

2966 Carp Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Strategy Report

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1 Screening

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, incorporating the 2023 Revision to Transportation Impact Assessment Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required, and this study has been prepared to support a zoning by-law amendment application.

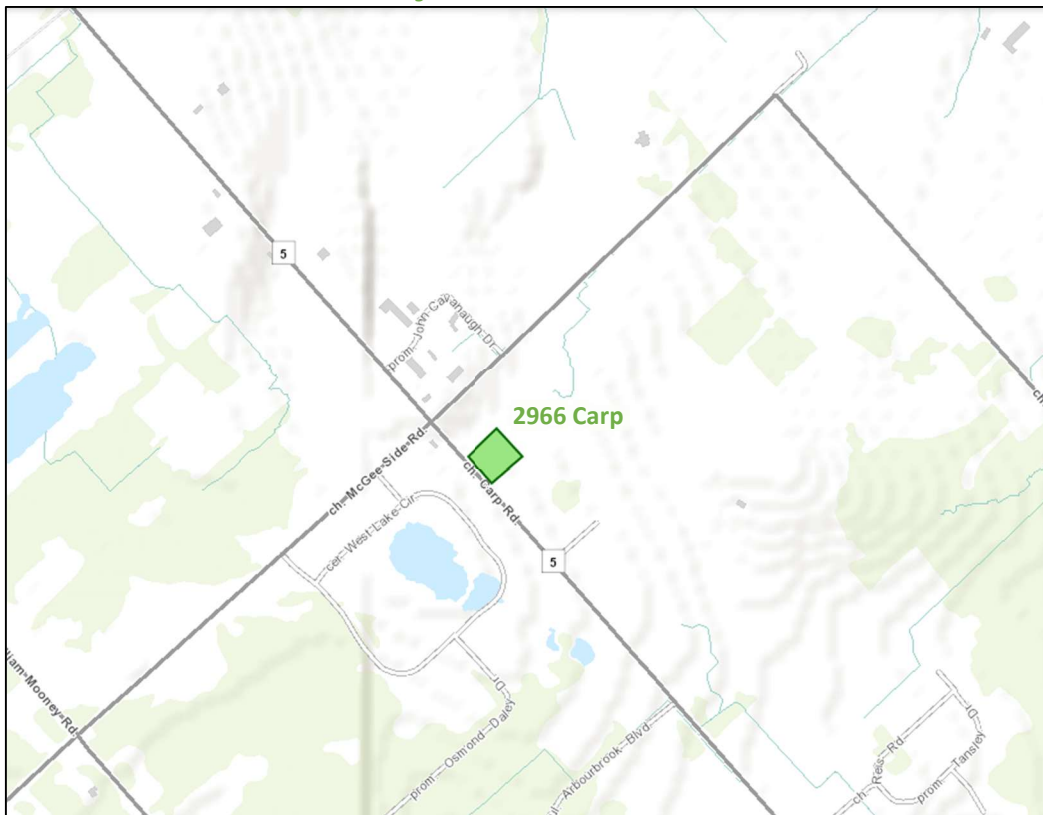
2 Existing and Planned Conditions

2.1 Proposed Development

The subject site is located at 2966 Carp Road, and it is currently zoned as Rural Commercial Zone (RC7). The existing site comprises an office house and a 15,000 sq. ft. warehouse, each with its own access on Carp Road. The proposed rezoning would permit the future use of a cheerleading school/studio within the warehouse building, with no change to the office house. The proposed use site is expected to operate from 3:00 PM to 9:15 PM during the weekdays and from 9:30 AM to 4:00 PM during the weekends. A total of 50 vehicle parking spaces and five bicycle parking spaces are proposed.

The existing site access is intended to remain. The anticipated occupation is 2026. The site is within the Carp Road Corridor Business Improvement Area and Carp Road Corridor Community Design Plan. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: August 14, 2025

2.2 Existing Conditions

2.2.1 Area Road Network

Carp Road: Carp Road is a City of Ottawa arterial road with a two-lane rural cross-section including paved shoulders. The posted speed limit within the study area is 80 km/h and the City protected right-of-way is 30.0 meters between March Road and Richardson Side Road. Carp Road is designated as a truck route.

McGee Side Road: McGee Side Road is a City of Ottawa collector road with a two-lane rural cross-section including gravel shoulders. The posted speed limit within the study area is 70km/h. The measured right-of-way is approximately 20 metres.

2.2.2 Existing Intersections

The key intersection within one kilometre of the site has been summarized below:

McGee Side Road at Carp Road

The intersection of McGee Side Road at Carp Road is an unsignalized intersection with stop control on the minor approach of McGee Side Road. The northbound, eastbound, and westbound approaches each consist of a shared all-movement lane. The southbound approach is painted as a shared all-movement lane, but paved surface supports its function as a shared left-turn/through lane and an auxiliary right-turn lane. Trucks are restricted on the east leg.

2.2.3 Existing Driveways

There are three existing driveways within 200 metres of the proposed site access on Carp Road. These driveways serve as accesses to private residences and small industrial land uses. Figure 3 illustrates the existing driveways.

Figure 3: Existing Driveways



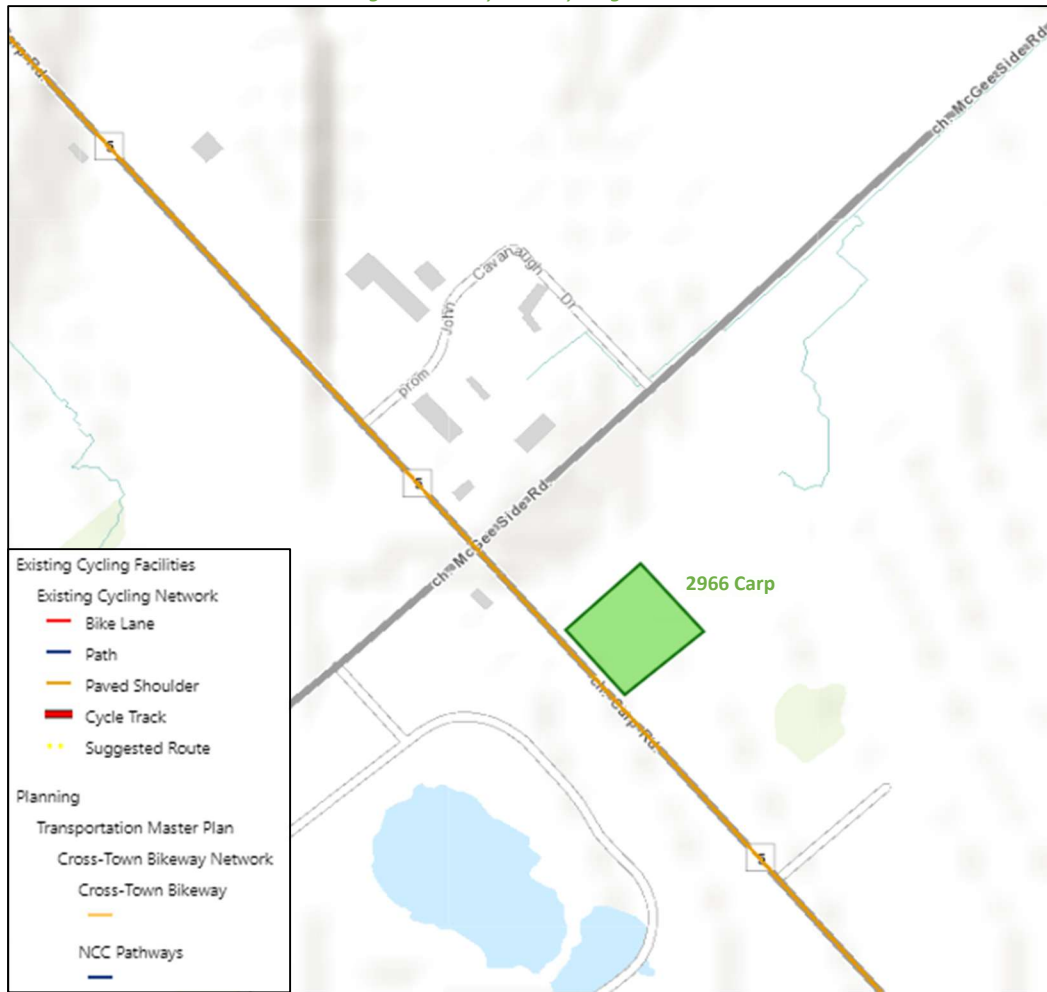
Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: August 14, 2025

2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the cycling facilities in the study area. There are no sidewalks provided within the study area. Carp Road is noted to have paved shoulders suitable for cycling within the study area.

No Pedestrian and cyclist volumes are noted in the study area intersection counts, presented in Section 2.2.7. This is reflective of the limited pedestrian and cycling facilities within the study area and the rural context.

Figure 4: Study Area Cycling Facilities



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: August 14, 2025

2.2.5 Existing Transit

There are no transit services available within the study area.

2.2.6 Existing Area Traffic Management Measures

There are no existing area traffic management measures within the study area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the 2822 Carp Road TIA study (October 2019) and from a third-party source, The Traffic Specialist (November 2022), for the existing study area intersection. It is noted that the 2022 count may have been subject to pandemic-related disruption; however, given the industrial nature of the area, limited to no impact would be anticipated within the study area. To confirm this, the pre-pandemic 2019 count was used as a basis for comparison, and it was confirmed that the 2022 count was 7% higher during the PM

peak hour and therefore it is considered valid and will be used as a basis for operational analysis. Given that the facility will not operate during the AM peak hour, only the PM peak hour will be analyzed. Table 1 summarizes the intersection count dates and sources.

Table 1: Intersection Count Date

Intersection	Count Date	Count Source
McGee Side Road at Carp Road	Tuesday, October 01, 2019	Dillon Consulting Ltd.
	Wednesday, November 09, 2022	The Traffic Specialist

Figure 5 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. Note that the southbound approach was modelled as a shared all-movement lane for a conservative analysis. The level of service for unsignalized intersections is based on average delay. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 5: Existing Traffic Counts

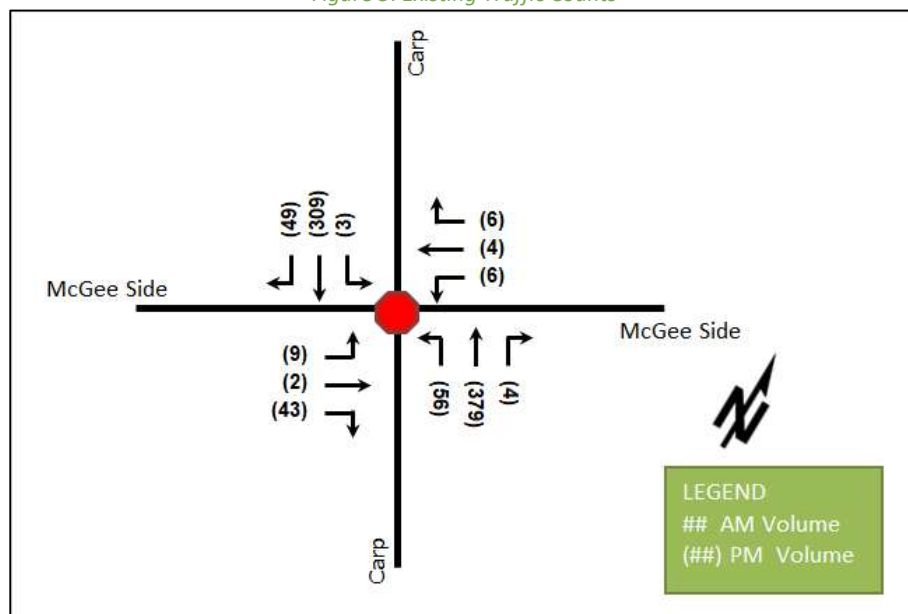


Table 2: Existing Intersection Operations

Intersection	Lane	PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95 th)
McGee Side Road at Carp Road <i>Unsignalized</i>	EB	B	0.13	14.0	3.0
	WB	C	0.06	18.8	1.5
	NB	A	0.06	8.6	1.5
	SB	A	0.00	8.7	0.0
	Overall	A	-	1.8	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 0.90

Delay = average vehicle delay in seconds
m = metered queue
= volume for the 95th %ile cycle exceeds capacity

During the PM peak hour, the study area intersection operates well. No capacity issues are noted.

2.2.8 Collision Analysis

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study area road network (2018-2022). Figure 6 illustrates

the area collisions, and Table 3 summarizes the total collisions for each of the locations analyzed. Collision data are included in Appendix D.

Figure 6: Study Area Collision Records

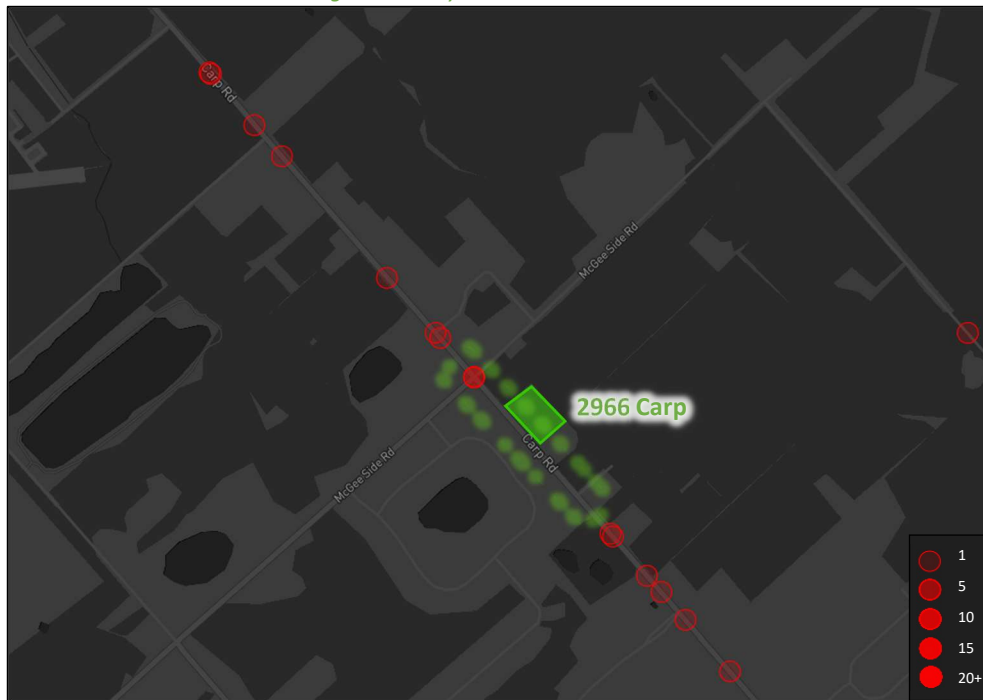


Table 3: Summary of Collision Locations, 2016-2020

Intersections / Segments	Number	%
	5	100%
Carp Road at McGee Side Road	4	80%
Carp Road between McGee Side Road and Olive Road	1	20%

No collision review is required at this location as part of this study.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is within the Carp Road Corridor Community Design Plan Area. As such, it is subject to the planning policies outlined in the CDP. The CDP does not propose any future changes to the area transportation network within the study area that should be noted.

According to the Transportation Master Plan, no changes are identified to future transit, road, pedestrian or cycling facilities within the study area.

2.3.2 Other Study Area Developments

3119 Carp Road

The proposed development application includes a site plan application and plan of subdivision application to allow the construction of a rural commercial/industrial development with a GFA of 300,000 square feet. The development was initially anticipated to be built out by 2023; however, the construction has not yet commenced and will be assumed to be built out by 2031. The development is expected to generate a total of 270 new AM and 270 new PM peak hour two-way vehicle trips. (Delcan, 2014)

3113 Carp Road

The proposed development application includes a site plan application to allow the construction of a 121,440 square feet of warehouse space. The anticipated full build-out horizon is 2027 and it is expected to generate 49 new AM and 53 new PM two-way peak-hour auto trips. (CGH Transportation, 2025)

2167 McGee Side Road

The proposed development application includes a site plan application to allow the construction of a 2-storey warehouse and office building. No TIA is available for this development.

2885 Carp Road

The proposed development application includes a site plan application to allow the construction of a one-storey warehouse building with a GFA of 700 square metres. No TIA is available for this development.

2822 Carp Road

The proposed development application includes a site plan application for the construction of a multi-use multi-tenant commercial building with a total combined GFA of 599 square metres. The land uses that are expected to occupy the site include: auto sales, auto body repair, retail, and general warehousing. The TIA was initially anticipated to be built out by 2023; however, the construction has not yet commenced and will be assumed to be built out by 2031. The development is expected to generate a total of 36 new AM and 43 new PM peak hour two-way vehicle trips. (Dillon Consulting, 2022)

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of Carp Road at McGee Side Road and the intersection of site access at Carp Road.

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

3.2 Time Periods

The facility will not operate during the AM peak hour. Given the context of the study area and operational time of the facility, only the weekday PM peak hour will be examined.

3.3 Horizon Years

The anticipated build-out year is 2026. As a result, the full build-out plus five years horizon year is 2031.

4 Development-Generated Travel Demand

4.1 Mode Shares

Examining the mode shares recommended in the TRANS Trip Generation Manual (2020) for the subject district, derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing average district mode shares by land use for Other Rural Districts have been summarized in Table 4.

Table 4: TRANS Trip Generation Manual Recommended Mode Shares – Rural Districts

Travel Mode	Commercial Generator	
	AM	PM
Auto Driver	87%	80%
Auto Passenger	9%	14%
Transit	0%	1%

Travel Mode	Commercial Generator	
	AM	PM
Cycling	0%	2%
Walking	3%	4%
Total	100%	100%

Considering the lack of transit, cyclist and pedestrian facilities in the Study Area, a conclusion can be made that the average commercial generator mode shares in the rural Ottawa districts are not representative of the localised travel behaviour that can be expected for the proposed land use. Based on the location, the trips generated by the development will be assumed to be made via auto driver and auto passenger. It is assumed that a high proportion of carpooling will be realized for the proposed land use. The proposed modified mode share targets are summarized in Table 5.

Table 5: Proposed Development Mode Shares

Travel Mode	Commercial Generator
	PM
Auto Driver	60%
Auto Passenger	40%
Transit	0%
Cycling	0%
Walking	0%
Total	100%

4.2 Trip Generation

4.2.1 Site-Specific Trip Forecast

The current cheer school data has been provided by the proponent describing the schedule for the proposed land use. Weekday sessions include 3:00 – 5:00 PM with a total of 12 athletes, 5:00 – 7:00 PM with 54 athletes plus up to 20 additional athletes, resulting in a maximum of 74 athletes, and 7:15 – 9:15 PM with 54 athletes plus an additional six to eight athletes, resulting in a total of about 62 athletes. It is noted that the network peak hour occurs from 4:15 PM to 5:15 PM and an examination of the 15-minute increments from the 2019 count indicates a 20% (42-vehicle) reduction between 5:00 – 5:15 and 5:15 – 5:30 PM. The site peak hour is anticipated to be 6:30 – 7:30 PM; therefore, to account for site impacts during the network peak hour, a conservative period for site traffic generation during the minor peak hour of 4:30 – 5:30 PM will be assessed. During this hour, it is anticipated that 70 athletes, representing a 95% attendance, would be arriving at the site for the 5:00 -7:00 PM time slot and 12 athletes would be departing the site after the 3:00 – 5:00 PM time slot. Athletes are anticipated to be driven to and from practices/lessons and the primary athlete being driven will therefore be assumed to be a single auto driver trip. Any additional athletes carpooling with the primary athlete will be assumed to be auto passenger trips for the purpose of trip generation.

Accounting for a proportion of parents dropping athletes off and not staying for the duration of the session, which would be recorded as an inbound and outbound trip, 50% of the trips will be assumed to be two-way and will be applied to auto driver trips. Table 6 summarizes the trip generation by mode and peak hour.

Given no change is anticipated to the remainder of the site, the trip generation and operations remain unchanged and is comparable to a neighbouring property with the context of the TIA.

Table 6: Trip Generation by Mode

Travel Mode		PM Peak Hour			
		Mode Share	In	Out	Total
Departing 3 – 5 PM	Auto Driver	60%	4	7	11
	Auto Passenger	40%	0	5	5
	Total	100%	4	12	16
Arriving 5 – 7 PM	Auto Driver	60%	42	21	63
	Auto Passenger	40%	28	0	28
	Total	100%	70	21	91
Total	Auto Driver	60%	46	28	74
	Auto Passenger	40%	28	5	33
	Total	100%	74	33	107

As shown above, a total of 46 inbound and 28 outbound PM peak hour two-way vehicle trips are projected as a result of the proposed development.

4.3 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed, and these patterns were applied based on the build-out of Rural West. Table 7 below summarizes the distributions.

Table 7: OD Survey Distribution – Rural West

To/From	Residential % of Trips
North	5%
South	5%
East	90%
West	0%
Total	100%

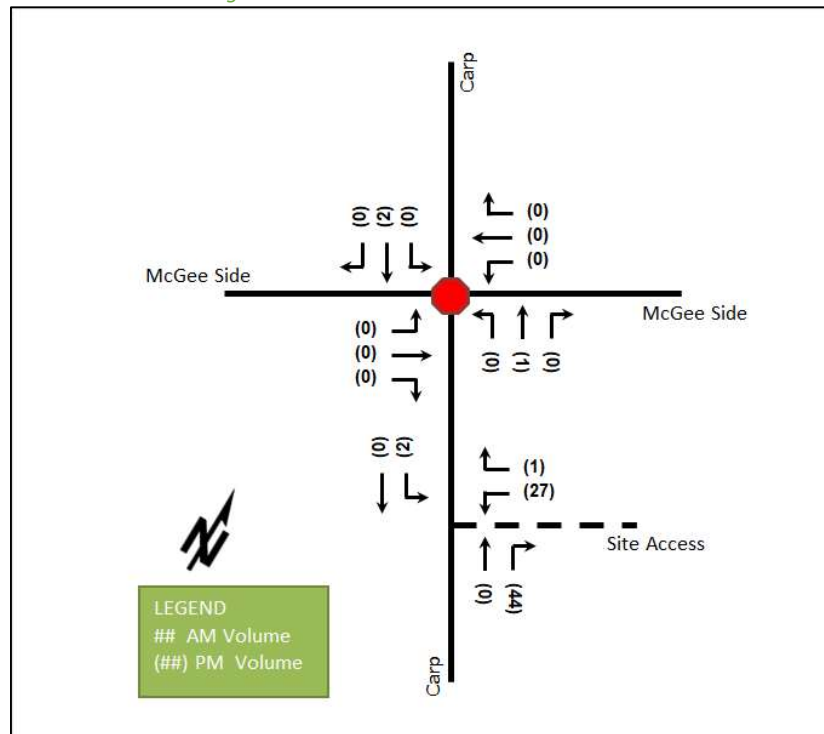
4.4 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 8 summarizes the proportional assignment to the study area roadways, and Figure 7 illustrates the new site generated volumes.

Table 8: Trip Assignment

To/From	Via
North	5% Carp Rd (N)
South	5% Carp Rd (S)
East	90% Carp Rd (S)
West	-
Total	100%

Figure 7: New Site Generation Auto Volumes



5 Exemption Review

Table 9 summarizes the exemptions for this TIA.

Table 9: Exemption Review

Module	Element	Explanation	Exempt/Required
Site Design and TDM			
Development Design	4.1.2 Circulation and Access	Only required for site plan and zoning by-law applications	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
Parking	4.2.1 Parking Supply	Only required for site plan and zoning by-law applications	Required
Boundary Street Design		All applications	Required
Transportation Demand Management	All Elements	Only required when the development generates more than 60 person-trips	Required
Network Impact			
Background Network Travel Demand	All Elements	Only required when one or more other Network Impact Modules are triggered when the development generates more than 75 auto or transit trips	Exempt (74 auto trips forecasted, and it is noted that the existing warehouse could be expected to generate up to 28 auto trips per ITE)

Module	Element	Explanation	Exempt/Required
			LUC 150 Fitted Curve)
Demand Rationalization		Only required when one or more other Network Impact Modules when the development generates more than 75 auto trips	Exempt
Neighbourhood Traffic Calming	4.6.1 Adjacent Neighbourhoods	<p>If the development meets all of the following criteria along the route(s) site generated traffic is expected to utilize between an arterial road and the site's access:</p> <ol style="list-style-type: none"> 1. Access to Collector or Local; 2. "Significant sensitive land use presence" exists, where there is at least two of the following adjacent to the subject street segment: <ul style="list-style-type: none"> • School (within 250m walking distance); • Park; • Retirement / Older Adult Facility (i.e. long-term care and retirement homes); • Licenced Child Care Centre; • Community Centre; or • 50%, or greater, of adjacent property along the route(s) is occupied by residential lands and a minimum of 10 occupied residential units are present on the route. 3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision; 4. At least 75 site-generated auto trips; 5. Site Trip Infiltration is expected. Site traffic will increase peak hour vehicle volumes along the route by 50% or more. 	Exempt
Transit	4.7.1 Transit Route Capacity	Only required when the development generates more than 75 transit trips	Exempt
	4.7.2 Transit Priority Requirements	Only required when the development generates more than 75 auto trips	Exempt
Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt
Intersection Design	4.4.1-2/4.9.1 Intersection Control	Only required when the development generates more than 75 auto trips	Exempt
	4.4.3/4.9.2 Intersection Design	Only required when the development generates more than 75 auto trips	Exempt

6 Development Design

6.1 Design for Sustainable Modes

The subject site is a 15,000 sq. ft building with 50 vehicle parking spaces and five bicycle parking spaces. Surface parking areas are located on the north, south, and east sides of the building, with the north and south parking spaces accessed via gated entrances. Building doorways are located on the north, south, and east sides of the building in conjunction with parking areas. Two concrete pedestrian landing areas are provided to accommodate pedestrian access to the building, both serve the north and south doorways, while the southern landing area additionally includes bicycle parking racks.

Carp Road has a rural cross-section with ditches and paved shoulders on both sides. There are no transit services available within the study area and only a limited number of destinations within walking distance. Furthermore, there are no pedestrian and cycling facilities planned along Carp Road within the study area. Therefore, walkway access from the subject site to Carp Road is not required. The infrastructure TDM checklist is provided in Appendix E.

6.2 Circulation and Access

Vehicle access is provided via a two-way full-movement access on Carp Road, with a 6.7 metre width. The drive aisle circulates the building and supports both emergency services and garbage collection vehicles. The garbage collection is assumed to be at the rear of the building. The gates are also assumed to be open during the hours of operation. No circulation issues are noted with the internal drive aisle.

7 Parking

7.1 Parking Supply

The site is proposed to include a total 50 vehicle parking spaces. According to the in-effect Zoning By-Law, a minimum parking ratio of 3.4 per 100 m² of gross floor area are required. Therefore, a total of 47 parking spaces is required and the proposed parking spaces for the subject site meets the Zoning By-Law minimum parking requirements.

Within the provided parking spaces, a total of two accessible parking spaces are proposed, meeting the minimum requirement according to the Zoning By-Law.

The site also proposes a total of five bicycle parking spaces. According to the in-effect Zoning By-Law, a minimum of 1.0 bicycle parking space per 1,500 m² of gross floor area is required; therefore, the subject site meets the Zoning By-Law minimum bicycle parking requirements.

8 Boundary Street Design

Table 10 summarizes the MMLOS analysis for the boundary street of Carp Road. The existing and future conditions for Carp Road will be the same and are considered in one row. The boundary street analysis is based on the policy area of “General Rural Area”, and the MMLOS worksheet has been provided in Appendix F.

Table 10: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Carp Road	F	No Target	F	No Target	N/A	N/A	C	C

There are no pedestrian or cyclist MMLOS targets in General Rural Areas. Given the lack of facilities along Carp Road, the pedestrian and cyclist LOS along the site frontage is F. Additionally, there are no transit facilities or transit LOS targets in the study area. The target truck LOS C is met.

9 Transportation Demand Management

9.1 Context for TDM

The subject site has been assumed to rely entirely on auto modes due to the lack of transit, cyclist and pedestrian facilities in the study area and those assumptions have been carried through the analysis. Therefore, no TDM measures are recommended beyond those required for vehicle and bicycle parking. The infrastructure TDM checklist is provided in Appendix E.

10 Access Intersections Design

10.1 Location and Design of Access

The subject site includes the existing site access on Carp Road, which is located approximately 150 metres south of Carp Road/McGee Side Road intersection.

The site access is 7.44-meter-wide at its property line width and 19.44-meter at the curb line, with 6.0-metre curb return radii. The maximum width of a two-way access permitted by the Private Approach By-Law is 9.0 metres. This width is noted within the By-Law to apply to both the street (right-of-way) line as well as the roadway edge, however its application at the roadway edge is not possible to meet given the minimum driveway width of 6.0 metres from the Zoning By-Law, combined with City Standard SC7.1. Therefore, the existing driveway width is recommended to be maintained as currently constructed.

The throat length to the first on-site conflict within the site is the gated access to the parking lot approximately 17.0 metres. Given the TAC Geometric Design Guideline does not include a comparable land use, the minimum 15.0 meters for an arterial road is considered an appropriate target, and therefore the provided throat length is considered acceptable.

The Geometric Design Guide for Canadian Roads (TAC, 2017) suggests minimum corner clearance value for driveways of 25.0 metres along arterial road and thus the site access meets this guideline.

11 Summary of Improvements Indicated and Modifications Options

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

Proposed Site and Screening

- The existing site is within the Carp Road Corridor Business Improvement Area and Carp Road Corridor Community Design Plan
- The existing site comprises an office house and a 15,000 sq. ft. warehouse
- The proposed rezoning would permit the future use of a cheerleading school/studio within the warehouse building, separate from the office house
- The existing site access is intended to remain
- The anticipated occupation is 2026

Existing Conditions

- Carp Road is arterial road and McGee Side Road is a collector road in the study area

- No sidewalks are provided within the study area and Carp Road has paved shoulders suitable for cycling within the study area
- No collision analysis is required as part of this study
- During the PM peak hour, the study area intersection operates well

Planned Conditions

- No changes to the study area transportation network are noted

Development Generated Travel Demand

- The proposed development is forecasted to generate 46 inbound and 28 outbound PM peak hour two-way vehicle trips
- Of the forecasted trips, 90 % are anticipated to travel east and 5 % to both the north and south

Development Design

- Two concrete pedestrian landing areas are provided to accommodate pedestrian access to the building
- Walkway access from the subject site to Carp Road is not required
- The garbage collection will take place at the rear of the building
- No circulation issues are noted and supports emergency services and garbage vehicles

Parking

- The subject site proposed 50 parking spaces and five bicycle parking spaces, meeting the Zoning By-Law requirements

Boundary Street Design

- The pedestrian and cyclist LOS along the site frontage is F due to a lack of pedestrian and cyclist infrastructure and high posted speed along Carp Road

TDM

- No TDM measures are recommended beyond those required for vehicle and bicycle parking

Access Intersection Design

- The subject site is served by the existing site access on Carp Road, located approximately 150 metres south of Carp Road/McGee Side Road intersection
- The site access is 7.44-meter-wide at its typical width and 19.44-meter at the curb line, with 6.0-metre curb return radii
- The throat length is considered acceptable and the clear throat length requirements is met

12 Conclusion

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

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Appendix A

TIA Screening Form and PM Certification Form

City of Ottawa 2023 Revisions to 2017 TIA Guidelines
Step 1 - Screening Form

Date: 2025-08-25
Project Number: 2025-146
Project Reference: 2966 Carp Rd

1.1 Description of Proposed Development	
Municipal Address	2966 Carp Road
Description of Location	East of Carp Road approximately 150 meters south of the Carp Road at McGee Side Road intersection
Land Use Classification	Rural Commercial Zone (RC7)
Development Size	Rezoning to permit the future use of a 15,000 sq.ft warehouse as a cheerleading school/studio
Accesses	Existing access on Carp Road
Phase of Development	Single
Buildout Year	2026
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Other	
Development Size	15,000	G.F.A.
Trip Generation Trigger	Yes	

1.3 Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	No	
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?	Yes	Carp Road Corridor Community Design Plan
Location Trigger	Yes	

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



Certification Form for TIA Study PM

TIA Plan Reports

On April 14, 2022, the Province's Bill 109 received Royal Assent providing legislative direction to implement the More Homes for Everyone Act, 2022 aiming to increase the supply of a range of housing options to make housing more affordable. Revisions have been made to the TIA guidelines to comply with Bill 109 and streamline the process for applicants and staff.

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 they meet the four criteria listed below.

CERTIFICATION



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; (Update effective July 2023)



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;



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



I am either a licensed or registered¹ professional in good standing, whose field of expertise



is either transportation engineering



or transportation planning.

¹ 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.

Dated at Ottawa this 17 day of August, 20 23.
(City)

Name : Andrew Harte

Professional title: Senior Transportation Engineer / Vice-President Ottawa



Signature of individual certifier that s/he/they meet the above criteria

Office Contact Information (Please Print)
Address: <u>6 Plaza Court</u>
City / Postal Code: <u>Ottawa, K2H 7W1</u>
Telephone / Extension: <u>613-697-3797</u>
Email Address: <u>andrew.harte@cghtransportation.com</u>

Stamp



Revision Date: June 2023

Appendix B

Turning Movement Counts



Turning Movement Count Summary Report Including AM and PM Peak Hours All Vehicles Except Bicycles



Carp Road & McGee Side Road

Carp, ON

Survey Date: Wednesday, November 09, 2022

Start Time: 0700

AADT Factor: 0.9

Weather AM: Mainly Clear -3° C

Survey Duration: 6 Hrs.

Survey Hours: 0700-1000 & 1500-1800

Weather PM: Mainly Clear +10° C

Surveyor(s): J. Mousseau

McGee Side Rd.

McGee Side Rd.

Carp Rd.

Carp Rd.

	Eastbound					Westbound						Northbound						Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	22	4	30	0	56	3	1	6	0	10	66	9	246	3	0	258	2	296	6	0	304	562	628
0800-0900	12	5	45	0	62	4	2	3	0	9	71	20	248	3	0	271	8	260	8	0	276	547	618
0900-1000	8	2	27	0	37	2	2	5	0	9	46	15	219	8	0	242	2	235	11	0	248	490	536
1500-1600	11	3	30	0	44	12	7	18	0	37	81	47	278	2	0	327	4	260	11	0	275	602	683
1600-1700	11	1	42	0	54	8	4	7	0	19	73	52	365	4	0	421	4	312	38	0	354	775	848
1700-1800	3	1	32	0	36	0	4	4	0	8	44	42	318	0	0	360	6	211	34	0	251	611	655
Totals	67	16	206	0	289	29	20	43	0	92	381	185	1674	20	0	1879	26	1574	108	0	1708	3587	3968

**Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count**

**Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts
conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h**

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 → 12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor → 0.88											Highest Hourly Vehicle Volume Between 0700h & 1000h												
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0730-0830	23	4	45	0	72	3	0	4	0	7	79	19	282	3	0	304	4	305	7	0	316	620	699

PM Peak Hour Factor → 0.94											Highest Hourly Vehicle Volume Between 1500h & 1800h												
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1615-1715	9	2	43	0	54	6	4	6	0	16	70	56	379	4	0	439	3	309	49	0	361	800	870

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

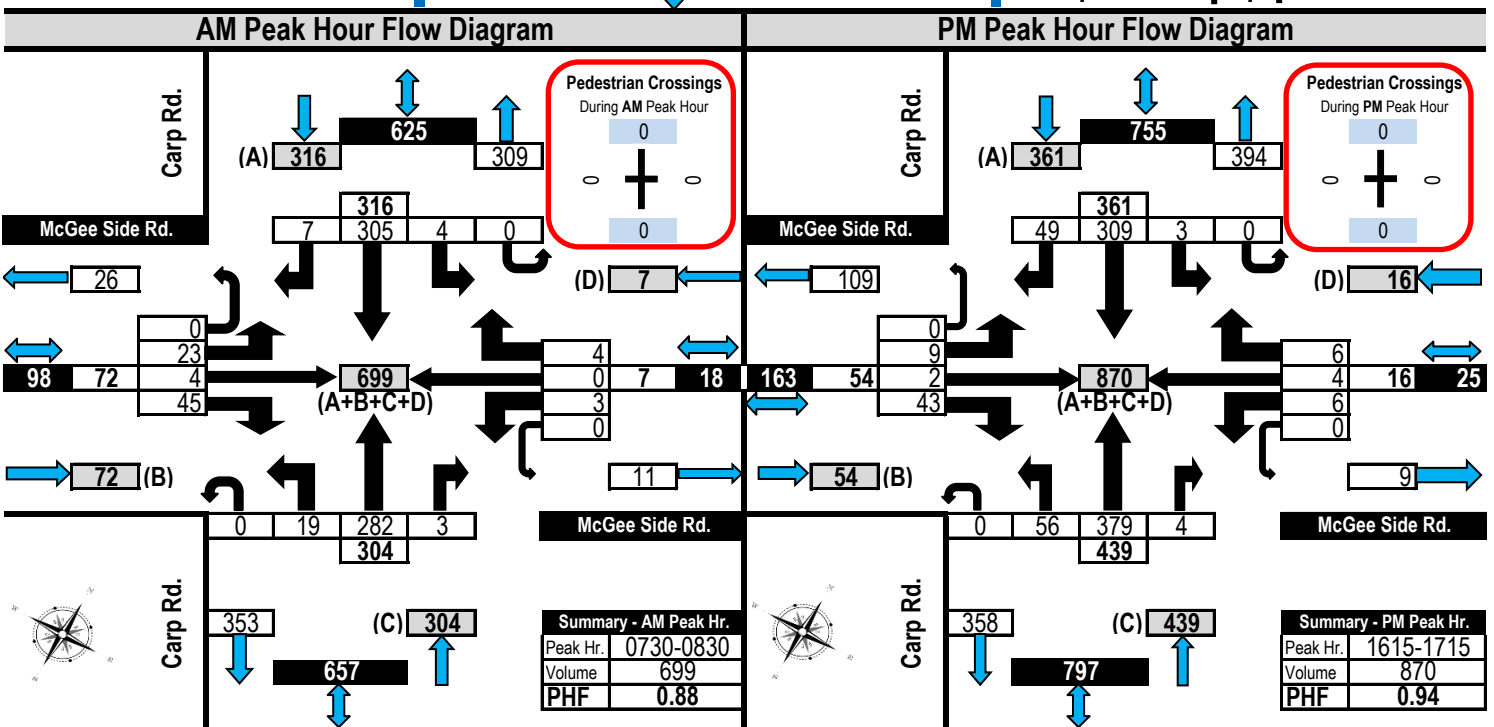
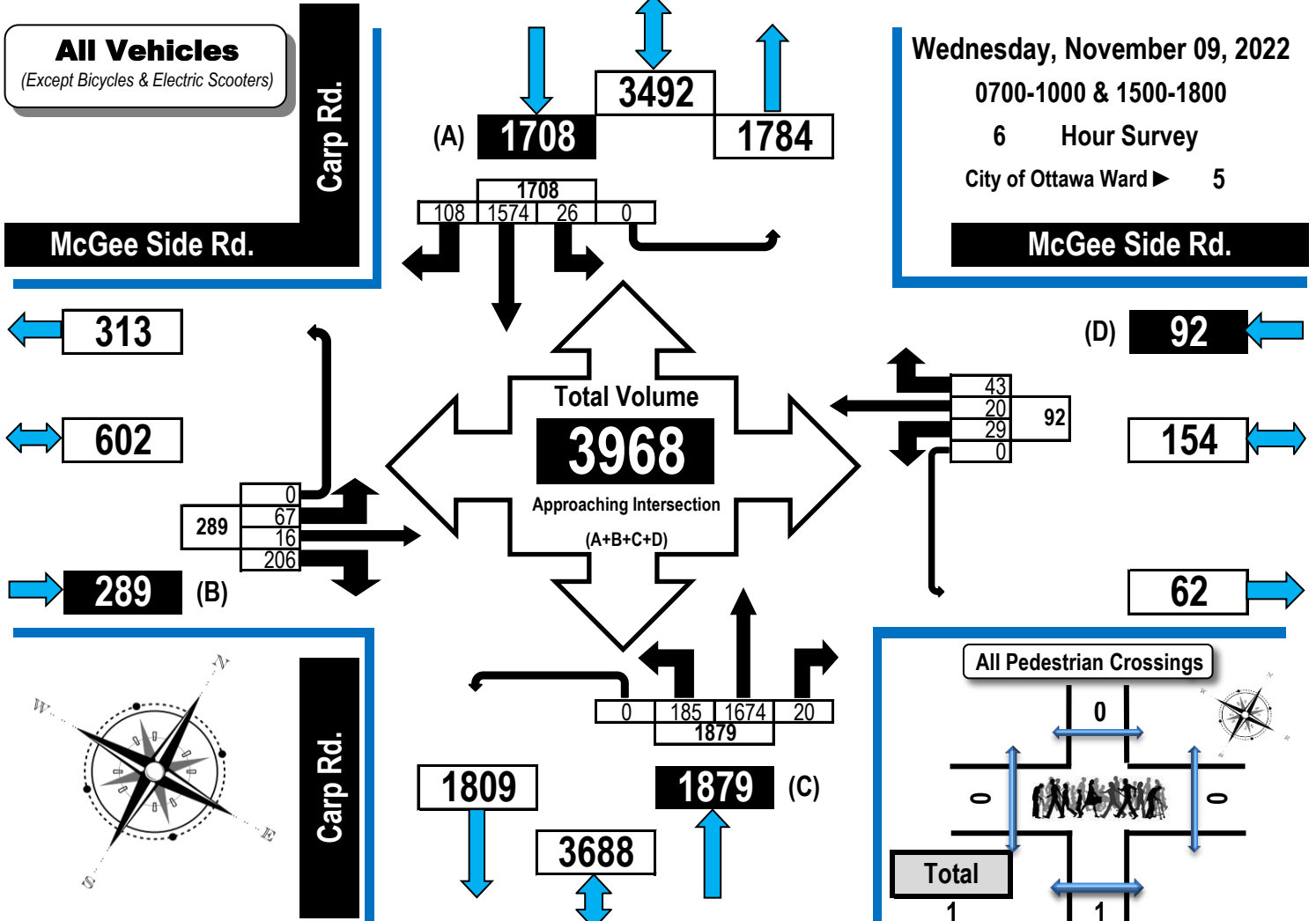


Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams All Vehicles Except Bicycles



Carp Road & McGee Side Road

Carp, ON





Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram



Carp Road & McGee Side Road

Carp, ON

Heavy Vehicles

(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

McGee Side Rd.

Carp Rd.

Wednesday, November 09, 2022

0700-1000 & 1500-1800

6 Hour Survey

City of Ottawa Ward 5

McGee Side Rd.

30

67

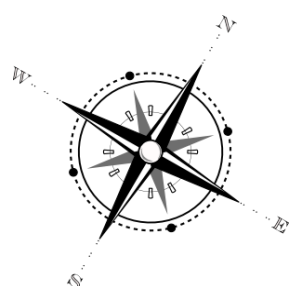
37 (B)

(A) 179 384 205

6 168 5 0

Total Heavy Vehicles
446

Approaching Intersection
(A+B+C+D)



Carp Rd.

200

422

222 (C)

0 22 195 5

222

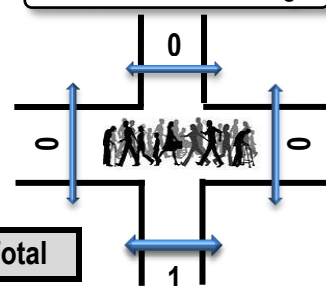
(D) 8

19

Heavy Vehicles
Comprise
11.24%
of Total Traffic

11

All Pedestrian Crossings



Total
1

McGee Side Rd.

McGee Side Rd.

Carp Rd.

Carp Rd.

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	4	1	3	0	8	0	0	0	0	0	1	38	1	0	40	0	37	1	0	38	86
0800-0900	1	0	4	0	5	2	0	0	0	2	1	44	1	0	46	4	31	0	0	35	88
0900-1000	0	0	1	0	1	0	1	2	0	3	0	40	2	0	42	0	40	1	0	41	87
1500-1600	0	0	9	0	9	0	0	0	0	0	6	26	0	0	32	0	24	1	0	25	66
1600-1700	2	0	7	0	9	1	0	1	0	2	11	23	1	0	35	1	28	3	0	32	78
1700-1800	0	0	5	0	5	0	1	0	0	1	3	24	0	0	27	0	8	0	0	8	41
Totals	7	1	29	0	37	3	2	3	0	8	22	195	5	0	222	5	168	6	0	179	446

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.



Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



Carp Road & McGee Side Road

Carp, ON

Buses ONLY

(Transit, Intercity, School Buses & Other Buses).
Bus totals **ARE** included in the all vehicles summary, heavy vehicle summary & flow diagrams.

McGee Side Rd.

Carp Rd.

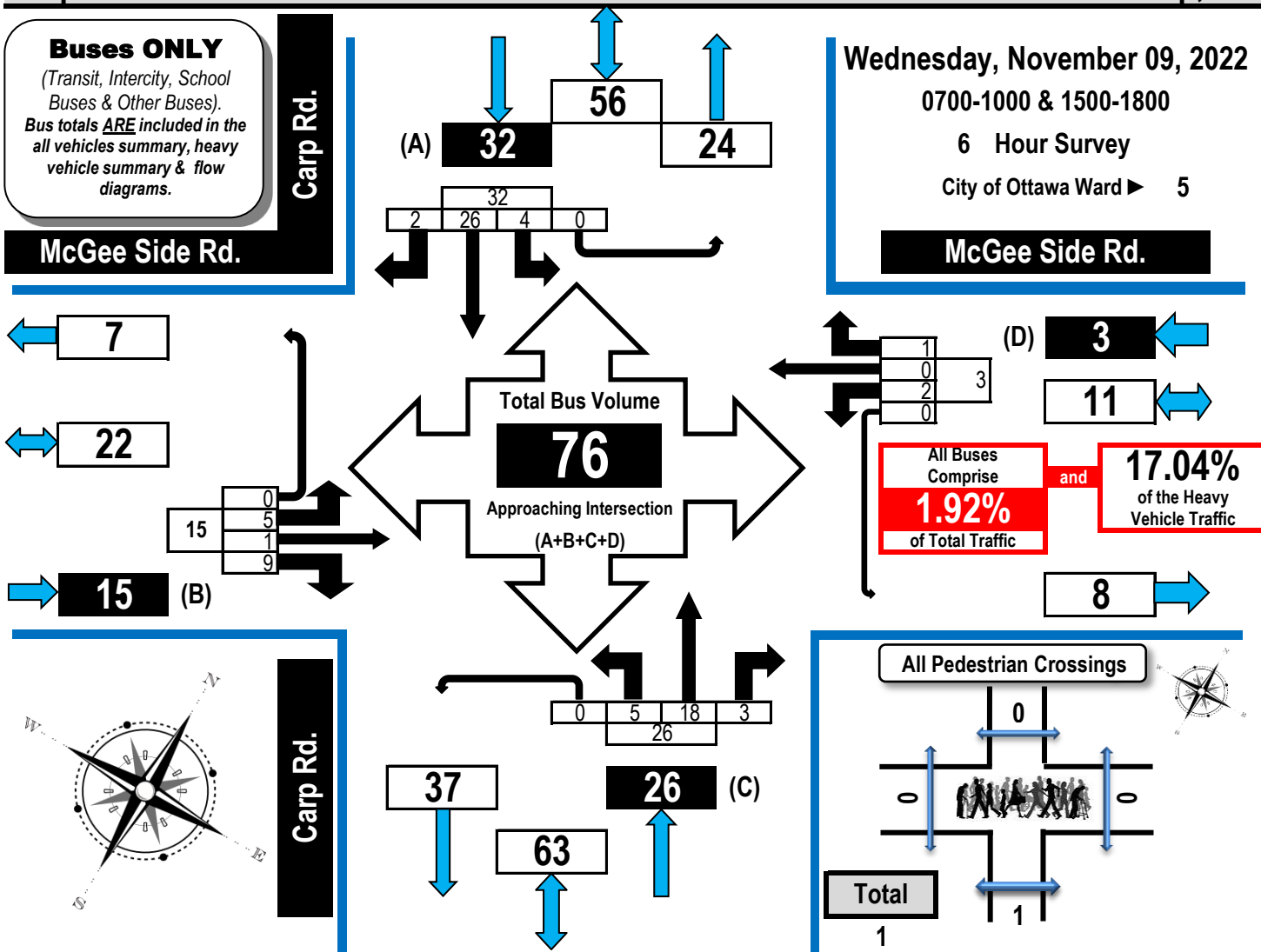
Wednesday, November 09, 2022

0700-1000 & 1500-1800

6 Hour Survey

City of Ottawa Ward 5

McGee Side Rd.



McGee Side Rd.

McGee Side Rd.

Carp Rd.

Carp Rd.

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	4	1	3	0	8	0	0	0	0	0	1	10	1	0	12	0	0	1	0	1	21
0800-0900	0	0	3	0	3	1	0	0	0	1	0	4	1	0	5	4	3	0	0	7	16
0900-1000	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	6	0	0	6	8
1500-1600	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	1	0	3	5
1600-1700	1	0	1	0	2	1	0	1	0	2	4	1	1	0	6	0	9	0	0	9	19
1700-1800	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	7
Totals	5	1	9	0	15	2	0	1	0	3	5	18	3	0	26	4	26	2	0	32	76

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count Bicycle Summary Flow Diagram



Carp Road & McGee Side Road

Carp, ON

Bicycles

(Including electric bicycles and electric scooters)

Note:

Bicycle volumes are **NOT** included in vehicle totals.

McGee Side Rd.

Carp Rd.

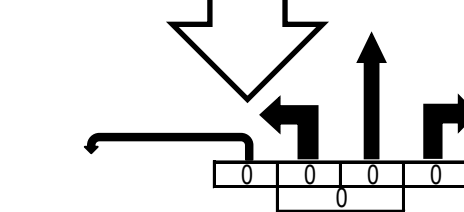
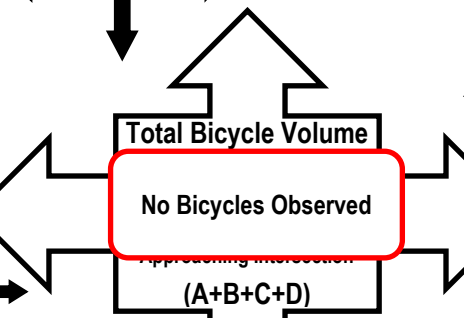
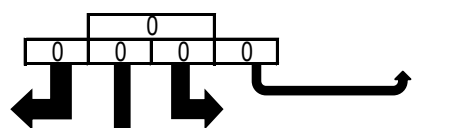
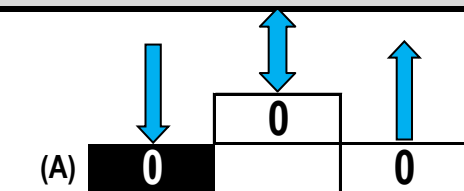
Wednesday, November 09, 2022

0700-1000 & 1500-1800

6 Hour Survey

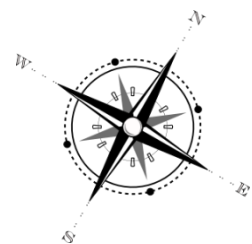
City of Ottawa Ward 5

McGee Side Rd.



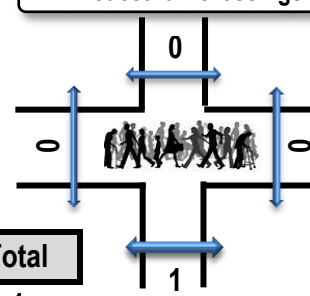
Includes all bicycles travelling on sidewalks.

Carp Rd.



Bicycles comprise
0.00%
of total traffic

All Pedestrian Crossings



McGee Side Rd.

McGee Side Rd.

Carp Rd.

Carp Rd.

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No Bicycles Observed

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



Carp Road & McGee Side Road

Carp, ON

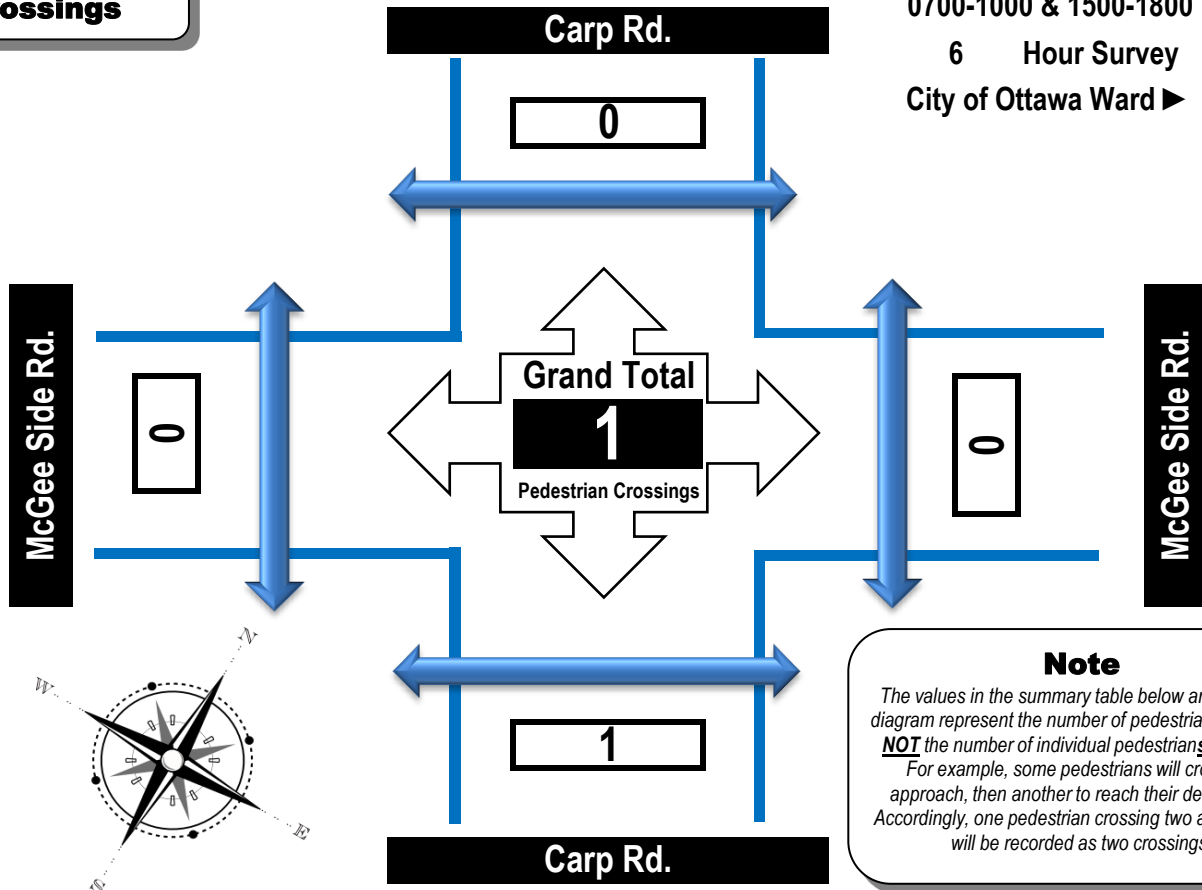
Pedestrian Crossings

Wednesday, November 09, 2022

0700-1000 & 1500-1800

6 Hour Survey

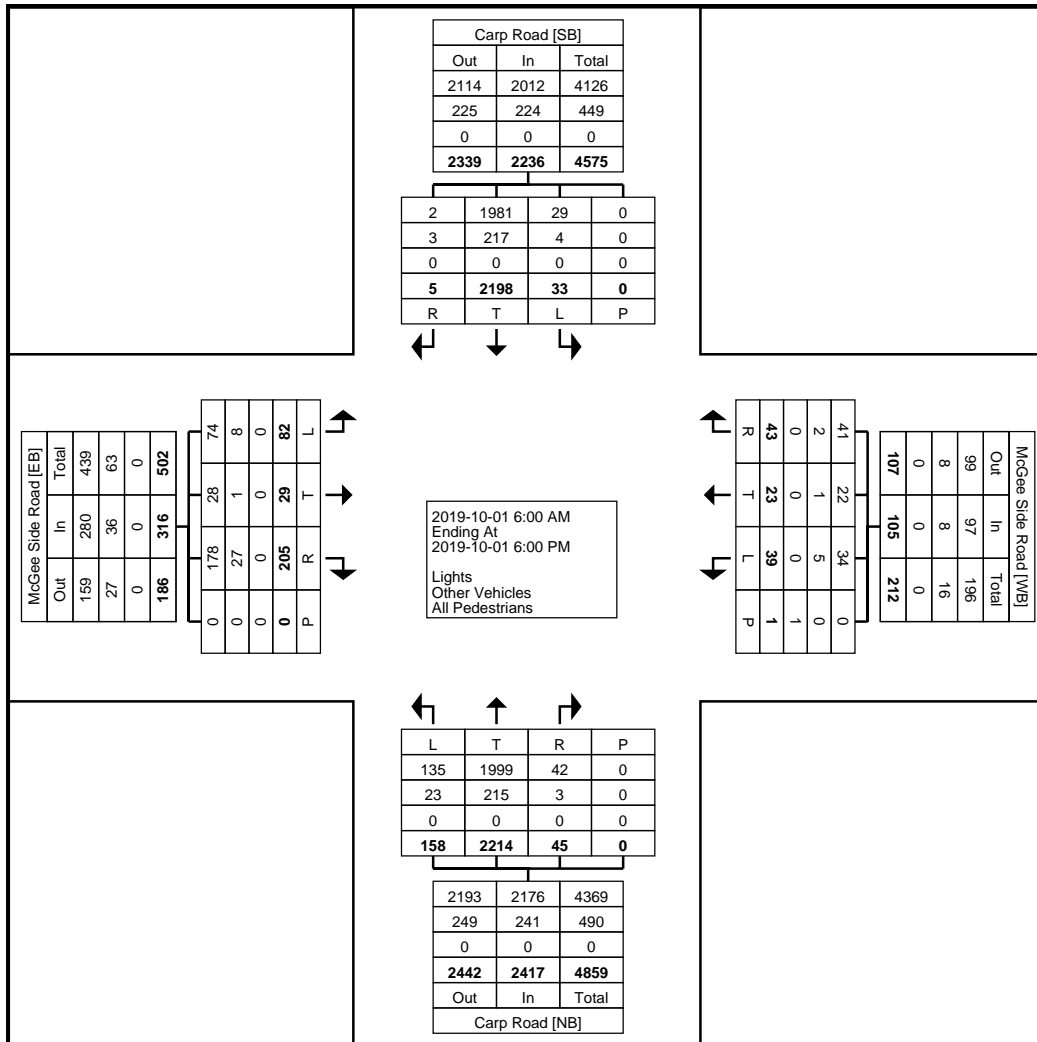
City of Ottawa Ward 5



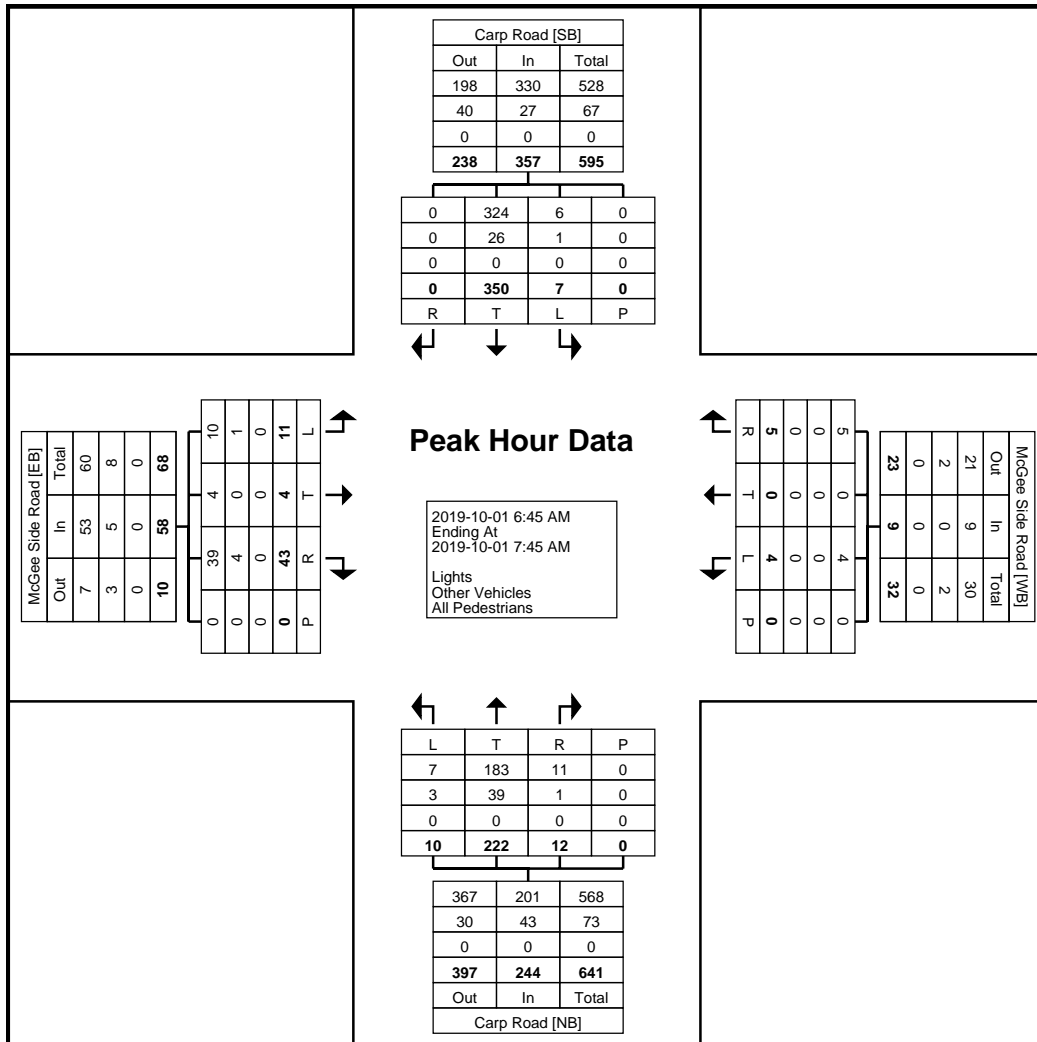
Time Period	West Side Crossing McGee Side Rd.	East Side Crossing McGee Side Rd.	Street Total	South Side Crossing Carp Rd.	North Side Crossing Carp Rd.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	1	0	1	1
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
Totals	0	0	0	1	0	1	1

Comments:

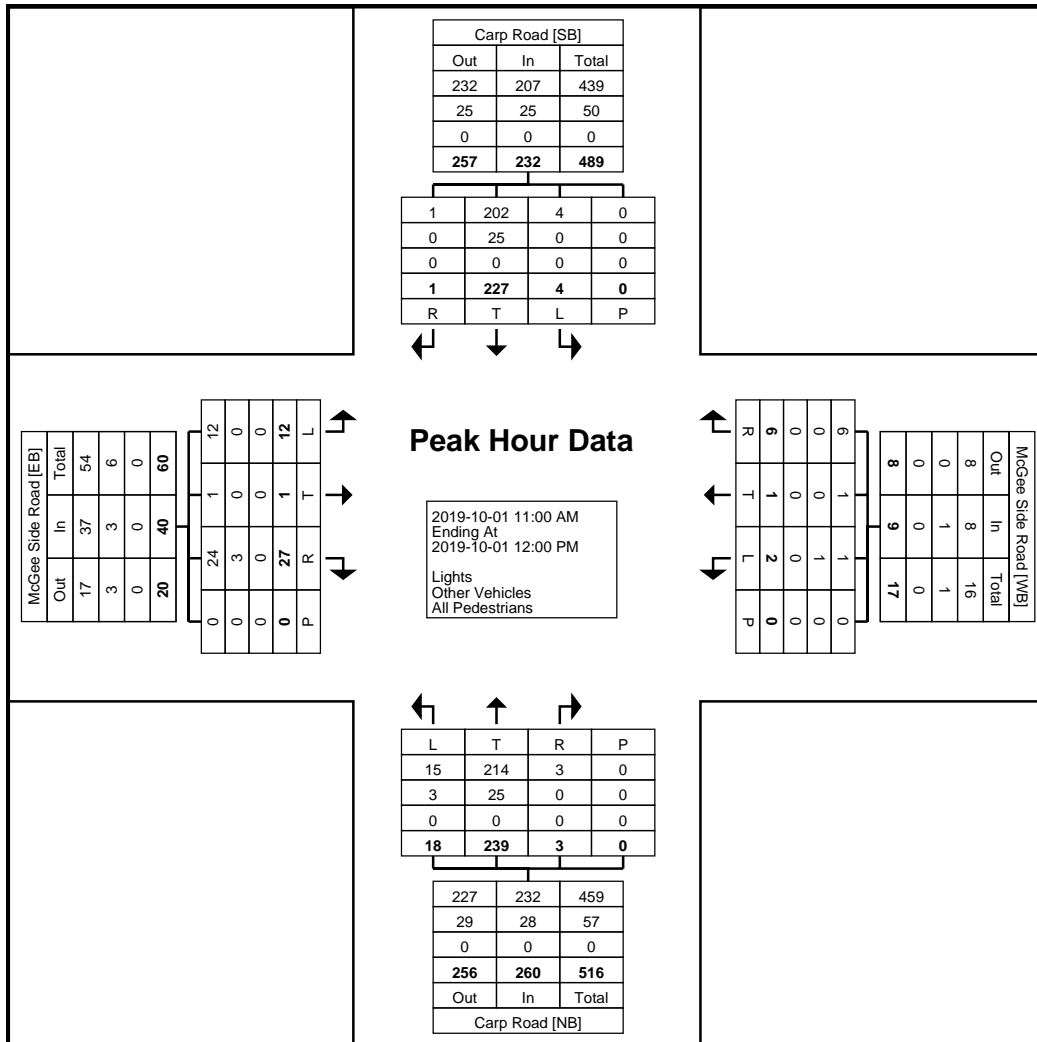
Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.



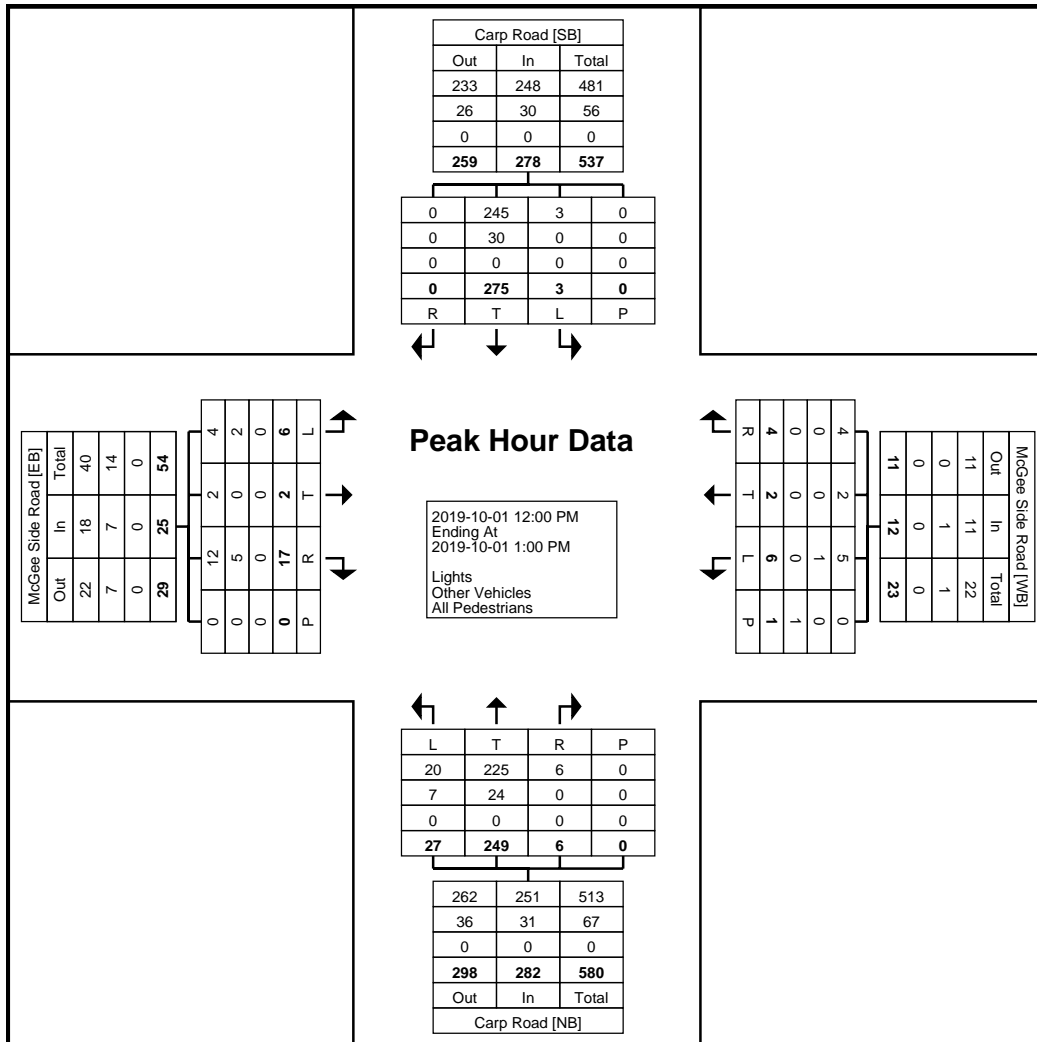
Turning Movement Data Plot



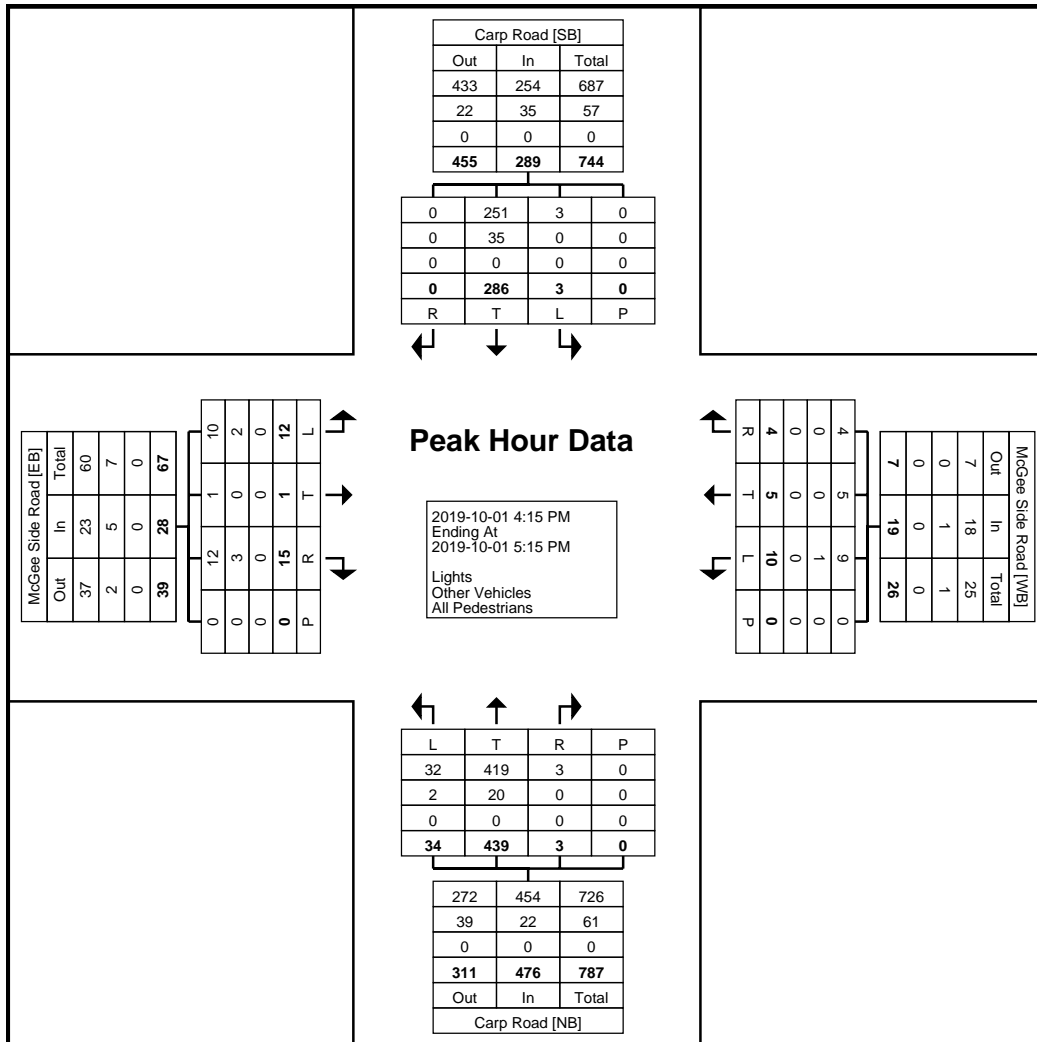
Turning Movement Peak Hour Data Plot (6:45 AM)



Turning Movement Peak Hour Data Plot (11:00 AM)



Turning Movement Peak Hour Data Plot (12:00 PM)



Turning Movement Peak Hour Data Plot (4:15 PM)

Count Name: 191661 Badger
Daylighting 3025 Carp Road TIA
Site Code:
Start Date: 2019-10-01
Page No: 1

Start Time	Carp Road Southbound					McGee Side Road Westbound					Carp Road Northbound					McGee Side Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
6:00 AM	0	46	0	0	46	0	0	1	0	1	0	10	0	0	10	6	1	0	0	7	64
6:15 AM	0	99	0	0	99	0	1	0	0	1	1	30	0	0	31	5	3	0	0	8	139
6:30 AM	1	108	2	0	111	1	0	0	0	1	5	30	1	0	36	10	1	1	0	12	160
6:45 AM	0	93	4	0	97	1	0	1	0	2	5	53	3	0	61	11	1	1	0	13	173
Hourly Total	1	346	6	0	353	2	1	2	0	5	11	123	4	0	138	32	6	2	0	40	536
7:00 AM	0	77	1	0	78	2	0	2	0	4	3	43	2	0	48	9	1	3	0	13	143
7:15 AM	0	97	1	0	98	1	0	1	0	2	4	64	3	0	71	14	0	3	0	17	188
7:30 AM	0	83	1	0	84	1	0	0	0	1	0	62	2	0	64	9	2	4	0	15	164
7:45 AM	0	63	1	0	64	2	0	1	0	3	0	69	2	0	71	12	1	4	0	17	155
Hourly Total	0	320	4	0	324	6	0	4	0	10	7	238	9	0	254	44	4	14	0	62	650
8:00 AM	0	80	2	0	82	0	2	1	0	3	0	53	1	0	54	7	2	12	0	21	160
8:15 AM	0	71	0	0	71	1	0	0	0	1	1	52	2	0	55	9	3	2	0	14	141
8:30 AM	0	55	2	0	57	1	0	0	0	1	2	44	0	0	46	6	1	1	0	8	112
8:45 AM	0	76	2	0	78	5	2	0	0	7	2	64	4	0	70	5	0	4	0	9	164
Hourly Total	0	282	6	0	288	7	4	1	0	12	5	213	7	0	225	27	6	19	0	52	577
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	53	0	0	53	2	1	1	0	4	1	56	5	0	62	6	0	3	0	9	128
11:15 AM	1	59	1	0	61	3	0	0	0	3	0	62	4	0	66	4	1	5	0	10	140
11:30 AM	0	59	1	0	60	0	0	1	0	1	0	55	6	0	61	8	0	4	0	12	134
11:45 AM	0	56	2	0	58	1	0	0	0	1	2	66	3	0	71	9	0	0	0	9	139
Hourly Total	1	227	4	0	232	6	1	2	0	9	3	239	18	0	260	27	1	12	0	40	541
12:00 PM	0	76	0	0	76	2	1	0	1	3	0	61	4	0	65	5	1	0	0	6	150
12:15 PM	0	77	2	0	79	0	0	4	0	4	1	61	11	0	73	4	1	3	0	8	164
12:30 PM	0	70	0	0	70	0	0	0	0	0	3	58	8	0	69	4	0	2	0	6	145
12:45 PM	0	52	1	0	53	2	1	2	0	5	2	69	4	0	75	4	0	1	0	5	138
Hourly Total	0	275	3	0	278	4	2	6	1	12	6	249	27	0	282	17	2	6	0	25</	

Turning Movement Peak Hour Data (6:45 AM)

Start Time	Carp Road Southbound					McGee Side Road Westbound					Carp Road Northbound					McGee Side Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App.Total	Right	Thru	Left	Peds	App.Total	Right	Thru	Left	Peds	App.Total	Right	Thru	Left	Peds	App.Total	
6:45 AM	0	93	4	0	97	1	0	1	0	2	5	53	3	0	61	11	1	1	0	13	173
7:00 AM	0	77	1	0	78	2	0	2	0	4	3	43	2	0	48	9	1	3	0	13	143
7:15 AM	0	97	1	0	98	1	0	1	0	2	4	64	3	0	71	14	0	3	0	17	188
7:30 AM	0	83	1	0	84	1	0	0	0	1	0	62	2	0	64	9	2	4	0	15	164
Total	0	350	7	0	357	5	0	4	0	9	12	222	10	0	244	43	4	11	0	58	668
Approach %	0.0	98.0	2.0	-	-	55.6	0.0	44.4	-	-	4.9	91.0	4.1	-	-	74.1	6.9	19.0	-	-	-
Total %	0.0	52.4	1.0	-	53.4	0.7	0.0	0.6	-	1.3	1.8	33.2	1.5	-	36.5	6.4	0.6	1.6	-	8.7	-
PHF	0.000	0.902	0.438	-	0.911	0.625	0.000	0.500	-	0.563	0.600	0.867	0.833	-	0.859	0.768	0.500	0.688	-	0.853	0.888
Lights	0	324	6	-	330	5	0	4	-	9	11	183	7	-	201	39	4	10	-	53	593
% Lights	-	92.6	85.7	-	92.4	100.0	-	100.0	-	100.0	91.7	82.4	70.0	-	82.4	90.7	100.0	90.9	-	91.4	88.8
Other Vehicles	0	26	1	-	27	0	0	0	-	0	1	39	3	-	43	4	0	1	-	5	75
% Other Vehicles	-	7.4	14.3	-	7.6	0.0	-	0.0	-	0.0	8.3	17.6	30.0	-	17.6	9.3	0.0	9.1	-	8.6	11.2
All Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Count Name: 191661 Badger
Daylighting 3025 Carp Road TIA
Site Code:
Start Date: 2019-10-01
Page No: 5

[illegible]

Count Name: 191661 Badger
Daylighting 3025 Carp Road TIA
Site Code:
Start Date: 2019-10-01
Page No: 7

[illegible]









Start Time	Carp Road Southbound					McGee Side Road Westbound					Carp Road Northbound					McGee Side Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
4:15 PM	0	73	1	0	74	1	1	1	0	3	1	92	11	0	104	2	0	4	0	6	187
4:30 PM	0	74	0	0	74	2	2	4	0	8	0	127	9	0	136	2	0	3	0	5	223
4:45 PM	0	61	2	0	63	1	0	1	0	2	1	107	9	0	117	6	0	4	0	10	192
5:00 PM	0	78	0	0	78	0	2	4	0	6	1	113	5	0	119	5	1	1	0	7	210
Total	0	286	3	0	289	4	5	10	0	19	3	439	34	0	476	15	1	12	0	28	812
Approach %	0.0	99.0	1.0	-	-	21.1	26.3	52.6	-	-	0.6	92.2	7.1	-	-	53.6	3.6	42.9	-	-	-
Total %	0.0	35.2	0.4	-	35.6	0.5	0.6	1.2	-	2.3	0.4	54.1	4.2	-	58.6	1.8	0.1	1.5	-	3.4	-
PHF	0.000	0.917	0.375	-	0.926	0.500	0.625	0.625	-	0.594	0.750	0.864	0.773	-	0.875	0.625	0.250	0.750	-	0.700	0.910
Lights	0	251	3	-	254	4	5	9	-	18	3	419	32	-	454	12	1	10	-	23	749
% Lights	-	87.8	100.0	-	87.9	100.0	100.0	90.0	-	94.7	100.0	95.4	94.1	-	95.4	80.0	100.0	83.3	-	82.1	92.2
Other Vehicles	0	35	0	-	35	0	0	1	-	1	0	20	2	-	22	3	0	2	-	5	63
% Other Vehicles	-	12.2	0.0	-	12.1	0.0	0.0	10.0	-	5.3	0.0	4.6	5.9	-	4.6	20.0	0.0	16.7	-	17.9	7.8
All Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lanes, Volumes, Timings
1: Carp & McGee Side

Existing PM Peak Hour
2966 Carp Road

				
Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	2	4	379	309
Future Volume (vph)	2	4	379	309
Lane Group Flow (vph)	60	18	487	400
Sign Control	Stop	Stop	Free	Free
Intersection Summary				
Control Type: Unsignalized				
Intersection Capacity Utilization 58.8%			ICU Level of Service B	
Analysis Period (min) 15				

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	2	43	6	4	6	56	379	4	3	309	49
Future Vol, veh/h	9	2	43	6	4	6	56	379	4	3	309	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	22	2	16	17	2	17	20	6	25	33	9	6
Mvmt Flow	10	2	48	7	4	7	62	421	4	3	343	54
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	929	925	370	948	950	423	397	0	0	425	0	0
Stage 1	376	376	-	547	547	-	-	-	-	-	-	-
Stage 2	553	549	-	401	403	-	-	-	-	-	-	-
Critical Hdwy	7.32	6.52	6.36	7.27	6.52	6.37	4.3	-	-	4.43	-	-
Critical Hdwy Stg 1	6.32	5.52	-	6.27	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.32	5.52	-	6.27	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.698	4.018	3.444	3.653	4.018	3.453	2.38	-	-	2.497	-	-
Pot Cap-1 Maneuver	228	269	646	226	260	600	1070	-	-	987	-	-
Stage 1	607	616	-	495	517	-	-	-	-	-	-	-
Stage 2	483	516	-	597	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	247	646	195	239	600	1070	-	-	987	-	-
Mov Cap-2 Maneuver	209	247	-	195	239	-	-	-	-	-	-	-
Stage 1	561	614	-	457	478	-	-	-	-	-	-	-
Stage 2	437	477	-	549	598	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14		18.8		1.1		0.1					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1070	-	-	459	278	987	-	-				
HCM Lane V/C Ratio	0.058	-	-	0.131	0.064	0.003	-	-				
HCM Control Delay (s)	8.6	0	-	14	18.8	8.7	0	-				
HCM Lane LOS	A	A	-	B	C	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.2	0	-	-				

Appendix D

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition	# Vehicles	# Motorcycles	# Bicycles	# Pedestrians
2018-03-09	2018	Unknown	CARP RD @ MCGEE SIDE RD (0005760)	01 - Clear	07 - Dark	02 - Stop sign	0	03 - P.D. only	04 - Sideswipe	02 - Wet	2	0	0	0
2019-09-06	2019	15:13	CARP RD @ MCGEE SIDE RD (0005760)	02 - Rain	01 - Daylight	02 - Stop sign	0	03 - P.D. only	03 - Rear end	02 - Wet	2	0	0	0
2020-12-01	2020	17:09	CARP RD @ MCGEE SIDE RD (0005760)	02 - Rain	07 - Dark	02 - Stop sign	0	03 - P.D. only	05 - Turning movement	02 - Wet	2	0	0	0
2021-12-21	2021	8:43	CARP RD @ MCGEE SIDE RD (0005760)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	02 - Wet	3	0	0	0
2022-01-28	2022	11:40	CARP RD btwn MCGEE SIDE RD & OLIVE RD (e____2HWG)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0

Appendix E

TDM Checklist

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

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

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		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	<input type="checkbox"/>
BASIC	1.1.2 Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	<input type="checkbox"/>
BASIC	1.1.3 Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	<input type="checkbox"/>
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 (<i>see Official Plan policy 4.3.3</i>)	<input type="checkbox"/>
REQUIRED	1.2.2 Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (<i>see Official Plan policy 4.3.12</i>)	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3 Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (<i>see Official Plan policy 4.3.10</i>)	<input type="checkbox"/>
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 (<i>see Official Plan policy 4.3.10</i>)	<input type="checkbox"/>
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 (<i>see Official Plan policy 4.3.11</i>)	<input type="checkbox"/>
BASIC	1.2.6 Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	<input type="checkbox"/>
BASIC	1.2.7 Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	<input type="checkbox"/>
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	<input type="checkbox"/>
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	<input type="checkbox"/>
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)	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		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 <i>Official Plan policy 4.3.6</i>)	<input checked="" type="checkbox"/>
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 <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
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 <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	<input type="checkbox"/>
BETTER	2.1.5 Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	<input type="checkbox"/>
2.2 Secure bicycle parking		
REQUIRED	2.2.1 Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see <i>Zoning By-law Section 111</i>)	<input type="checkbox"/>
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	<input type="checkbox"/>
2.3 Shower & change facilities		
BASIC	2.3.1 Provide shower and change facilities for the use of active commuters	<input type="checkbox"/>
BETTER	2.3.2 In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	<input type="checkbox"/>
2.4 Bicycle repair station		
BETTER	2.4.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
3. TRANSIT		
3.1 Customer amenities		
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	<input type="checkbox"/>
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	<input type="checkbox"/>
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	<input type="checkbox"/>
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	<input type="checkbox"/>
4.2 Carpool parking		
BASIC	4.2.1 Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	<input type="checkbox"/>
BETTER	4.2.2 At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	<input type="checkbox"/>
5. CARSHARING & BIKESHARING		
5.1 Carshare parking spaces		
BETTER	5.1.1 Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (<i>see Zoning By-law Section 94</i>)	<input type="checkbox"/>
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	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
6. PARKING		
6.1 Number of parking spaces		
REQUIRED	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	<input checked="" type="checkbox"/>
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	<input type="checkbox"/>
BASIC	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (<i>see Zoning By-law Section 104</i>)	<input type="checkbox"/>
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 (<i>see Zoning By-law Section 111</i>)	<input type="checkbox"/>
6.2 Separate long-term & short-term parking areas		
BETTER	6.2.1 Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	<input type="checkbox"/>
7. OTHER		
7.1 On-site amenities to minimize off-site trips		
BETTER	7.1.1 Provide on-site amenities to minimize mid-day or mid-commute errands	<input type="checkbox"/>

Appendix F

MMLOS Analysis

Multi-Modal Level of Service - Segments Form

Consultant	CGH Transportation	Project	2025-146
Scenario	Existing/Future	Date	2025-08-21
Comments			

SEGMENTS			Carp Road	Section	Section
			Existing/Future	2	3
Pedestrian	Sidewalk Width	F	no sidewalk		
	Boulevard Width		n/a		
	Avg Daily Curb Lane Traffic Volume		≤ 3000		
	Operating Speed		> 60 km/h		
	On-Street Parking		no		
	Exposure to Traffic PLoS		F	-	-
	Effective Sidewalk Width		< 1.2 m		
	Pedestrian Volume		< 250 ped /hr		
	Crowding PLoS		N/A	-	-
	Level of Service		F	-	-
Bicycle	Type of Cycling Facility	F	Mixed Traffic		
	Number of Travel Lanes		≤ 2 (no centreline)		
	Operating Speed		≥ 60 km/h		
	# of Lanes & Operating Speed LoS		F	-	-
	Bike Lane (+ Parking Lane) Width				
	Bike Lane Width LoS		-	-	-
	Bike Lane Blockages				
	Blockage LoS		-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge		
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes		
	Sidestreet Operating Speed		≥ 65 km/h		
	Unsignalized Crossing - Lowest LoS		E	-	-
	Level of Service		F	-	-
Transit	Facility Type	N	N/A		
	Friction or Ratio Transit:Posted Speed		N/A		
	Level of Service		N/A	-	-
Truck	Truck Lane Width	C	≤ 3.5 m		
	Travel Lanes per Direction		1		
	Level of Service		C	-	-
Auto	Level of Service	Not Applicable			