DRAWING. COORDINATE ALL NEW GRADING WORK WITH CIVIL AND LANDSCAPING.

SITE INFORMATION DERIVED FROM SURVEY TITLED,

TOPOGRAPHIC PLAN OF SURVEY OF
PART OF LOTS 3 AND 4
REGISTERED PLAN 547
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

ELEVATION NOTE
1. ELEVATIONS ARE GEODETIC.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT IT'S RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN THE ABOVE REFERENCED SURVEY.

SITE STATISTICS 5497 MANOTICK MAIN

ITEM	REQUIRED	PROVIDED
Zone	VM9 Village Mixed Use	VM9 - EXCEPTION
Lot Area	1350 SQ. M.	2169 SQ. M.
Lot Width	20 M. min.	27.2 M.
Maximum Building Height	6.7 M MIN. - 11.0M MAX	10.9 M - 3 STOREYS
Front Yard	3.0 M MAX	VARY (21.1m AT CLOSEST)
Side Yard — Corner	3.5M MIN. - 4.0M MAX	N/A
Side Yard — Interior	NO MIN.	1.2M
Rear Yard	7.5M MIN. (30.0 M FROM WATER MARK)	(30.0 M FROM WATER MARK)
Building Footprint		608 SQ. M.
Lot Coverage	NO MAX	
Number of Dwelling units		21 UNITS (10 ONE BEDROOM, 11 TWO BEDROOMS)
PARKING SPACES REQUIRED		
RESIDENTIAL	1.2 PER x 21 = 25 SPACES	(10 SURFACE) (16 UNDERGROUND) 26 SPACES
Required Bike Racks	10.5 REQUIRED (0.5 SPACES/DWELLING)	10 INTERIOR and 4 EXTERIOR
Landscaping — Hard		
Landscaping — Soft		

CLIENT:
12213559 Canada Inc

P2 concepts
739 RIDGEWOOD AVE., UNIT 201
OTTAWA, ONTARIO, K1V 6A8

LEGEND:
- PROPOSED NEW BUILDING
- NEW UNIT PAVERS
- PROPERTY LINE
- ADJACENT LOT PROPERTY LINES
- E — EXISTING OVERHEAD HYDRO LINE
- NEW WOOD FENCE
- HP EXISTING HYDRO POLE TO REMAIN
- ENTRANCE ARROWS
- NEW BIKE RACKS
- NEW PARKING
- EXISTING CONCRETE CURB
- LIGHT STANDARD
- WALL MOUNTED LIGHTING FIXTURE
- EXTERIOR SOFFIT LIGHTING FIXTURE
- EXTERIOR WALL MOUNTED LIGHT FIXTURE

No.	REVISIONS	BY	DATE
12	FOR REVIEW	PE	AUG 19 2021
11	FOR REVIEW	PE	JUNE 29 2021
10	FOR REVIEW	PE	MAY 14 2021
09	FOR REVIEW	PE	APR. 27 2021
08	FOR REVIEW OVERALL REDESIGN	PE	APR. 16 2021
07	FOR REVIEW	PE	MAR. 16 2021
06	FOR REVIEW	PE	FEB. 16 2021
05	REVISIONS TO SITE ACCESS	PE	JAN. 06 2021
04	FOR REVIEW	PE	NOV. 24 2020
03	FOR REVIEW	PE	NOV. 16 2020
02	FOR REVIEW	PE	OCT. 09 2020
01	FOR REVIEW	PE	SEPT. 24 2020

STAMP

NORTH ARROW

DESIGNED BY: P.E.
DRAWN BY: P.E.
APPROVED BY: B.K.

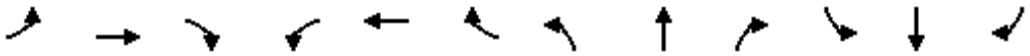
PROJECT
5497 MANOTICK MAIN

DRAWING TITLE
SITE PLAN

PROJECT NO. 0387
DATE OCT. 23, 2020

SP-01

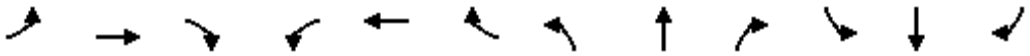
APPENDIX E: EXISTING TRAFFIC ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	5	0	25	5	648	15	20	471	5
Future Volume (Veh/h)	5	0	5	5	0	25	5	648	15	20	471	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	6	6	0	28	6	720	17	22	523	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								88				
pX, platoon unblocked												
vC, conflicting volume	970	1319	264	1052	1314	368	529			737		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	970	1319	264	1052	1314	368	529			737		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	99	97	100	96	99			97		
cM capacity (veh/h)	194	151	734	175	152	629	1034			865		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	34	366	377	284	268
Volume Left	6	6	6	0	22	0
Volume Right	6	28	0	17	0	6
cSH	306	431	1034	1700	865	1700
Volume to Capacity	0.04	0.08	0.01	0.22	0.03	0.16
Queue Length 95th (m)	0.9	1.9	0.1	0.0	0.6	0.0
Control Delay (s)	17.2	14.1	0.2	0.0	1.0	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	17.2	14.1	0.1		0.5	
Approach LOS	C	B				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	39.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	0	25	5	811	15	20	809	5
Future Volume (vph)	5	0	5	5	0	25	5	811	15	20	809	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.932			0.889			0.997			0.999	
Flt Protected		0.976			0.991						0.999	
Satd. Flow (prot)	0	1623	0	0	1572	0	0	3380	0	0	3290	0
Flt Permitted		0.976			0.991						0.999	
Satd. Flow (perm)	0	1623	0	0	1572	0	0	3380	0	0	3290	0
Link Speed (k/h)		48			50			50			50	
Link Distance (m)		66.6			46.4			87.7			101.8	
Travel Time (s)		5.0			3.3			6.3			7.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Adj. Flow (vph)	6	0	6	6	0	28	6	901	17	22	899	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	34	0	0	924	0	0	927	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.9%		ICU Level of Service A	
Analysis Period (min) 15			

APPENDIX F: RESIDENTIAL TDM-SUPPORTIVE DEVELOPMENT DESIGN AND INFRASTRUCTURE 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	☐ Parking area is located between the building and street front. Pedestrian connection is provided
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☒ Direct pedestrian connection to sidewalk is provided
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☒ Building front door oriented to street
	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)*	☒ Sidewalk to be provided fronting to site and crossing site access. Sidewalk connects to a hard surface which allows pedestrian access from development Disjointed sidewalk at adjacent access is noted
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	☒ Pedestrian connectivity is maintained throughout the site, street sidewalk access is provided

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
		other design elements wherever possible *(see Official Plan policy 4.3.12)*	
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)*	☒ On-site pedestrian areas designated by interlock pavers. Amenity area is provided pavers at the rear of the property Development proponent is recommended to maintain landscaping pavers/asphalt along future pedestrian connection to sidewalk
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)*	☒ Sidewalks / hard surfaces connect building entrances to accessible parking stall.
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)*	☒ Sidewalk to be continuous across site access
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	☐ N/A
	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)	☐ N/A

		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)*	4 Outside cycle stalls provided for retail 10 indoor and secure cycle stalls provided for residents Recommended cycle stalls to be located at rear of building
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)*	☒ 10 stalls within a secure area
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	☐ N/A
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	☐ N/A
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	☐ N/A
	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	☒ Parking does not exceed minimum zoning requirement
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)	☐