



2513287 ONTARIO INC

2822 Carp Road New Multi-Use Development

Transportation Impact Assessment

Certification

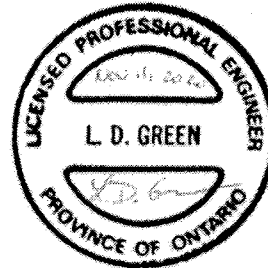
1. I have reviewed and have a sound understanding of the objectives, needs, and requirements of the City of Ottawa's Official Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the presentation of transportation impact assessment reports, including multimodal 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 or registered professional in good standing, whose field of expertise is either transportation engineering or transportation planning.

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



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1.0 Screening

1.1 Description of Proposed Development

Description of Location	The site is located on the east side of Carp Road, south of Arbourbrook Boulevard. The site is currently occupied by a used car dealer, it is bound by commercial property to the north, farm land to the east and south and Carp Road to the west, all surrounding land is zone as Rural Commercial (RC). The buildings are to be located in proximity to the existing structure at 2822 Carp Road with a driveway access to Carp Road near the southern extent of the property.
Ward	Ward 5 – West Carleton – March (Ei E-Chantiry)
Land Use Classification	RC9 – Rural Commercial Zone 9 for Carp Road Corridor (Highway commercial Restricted). Relevant permitted uses include: automobile service station, heavy equipment and vehicle sales, rental and servicing, parking lot, warehouse, light industrial, service and repair shop, and office.
Development Size	There will be two multi-tenant commercial buildings with a combined GFA of 1,198.74 square metres (sq.m). The following land uses are expected to occupy the property: auto sales (72.41 sq.m), auto body repair (351.03 sq.m), auto service & repair (282.02 sq.m), retail (206.55 sq.m) and general warehousing (286.73 sq.m).
Accesses	One access on Carp Road
Phases	One phase
Build-out year	2021

1.2 Trip Generation Trigger

Land Use Type	Minimum Development Size	Yes	No
Single-family homes	40 units		x
Townhomes or apartments	90 units		x
Office	3,500 sq.m.		x
Industrial	5,000 sq.m.		x
Fast-food restaurant or coffee shop	100 sq.m.		x
Destination retail	1,000 sq.m.		x
Gas station or convenience market	75 sq.m.		x
Other	60 person trips or more during weekday peak hours		x

1.3 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

1.4 Safety Triggers

	Yes	No
Are posted speed limits on a boundary street 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

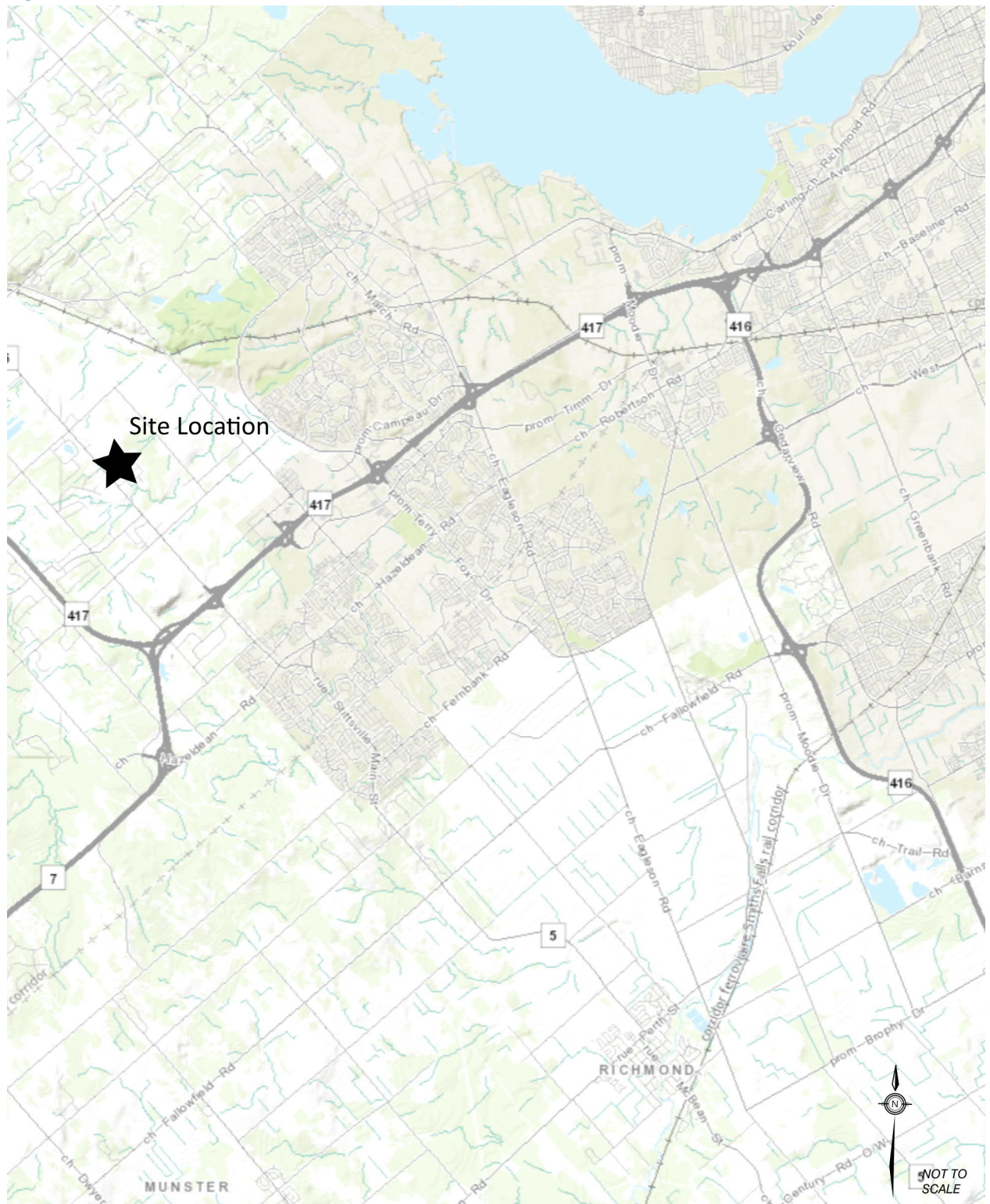
1.5 Summary

	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	

Since the development satisfies the location and safety triggers, both the design review component and the network impact component will be addressed in the TIA.

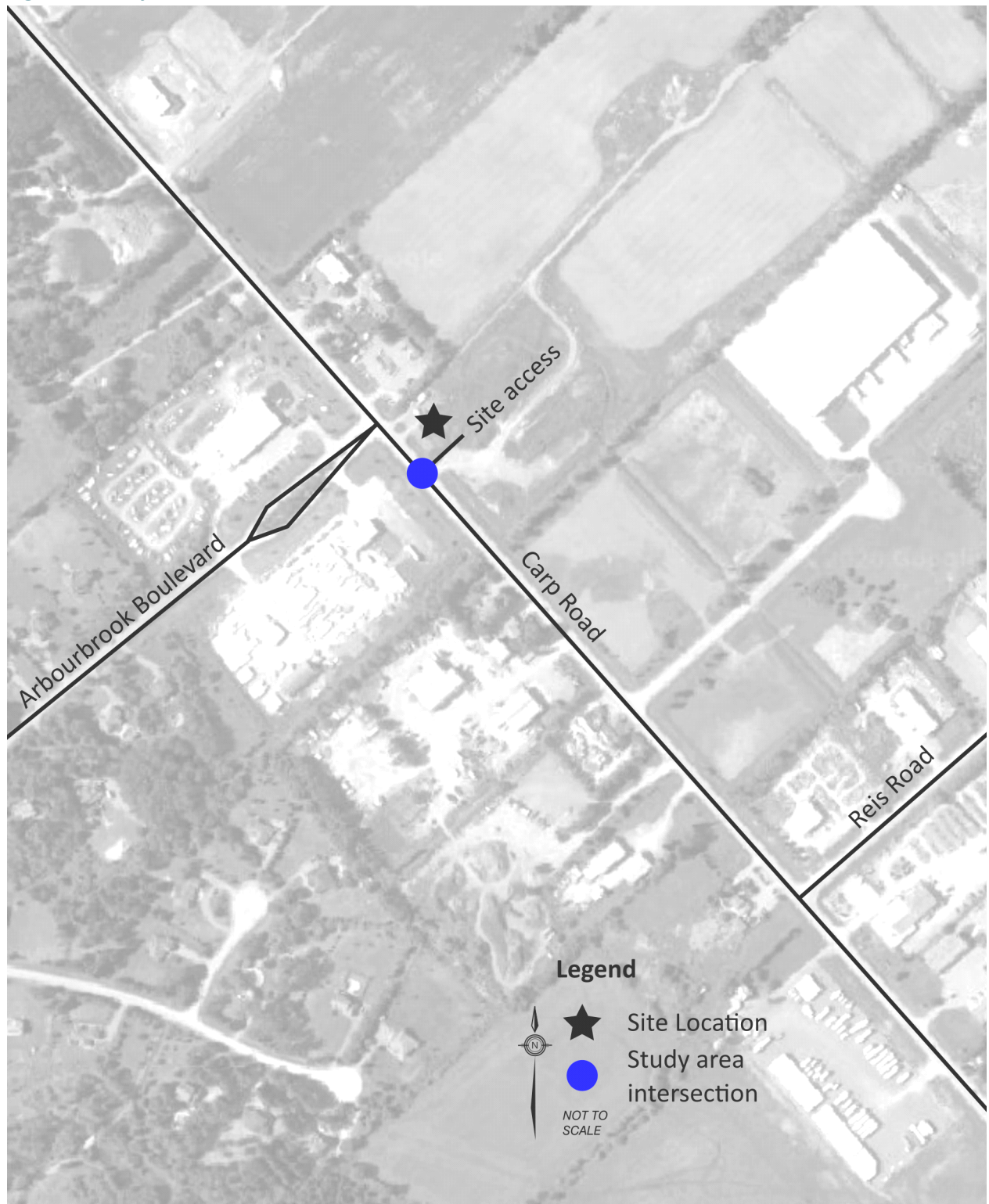
Figure 1 illustrates the site location. Figure 2 illustrates the study area intersections.

Figure 1: Site Location



Background map source: geoOttawa, accessed October 2020

Figure 2: Study Area Intersection



Background map source: Google Maps, accessed October 2020

2.0 Scoping

2.1 Existing and Planned Conditions

2.1.1 Proposed Development

Two (2) multi-tenant commercial buildings are proposed to be constructed to house auto sales, auto body repairs, auto services and repairs, retail, general warehousing and parking areas for staff and vehicles. The site plan provides for 85 auto parking spaces total, two (2) of which will be accessible parking and five (5) bicycle parking spaces.

The site plan indicates a future proposed access road south of the site to be developed by others, connecting Carp Road to a potential rural commercial developments east of the site location, but the future access road is not a part of this development application or site plan.

Figure 3 illustrates the proposed site plan.

2.1.2 Existing Conditions

2.1.2.1 Roads and Traffic Control

There are two roadways in the study area, they are described as follows:

Carp Road is a two-lane undivided, municipally-owned rural Arterial road with a posted speed limit of 80 km/h with paved shoulders. Carp Road is a truck route which runs north-south from Stittsville to Fitzroy Township and is classified as a cycling Spine Route within the study area.

The operating speed on Carp Road frequently approaches 100 km/h; the nearest traffic control signals are located approximately 2 kilometers (km) south at Richardson Side Road and 4 km north at March Road. There are no auxiliary turning lanes on Carp Road between these two signalized intersections.

Arbourbrook Boulevard is a two-lane, municipally-owned rural Local road with an unposted speed limit of 50 km/h and gravel shoulders. It is approximately 600 m long and runs east-west connecting Cud Street to Carp Road. It serves approximately 35 residential homes as well as Pride Marine Group (Boat repair shop) and Nepean Building Supplies.

2.1.2.2 Existing Driveways to Adjacent Developments

Within 200 metres north of the site driveway, there are eight driveways to residential and small commercial properties. Approximately 30 metres north of the site driveway is Arbourbrook Road, which provides access to two rural commercial properties and a residential subdivision.

2.1.2.3 Walking and Cycling

There is a paved shoulder on Carp Road which could be used by pedestrians and cyclists, but otherwise there are no pedestrian or cycling facilities in the vicinity of the site. However, Carp Road is classified as a cycling Spine Route in the City's Transportation Master Plan.

2.1.2.4 Transit

There are virtually no transit routes in the study area. OC Transpo route #303 travels north on Carp Road once a week on Wednesday.

2.1.2.5 Traffic Management Measures

There are no traffic management measures in the study area.

2.1.2.6 Traffic Volumes

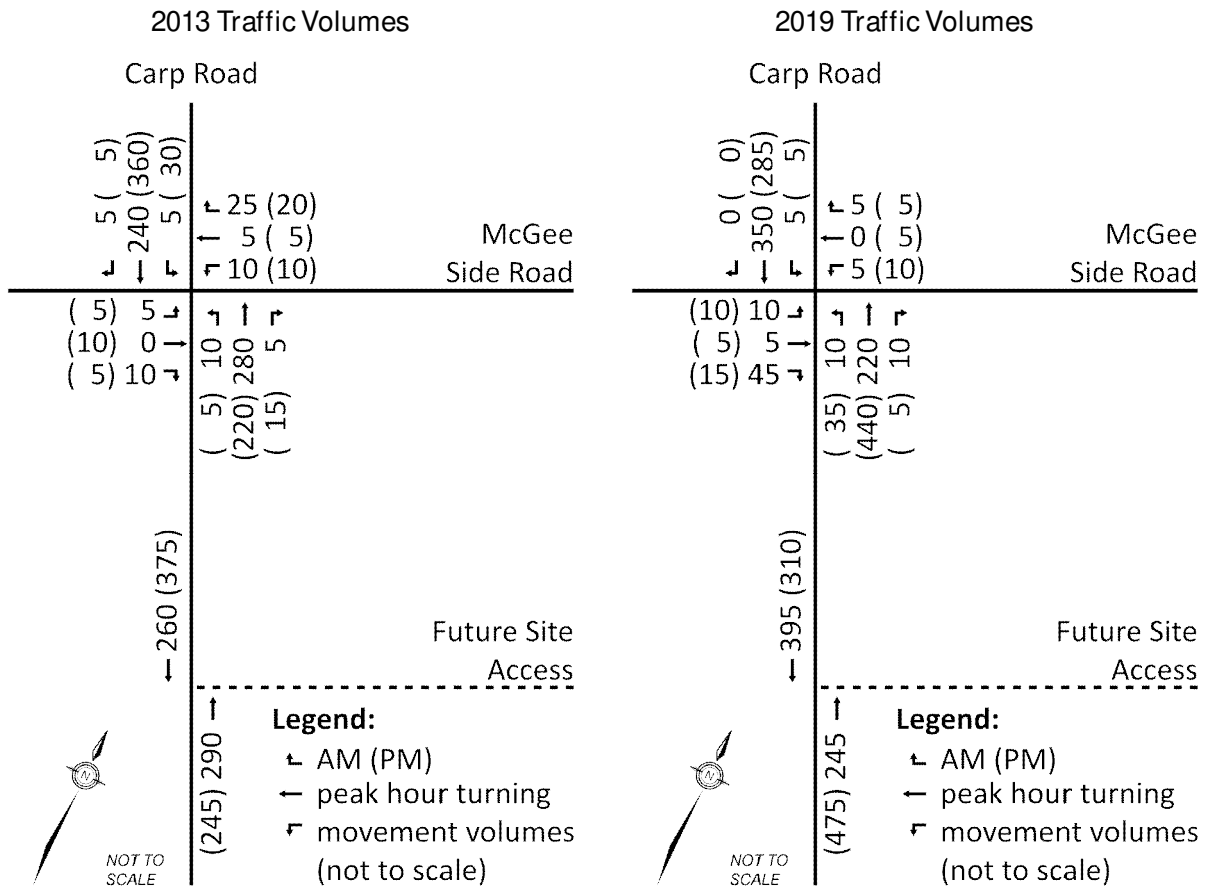
Table 1 summarizes the traffic count data used for this study. Traffic counts were used at the intersection of Carp Road at McGee Side road, located approximately 1 km north of the proposed site location. Historical counts were obtained to identify an appropriate background growth rate for the study area.

Table 1: Traffic Count Data

Intersection	Date	Source	Roadway Peak Hour
Carp Road / McGee Side Road	December 2013	Delcan Corporation (now Parsons)	AM: 7:30 – 8:30 PM: 4:00 – 5:00
	October 2019	Dillon Consulting Limited	AM: 6:45 – 7:45 PM: 4:15 – 5:15

Figure 4 and illustrates the 2013 and 2019 traffic volumes, which have been rounded to the nearest five (5) vehicles. The 2019 traffic volumes are significantly higher southbound during the AM peak hour and northbound during the PM peak hour, as compared to the December 2013 traffic volume data. Appendix A contains the existing traffic counts.

Figure 4: 2013 and 2019 Traffic Volumes



Note: inconsistencies are due to rounding

2.1.2.7

Collision History

Within approximately 200m of the proposed site access on Carp Road, there have been 10 collisions between 2013 and 2018 (inclusive). A brief summary is below:

- one (1) non-fatal injury occurred, seven (7) collisions experienced property damage only, and two (2) collisions did not have information regarding collision type;
- the type of impact from the collisions were turning movement (four collisions), single motor vehicle (three collisions), rear end (one collision), angle (one collision), and approaching (one collision);
- seven collisions occurred during clear weather, two during snow and one during rain;
- seven collisions occurred during daylight, two in the dark and one occurred dawn; and,
- the surface conditions during the time of collisions were wet (five collisions), dry (two collisions), slush (one collision), ice (one collisions), and two collision did not have information regarding surface conditions.

Overall there does not appear to be a history of collisions at the intersection and therefore no further investigation was performed.

2.1.3

Planned Conditions

2.1.3.1

Road and Transit Network Modifications

The City of Ottawa Transportation Master Plan (2013) does not identify any planned road network or transit network modifications in the vicinity of the site.

2.1.3.2

Walking and Cycling

Carp Road is identified as a Spine cycling route on the City's Primary Rural Cycling Network.

2.1.3.3

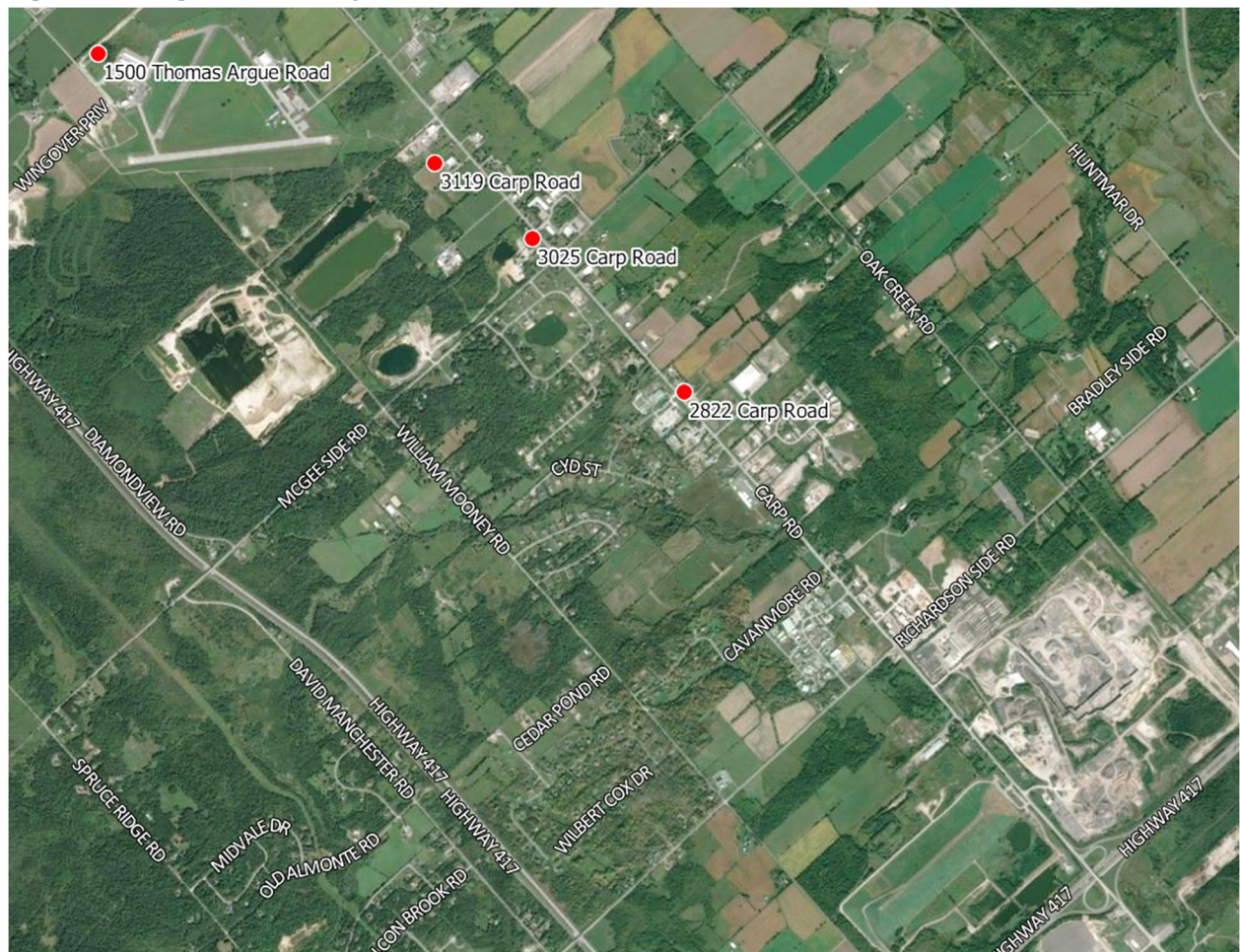
Future Background Developments

The City of Ottawa's Development Application website was reviewed to identify development applications in the vicinity of the site that might impact traffic volumes at study area intersections. The following applications were found, however may be dormant as they are several years old:

- 3119 Carp Road (a rural commercial/industrial subdivision of approximately 300,000 sq.ft.);
- 3025 Carp Road (warehouse rental bays, truck repair bays, and office space development with a GFA of approximately 875 sq.m); and,
- 1500 Thomas Argue Drive (zoning application to add cannabis production facility on the subject lands).

Figure 5 illustrates the location of these background developments with respect to the site at 2822 Carp Road and Highway 417.

Figure 5: Background Developments



2.2 Study Parameters

2.2.1 Study Area

The study area is limited to the Carp Road site access and turning movements in and out of the site. The TIA will also discuss the potential future access south of the site via a separate potential development.

2.2.2 Time Periods

The analysis will consider the weekday AM and PM roadway peak hours.

2.2.3 Horizon Years

Full occupancy of the site is expected in 2021. The transportation analysis will assess existing conditions, 2021 horizon year, and the forecast 2026 horizon year conditions.

2.3 Exemptions Review

Table 2 lists the TIA modules that will be excluded from this TIA.

Table 2: Exemptions Review

Module	Element	Exemption Consideration	Status
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Included
	4.1.3 New Street Networks	Only required for plans of subdivision	Excluded
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Included
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
4.3 Boundary Street	All Elements	Exempt.	Exempt
Network Impact Component			
4.5 Transportation Demand Mgmt.	All Elements	Not required for non-residential sites plans expected to have < 60 employees and/or students on location at any given time	Exempt
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on Local or Collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.7 Transit	All Elements	Exempt since there is limited transit service	Exempt
4.8 Network Concept	All Elements	Only required when proposed development generates more than 200 person trips during the peak hour in excess of the equivalent volume permitted by zoning	Exempt
4.9 Intersection Design	All Elements	Not required if site generation trigger is not met.	Exempt

3.0

Forecasting

3.1

Development-Generated Travel Demand

3.1.1

Trip Generation and Mode Shares

Table 3 summarizes the anticipated trip generation for the site during the peak hour of adjacent roadway traffic. The trip generation is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual does not have trip generation rates for every land use, so related land uses were used to estimate trip generation.

Given the location of the site, the site is anticipated to have a high auto mode share in line with typical ITE auto rates (assumed to be ~90%) and therefore no adjustments were made to the ITE trip generation.

Table 3: Proposed Development Vehicle Trip

Ste Plan Land Use	ITELand Use	GFA 1,000 Sq. Ft.	AM Peak Hour			PM Peak Hour		
			No. Trips	In	Out	No. Trips	In	Out
Auto sales	841: auto sales, used	0.78	2	76%	24%	3	47%	53%
Auto body repair	943: auto parts and service centre	3.78	7	73%	27%	9	40%	60%
Auto service & repair	943: auto parts and service centre	3.04	6	73%	27%	7	40%	60%
Retail	816: hardware/paint store	2.22	2	54%	46%	6	47%	53%
General warehouse	150: warehousing	3.09	26	77%	23%	28	27%	73%
Total		12.90	43	-	-	53	-	-

Table 4 summarizes the trip generation for the proposed development. The site is not anticipated to generate pass-by trips.

Table 4: Proposed Development Vehicle Trip Generation Traffic Volumes

Site Plan Land Use	ITE Land Use	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
Auto sales	841: auto sales, used	2	0	1	2
Auto body repair	943: auto parts and service centre	5	2	4	5
Auto service & repair	943: auto parts and service centre	4	2	3	4
Retail	816: hardware/paint store	1	1	3	3
General warehouse	150: warehousing	20	6	8	20
Total		32	11	19	34

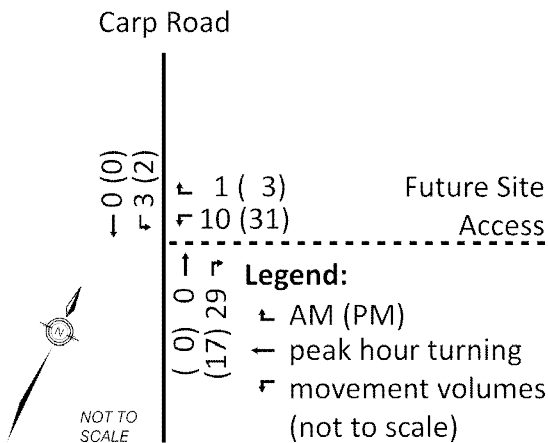
3.1.2 Trip Distribution

The trip distribution assumed within this analysis is 10% to/from the north and 90% to/from the south along Carp Road. This was based on the assumption that the majority of employees and customers would be from Ottawa which is south of the site.

3.1.3 Trip Assignment

Figure 6 illustrates the traffic volumes generated by the development during the peak hour of adjacent road traffic. Overall these volumes are very low and are not anticipated to create operational issues. The southbound left turn into the site is only three (3) vehicles during the AM peak hour which would not warrant a left turn lane into the site.

Figure 6: Site Generated Traffic Volumes



3.2 Background Network Travel Demand

3.2.1 Transportation Network Plan

There are no planned transportation network changes that would result in a change to the background network travel demands.

3.2.2 Background Traffic Volume Growth

The 2013 traffic count data was compared to the 2019 traffic count data to determine the growth rate in background traffic volumes. Table 5 summarizes the traffic volume growth rates at the proposed access on Carp Road based on the peak hours of each count.

The southbound direction has experienced 7% annual increase for the weekday AM peak hour and a 3% annual decrease during the weekday PM peak hour. The northbound direction shows a 3% annual decrease during the weekday AM peak hour and a 12% annual increase during the weekday PM peak hour.

Table 5: Traffic Growth Rate along Carp Road at Site Access Location

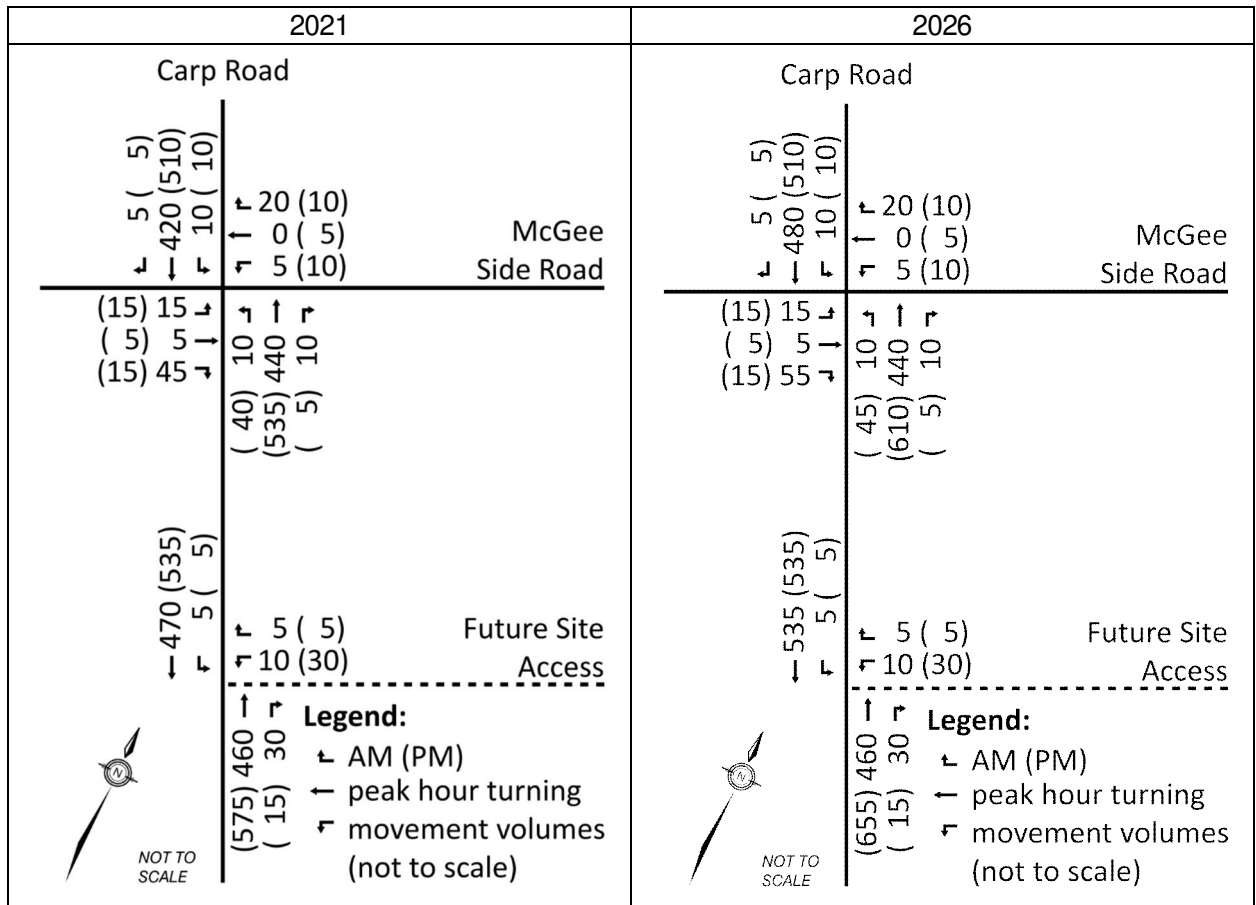
Approach	2013		2019		Compound Annual Growth Rate (CAGR)	
	AM 7:30-8:30	PM 4-5	AM 6:45-7:30	PM 4:15-5:15	AM	PM
Southbound	260	375	395	310	7%	-3%
Northbound	290	245	245	475	-3%	12%
Total / Average	550	620	640	785	3%	4%

Large increases or decreases of -3% to 12% are likely due to a single large development, construction activity, or may be a result of the limited amount of available historical traffic volume data. Growth rates greater than 3% annually are high and unlikely to be sustained.

For the purpose of this analysis, the following growth rates were used for the analysis; these rates were reviewed and approved by the City in 2019 for a different TIA just north of this site:

- 3% for southbound approach during the AM peak hour;
- 0% for northbound approach during the AM peak hour;
- 3% for northbound approach during the PM peak hour; and,
- 0% for southbound approach during the PM peak hour.

Figure 9: Total Traffic Volumes – 2021 and 2026



4.0 Analysis

4.1 Development Design

4.1.1 Design for Sustainable Modes

The site includes bicycle parking racks and concrete sidewalks around parts of the building between parking spaces and most building entrances. The parking lot will be gravel which could be challenging to navigate for cyclists, wheelchairs, and other walking aids if larger aggregate is used. It is recommended to use a finer graded aggregate to approximate a smooth compacted surface.

4.1.2 Circulation and Access

The majority of vehicles on site are anticipated to be passenger vehicles. The laneway is wide (6.7m) and many of the loading bays (except for 2) are located away from customer parking spaces, reducing the potential for conflicts with parked vehicles. The site provides more parking spaces than required by bylaw and these parking spaces can be used by the site's developments (auto sales, auto body repair, and auto repair) as loading areas.

Servicing the septic system at the back of the property may be challenging if all parking spaces are occupied. Blocking off parking spaces before septic system servicing should resolve any potential issues. Snow clearing using a small tractor or a truck with a snow plow is not anticipated to be an issue.

4.1.3 New Street Networks

The site plan shows a potential future access road south of the site. This access road would be included in a potential commercial business park. The timing of this access road is not known since it is not part of the 2822 Carp Road application. This TIA does not seek approval to build this access road; however, City staff requested a discussion about it.

The potential access road is approximately 65 metres south of the Arbourbrook Boulevard. The distance between the future intersection and Arbourbrook Boulevard is too short to provide back-to-back left turn lanes should they be required in the future. The requirement for back-to-back left turn lanes would be based on the traffic volumes generated by the potential future commercial business park to the east and south of the subject site.

The potential future access road should be moved to the southern portion of the adjacent property which would be approximately 140 metres south of Arbourbrook Boulevard which would be more likely to permit proper left turn lanes should they be required.

Figure 10 illustrates:

- (1) the location of the potential future access road as illustrated on the site plan,
- (2) the recommended location for the future access road opposite Arbourbrook Boulevard; and,
- (3) the alternate location if opposite Arbourbrook Avenue is not possible.

If the future access road south of the site is constructed, the 2822 Carp Road development should create a driveway to the new access road (as illustrated on the site plan). The existing Carp Road driveway should be closed or restricted to right-in/right-out only. This would improve safety since it consolidates the location of left turns to and from Carp Road, and removes the potential for miscommunication during signaling for closely spaced intersections.

Figure 10: Potential New Access Road Locations



Background image source: geoOttawa; yellow lines show property parcel boundaries

4.2 Parking

4.2.1 Parking Supply

Table 6 indicates the parking requirements for the proposed development based on Part 4 of the City of Ottawa Zoning by-law 2016-249.

The by-law requirements shows that 35 vehicle parking spaces, one (1) accessible space and three (3) bicycle parking spaces are required. The building design includes 85 vehicle parking spaces, two (2) accessible parking space, and five (5) bicycle parking spaces. This site provides more parking spaces than required and therefore the spillover parking assessment is not required.

Table 6: City of Ottawa By-law Parking Requirements (By-law 2016-249)

Land Use	Size (sq.m.)	Service Bays	Vehicle Parking Spaces (By-law Table 101)		Bicycle Parking Spaces (By-law Table 111A)	
			Rate	Spaces Required	Rate	Spaces Required
Automobile Dealership	72	1	2 per 100 m ² of showroom/sale area GFA, 2 per service bay, 1 per 100 m ² of other GFA	2x72 m ² /100 m ² + 2x1 service bay 3.4 (4)	1 per 500 m ² of GFA	0.14 (1)
Automobile Body Shop	351	4	3 per service bay	3x4 service bays 12	1 per 500 m ² of GFA	0.70 (1)
Automobile Service Station	282	5	1 per 100 m ² of GFA or 2 per service bay	1x282 m ² /100 m ² 2.8 spaces or 2x5 service bays 10	1 per 500 m ² of GFA	0.56 (1)
Retail Store	207	-	3.4 per 100 m ² of GFA	3.4x207 m ² /100 m ² 7	1 per 250 m ² of GFA	0.83 (1)
Warehouse	287	-	0.8 per 100 m ² of GFA	0.8 m ² /100 m ² 2.3 (2)	1 per 2000 m ² of GFA	0.14 (1)
Total	1,199	-	-	35 Spaces	-	5 Spaces

4.2.2 Spillover Parking

Exempted during screening and scoping report.

4.3 Boundary Street Design

Exempted at pre-consultation meeting.

4.4 Access Intersections

4.4.1 Location and Design of Access

The site access is located on the east side of Carp Road approximately 30 metres south of the Arbourbrook Boulevard intersection, which is a two-way stop-controlled, three-leg intersection. The majority of traffic generated by the site is anticipated to be primarily to and from the south of the site. Site traffic is not anticipated to create a safety concern.

4.4.2 Intersection Control

Table 7 summarizes the site access intersection performance based on the future traffic volumes and Appendix C contains the Synchro reports. The analysis demonstrates that the site access will operate well as a two-way, stop-controlled intersection. The 2021 horizon was not analyzed since the 2026 intersection performance is acceptable.

Table 7: Intersection Performance - Site Access

Scenario	Mvmt.	LOS		Delay (s)		V/C		Queue (veh)	
		AM	PM	AM	PM	AM	PM	AM	PM
2026 Total Traffic	WBL/R	C	D	20.3	28.9	0.05	0.20	0.2	0.7
	SBL/T	A	A	8.5	9.1	0.00	0.00	0.0	0.0

Note: LOS means Level of Service, Mvmt. means turning movement, "V/C" means Volume-to-Capacity ratio, Queue (veh) means 95th percentile queue length in terms of the number of vehicles queued.

4.4.3 Intersection Design - Site Access

The site is expected to generate less than five (5) southbound left turns during any given peak hour, therefore a left turn lane is not warranted due to the low volume of turning vehicles.

4.5 Transportation Demand Management

Exempted during screening and scoping report.

4.6 Neighbourhood Traffic Management

Exempted during screening and scoping report.

4.7 Transit

Exempt since there is limited transit service in the area.

4.8 Network Concept

Exempted during screening and scoping report.

4.9 Intersection Control and Design

Exempt during screen and scoping.

5.0

Conclusions

The site is anticipated to generate less than 60 vehicle trips during the AM and PM peak hours, with the majority of these vehicle trips originating or destined to the south. Very few vehicles (less than 5 vehicles in the peak hour) are anticipated to turn into the site from the north therefore a southbound left turn lane is not warranted. Two-way stop control is appropriate for the site driveway onto Carp Road.

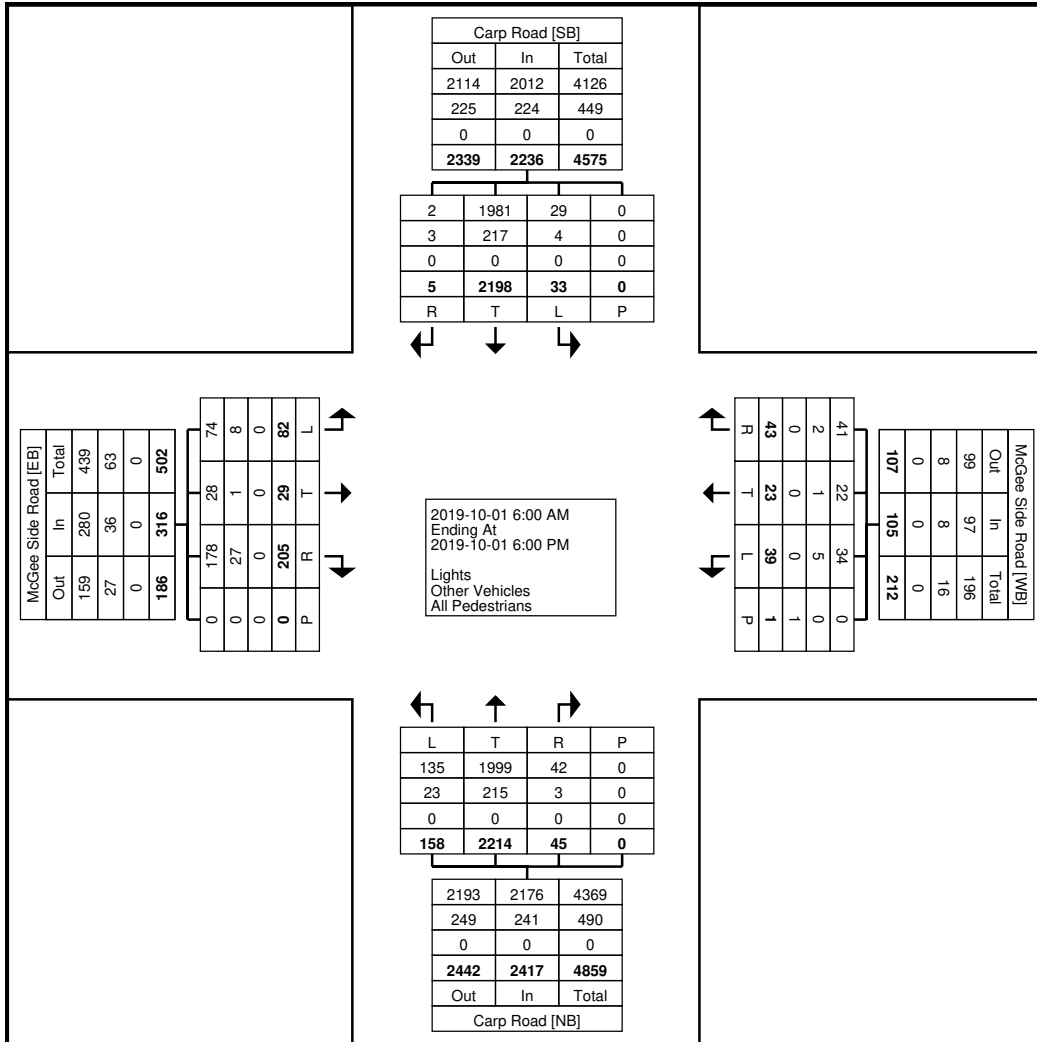
The site is anticipated to operate well with plenty of parking spaces that can be used by the various land uses on the site. Some parking spaces may need to be reserved/cleared before septic servicing. The site should use finely graded aggregate or an asphalt surface on the parking lot to provide better access for cyclists, wheelchairs, and people with other mobility aids.

If the potential future access road is built (to service a commercial business park east/south of 2822 Carp Road), it should be located as far south from Arbourbrook Avenue as possible. The potential future access road as conceptually illustrated on the site plan may not be supported by the City. The 2822 Carp Road development should seek to gain access to any future roadway connection to Carp Road, either via a direct internal roadway connection or through a joint access arrangement with adjacent properties.

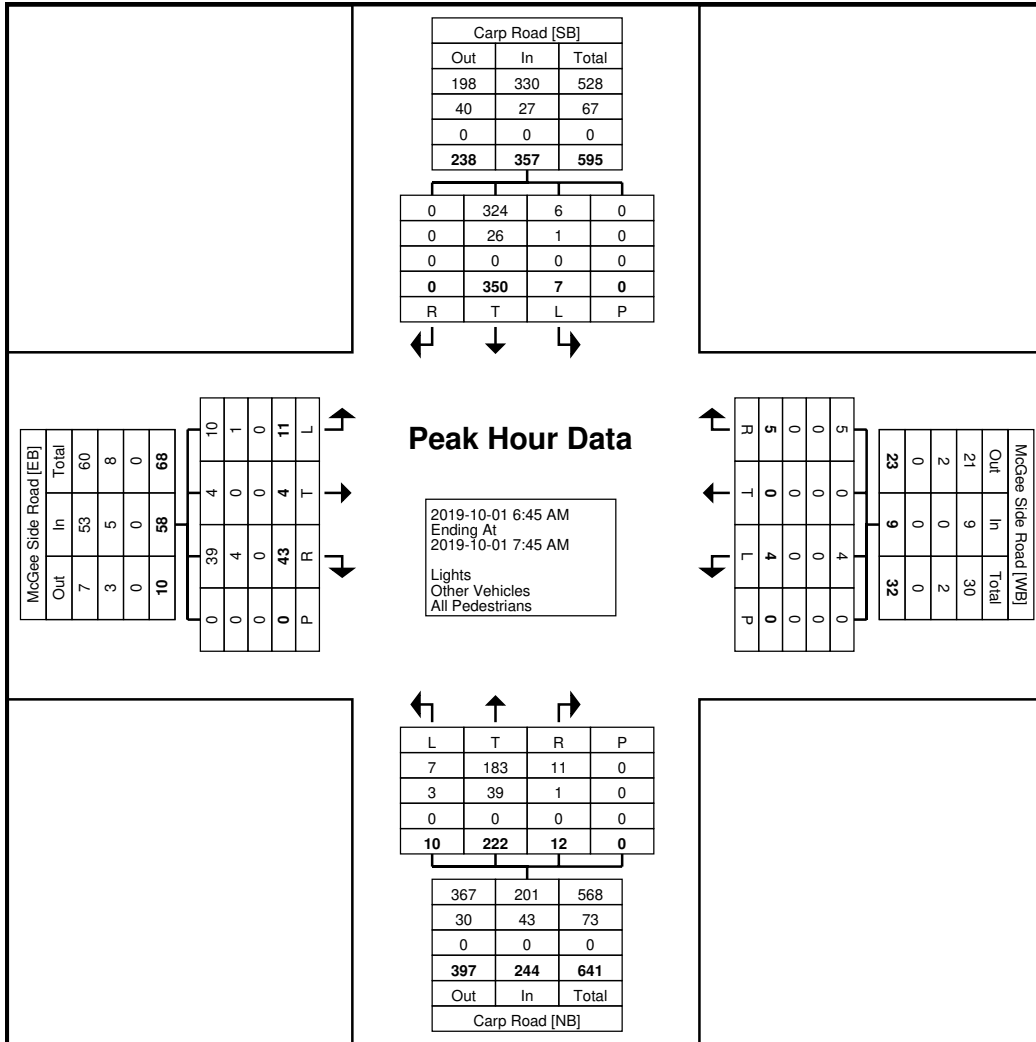
From a transportation operations perspective, the proposed development at 2822 Carp Road should be permitted to proceed.

Appendix A

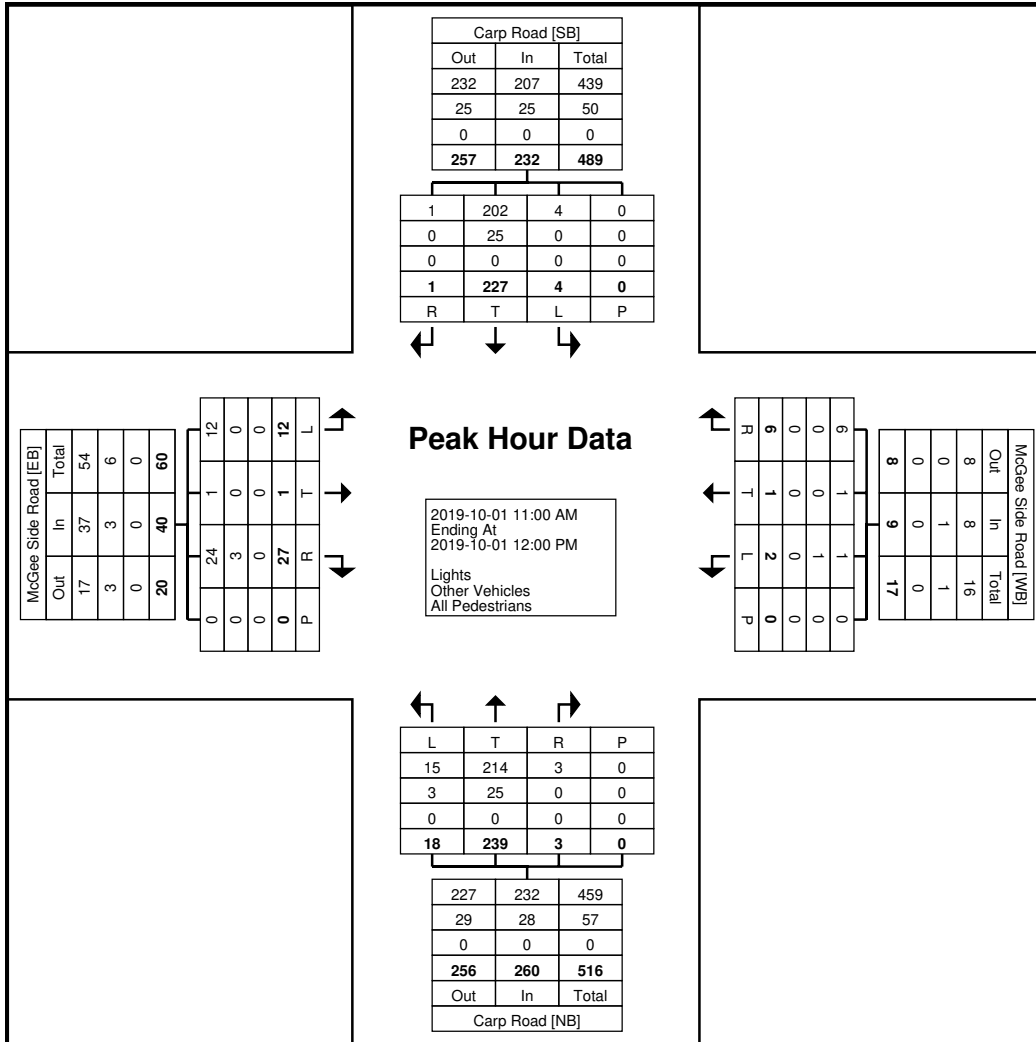
Traffic Counts



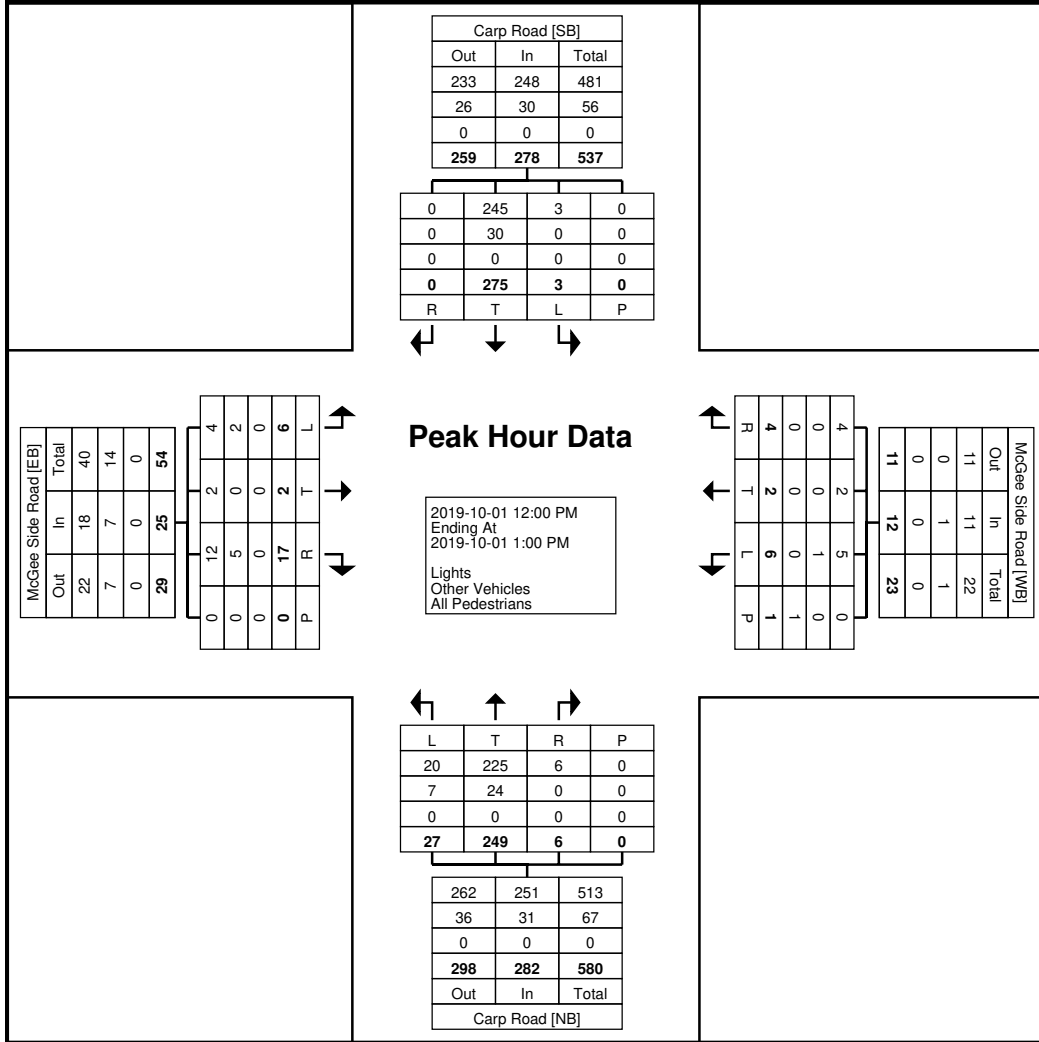
Turning Movement Data Plot



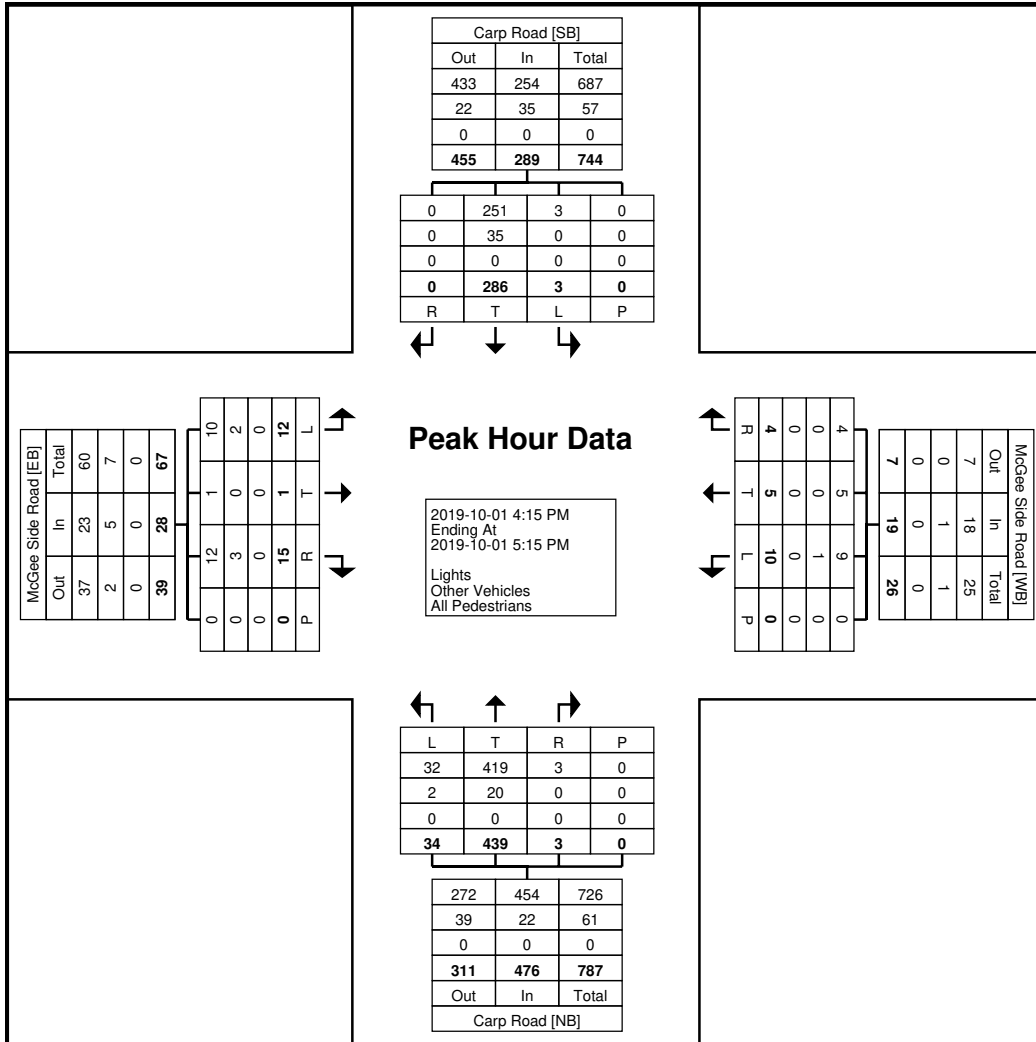
Turning Movement Peak Hour Data Plot (6:45 AM)



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)

DIRECTIONAL TRAFFIC FLOW

Intersection: Carp at McGee Side

DATE: Day: 4 Month: December Year: 2013 Day of Week: Wednesday

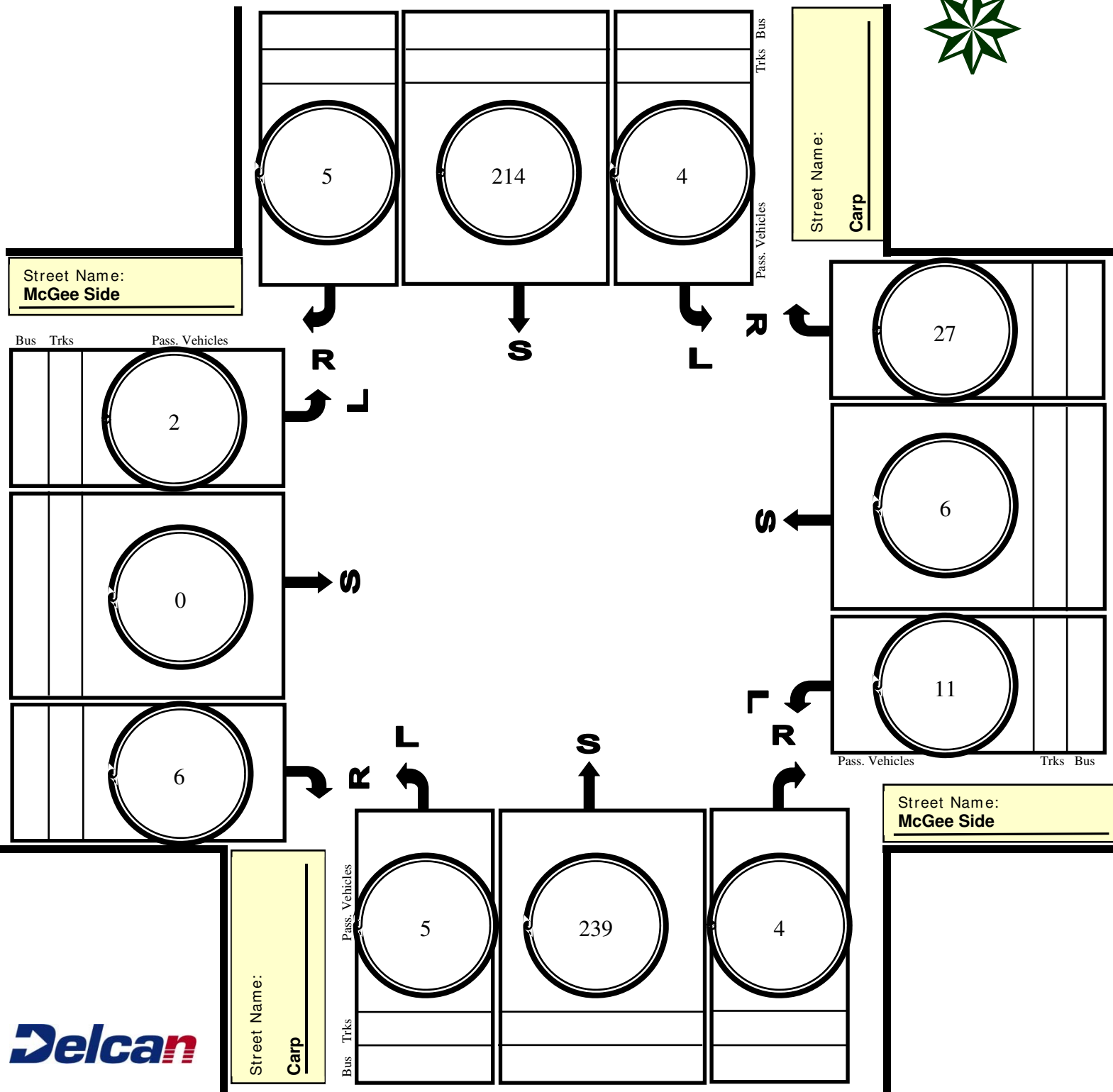
Observer: Cathie Lytle Weather: Clear

Chkd by: _____ Date: _____

TIME PERIOD: From: 7 : 30 To: 8 : 30

Instructions: 1) Use tally marks to indicate vehicles.
2) Use one sheet for each 15-minute period.

N



DIRECTIONAL TRAFFIC FLOW

Intersection: Carp at McGee Side

DATE: Day: 4 Month: December Year: 2013 Day of Week: Wednesday

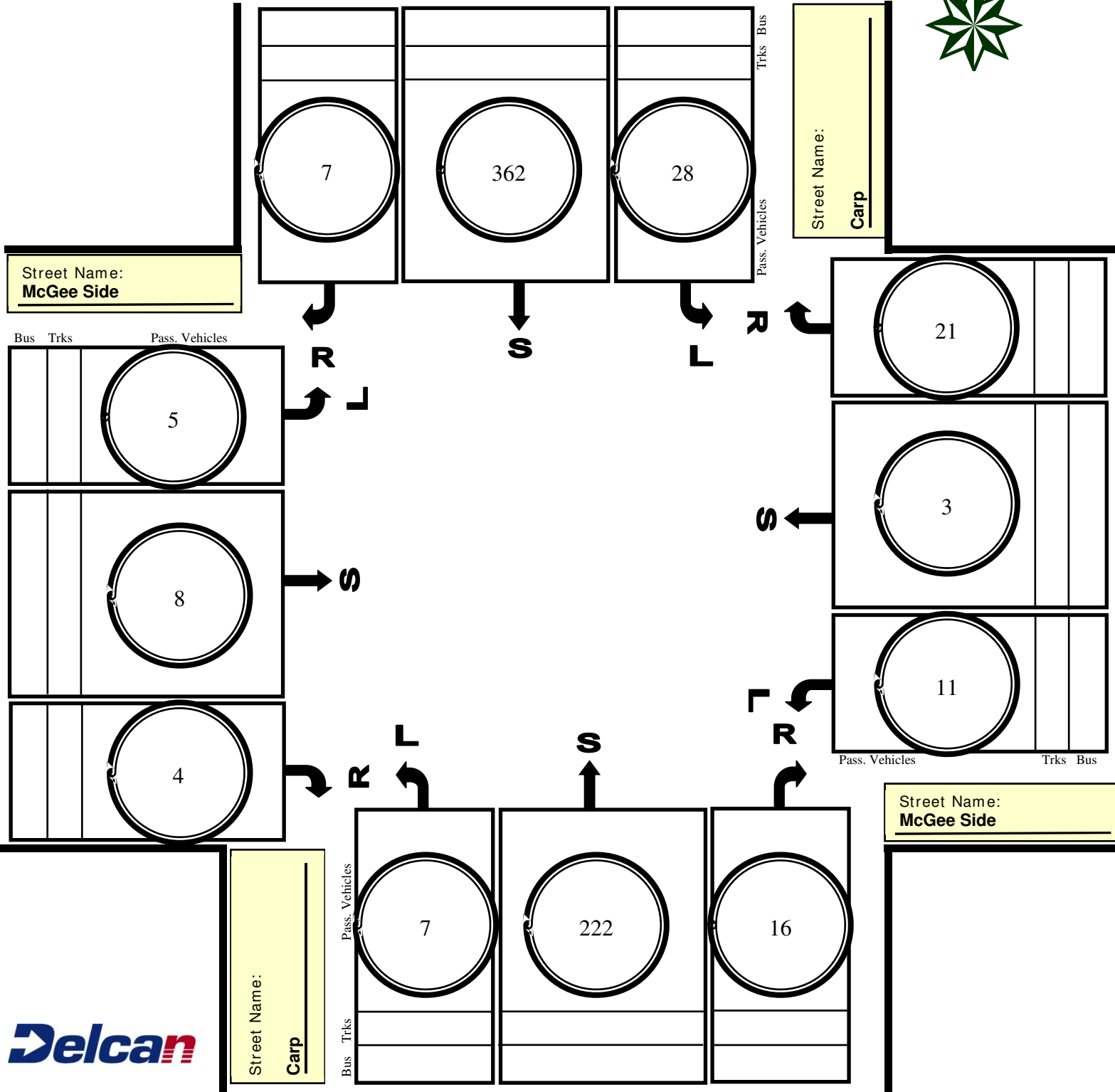
Observer: Cathie Lytle Weather: Clear

Chkd by: _____ Date: _____

TIME PERIOD: From: 4 : 00 To: 5 : 00

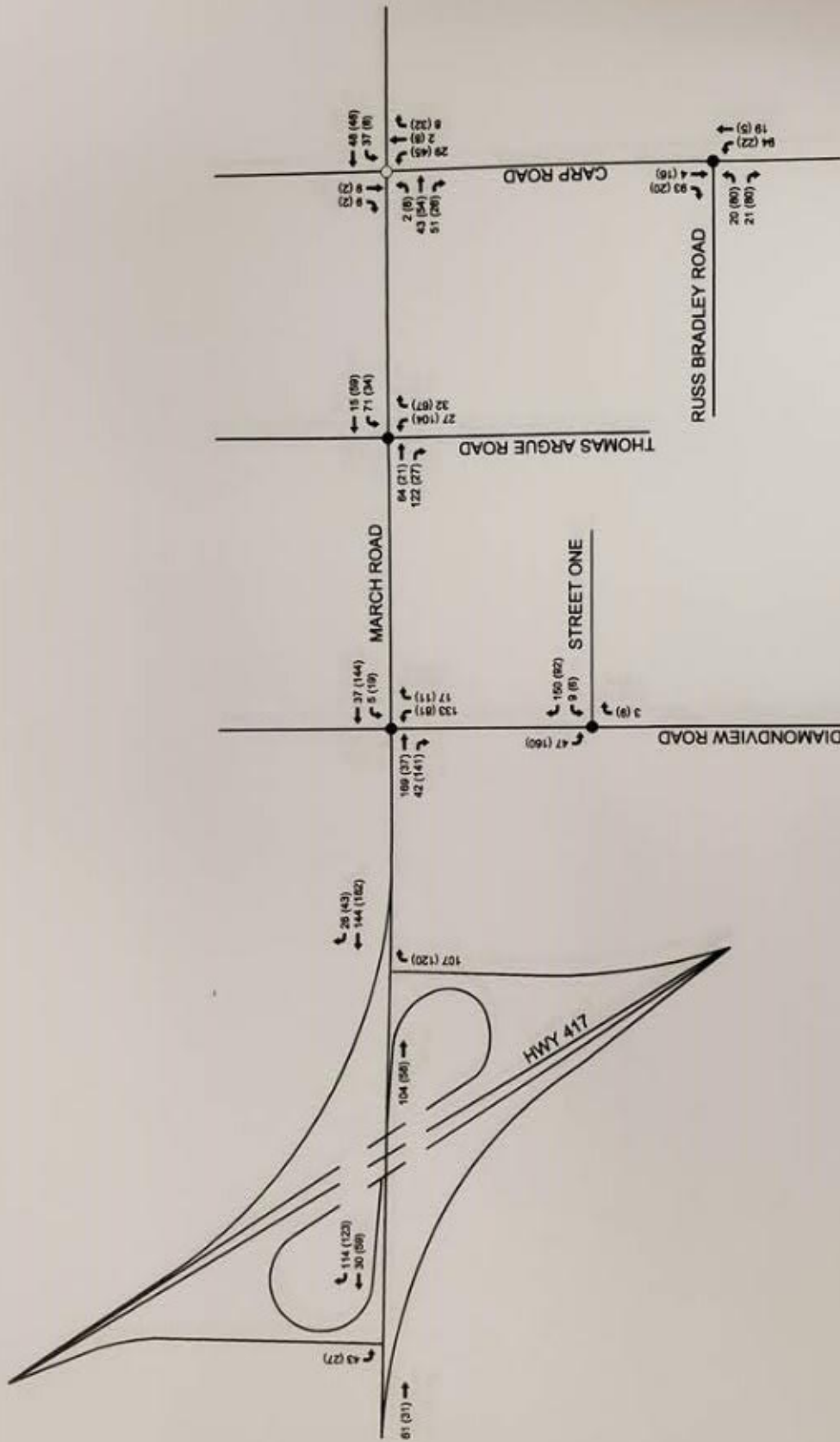
- Instructions: 1) Use tally marks to indicate vehicles.
2) Use one sheet for each 15-minute period.

N



Appendix B

Background Developments



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

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Figure 5: Assignment of Projected Site-Generated Traffic

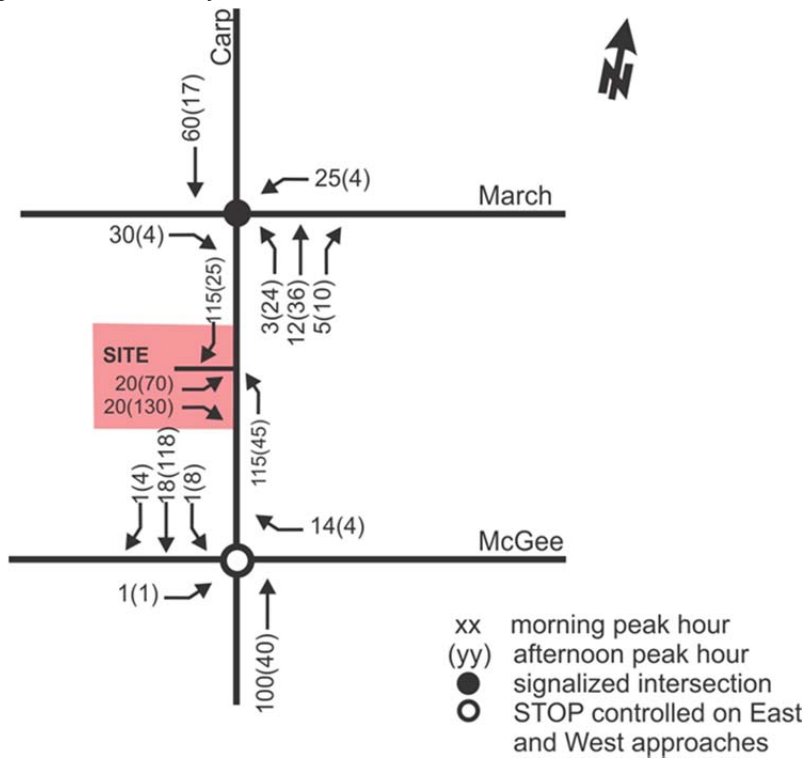


Figure 6: Total Projected Horizon Year Traffic Volumes

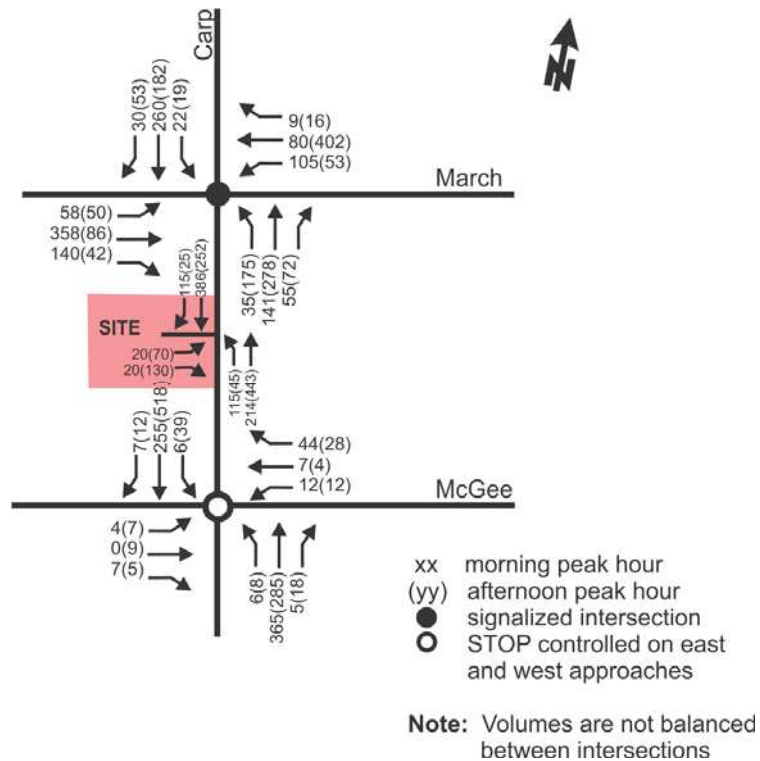
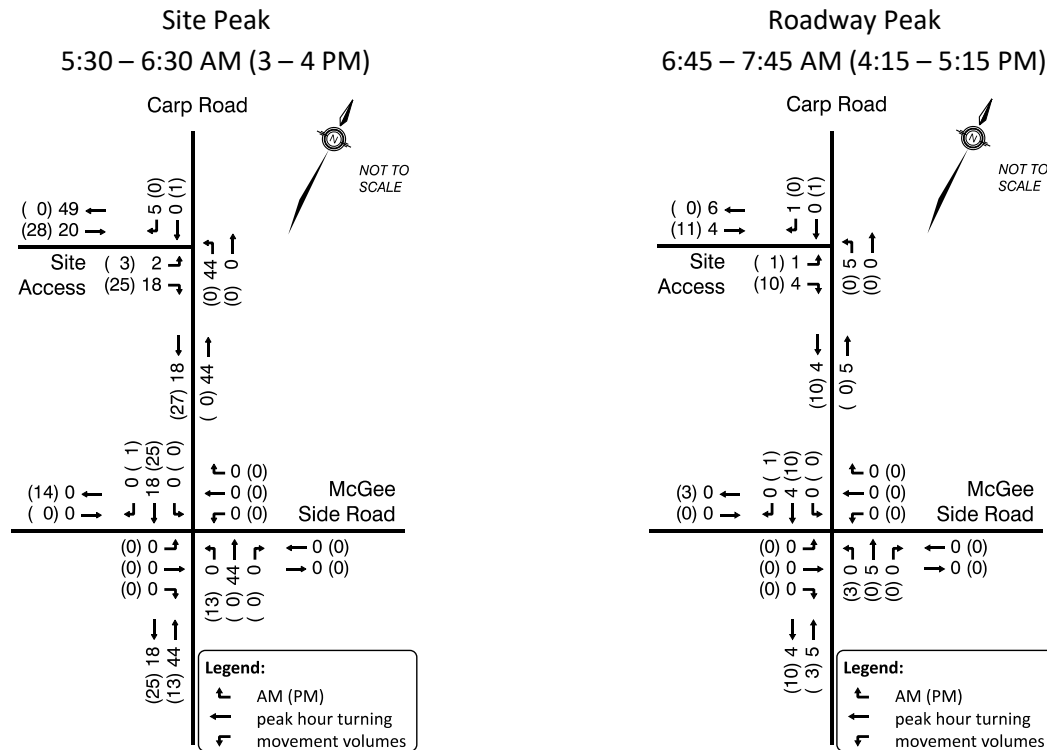


Figure 7: Site Generated Traffic Volumes



3.2 Background Network Travel Demand

3.2.1 Transportation Network Plan

There are no planned transportation network changes that would result in a change to the background network travel demands.

3.2.2 Background Traffic Volume Growth

The 2013 traffic count data was compared to the 2019 traffic count data to determine the growth rate in background traffic volumes. **Table 4** summarizes the traffic volume growth rates at the Carp Road and McGee Side Road intersection based on the peak hours of each count. **Table 5** summarizes traffic volume growth rates based on using the exact same peak hour as was observed in the 2013 traffic count.

The southbound direction has experienced 5-8% annual increase for the weekday AM peak hour and a 5-6% annual decrease during the weekday PM peak hour. The northbound direction shows virtually no change during the weekday AM peak hour and a 12% annual increase during the weekday PM peak hour.

Appendix C

Synchro Reports

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	10	1	462	29	3	535
Future Vol, veh/h	10	1	462	29	3	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	- None		- None		- None	
Storage Length	0	-	-	-	-	-
Veh in Median Storage#	-	0	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	9	0	0	7
Mvmt Flow	11	1	502	32	3	582

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1106	518	0	0	534
Stage 1	518	-	-	-	-
Stage 2	588	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuve	235	562	-	-	1044
Stage 1	602	-	-	-	-
Stage 2	559	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuve	234	562	-	-	1044
Mov Cap-2 Maneuve	234	-	-	-	-
Stage 1	602	-	-	-	-
Stage 2	557	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	247	1044	-
HCM Lane V/C Ratio	-	-	0.048	0.003	-
HCM Control Delay (s)	-	-	20.3	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	31	3	655	17	2	535
Future Vol, veh/h	31	3	655	17	2	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	- None		- None		- None	
Storage Length	0	-	-	-	-	-
Veh in Median Storage#	-	0	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	4	0	0	7
Mvmt Flow	34	3	712	18	2	582

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1307	721	0	0	730
Stage 1	721	-	-	-	-
Stage 2	586	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	178	431	-	-	883
Stage 1	485	-	-	-	-
Stage 2	560	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	177	431	-	-	883
Mov Cap-2 Maneuver	177	-	-	-	-
Stage 1	485	-	-	-	-
Stage 2	558	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay	28.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	187	883	-
HCM Lane V/C Ratio	-	-	0.198	0.002	-
HCM Control Delay (s)	-	-	28.9	9.1	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-