CARLING APARTMENTS
1940 CARLING AVENUE
OTTAWA, ONTARIO

FORECASTING DOCUMENT

December 29, 2021

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Consulting Transportation Engineers
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Prepared for:

2704183 Ontario Ltd.

740 TIA Forecasting_2.doc

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INTRODUCTION

The Carling Avenue Apartments will be situated on a parcel of land at 1940 Carling Avenue. The site is currently occupied by a single-family home which will be replaced by 64 rental apartments. The apartment building will have one access from an underground parking garage to Carling Avenue with completion expected by 2024.

The Transportation Impact Assessment (TIA) report will be examining the operation of the apartment building access and connecting road segments and intersections in close proximity to the site. The study will follow the City of Ottawa document, *Transportation Impact Assessment Guidelines (2017)*. Exhibit 1.1 in the Appendix presents the consultants Certification Form.

STEP 1 - SCREENING

A Screening Form has been prepared which is included as Exhibit 1.2 in the Appendix. The Screening Form has satisfied the Location Trigger which required the study to proceed to the Scoping Document stage of the Transportation Impact Assessment (TIA). The following will address the requirements of the Scoping Document.

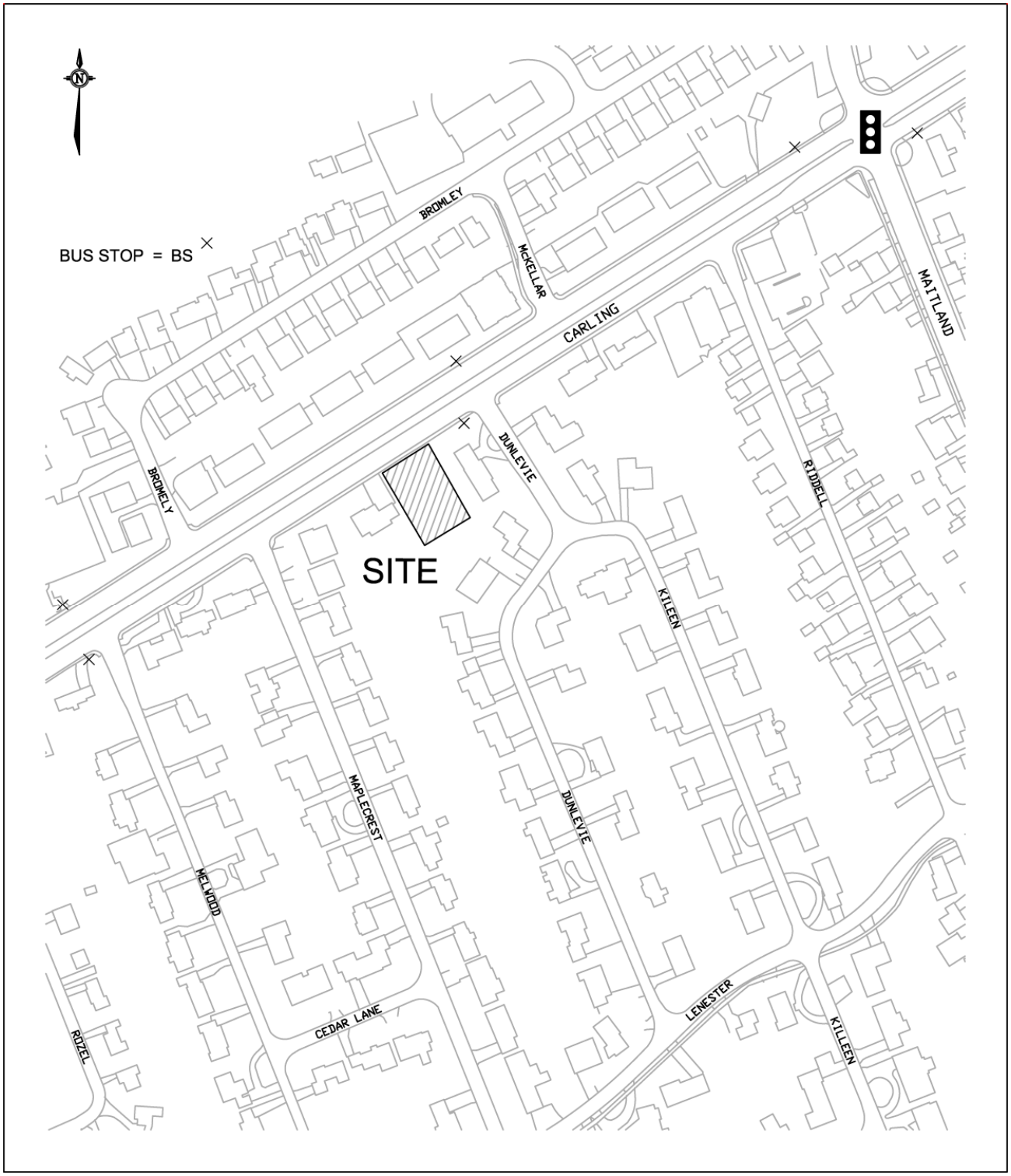
STEP 2 - SCOPING

MODULE 2.1 – Existing and Planned Conditions

Element 2.1.1 – Proposed Development

The proposed apartment development is located at 1940 Carling Avenue in the City of Ottawa. The site is situated on the south side of Carling Avenue approximately 555 m east of the intersection of Iroquois Road and Carling Avenue, and 315 m west of the intersection of Maitland Avenue and Carling Avenue. The development will consist of 64 rental apartments on a 1,451.03 m^2 lot. The site is currently occupied by one single-family home with the land designated as AM10[2118] H(20) “Arterial Mainstreet Zone” which will support the development. Figure 2.1 provides a site location plan of the development.

FIGURE 2.1
SITE LOCATION PLAN



NOT TO SCALE

The apartment building will have one access onto Carling Avenue which will provide access to the underground parking garage containing a total of 32 parking spaces including 6 visitor parking spaces (3 surface and 3 within the parking garage). The parking provided does meets the City of Ottawa By-law requirement of 31 parking spaces.

Bicycle parking will be provided in a secured bike storage room in the underground parking garage. The storage room will provide bike parking for residents along with a bike rack close to the entrance to the building for visitors. The By-laws require the apartment development to provide parking for 32 bicycles with the Site Plan providing storage for 57 bicycles.

The apartment development is expected to be completed and substantially occupied by the year 2024. Figure 2.2 provides a conceptual site plan of the total development.

Element 2.1.2 – Existing Conditions

The site is currently occupied by one single-family house with two site access points onto Carling Avenue. Both accesses are restricted to right-in/right-out turning movements due to the existing centre median along Carling Avenue.

The following will describe the major road segments and intersections within the study area.

CARLING AVENUE

Carling Avenue is a six lane road under the jurisdiction of the City of Ottawa. The City of Ottawa Transportation Master Plan (TMP) has identified Carling Avenue as an arterial road and a Spine Route in the cycling network. There are no dedicated cycling lanes along the road.

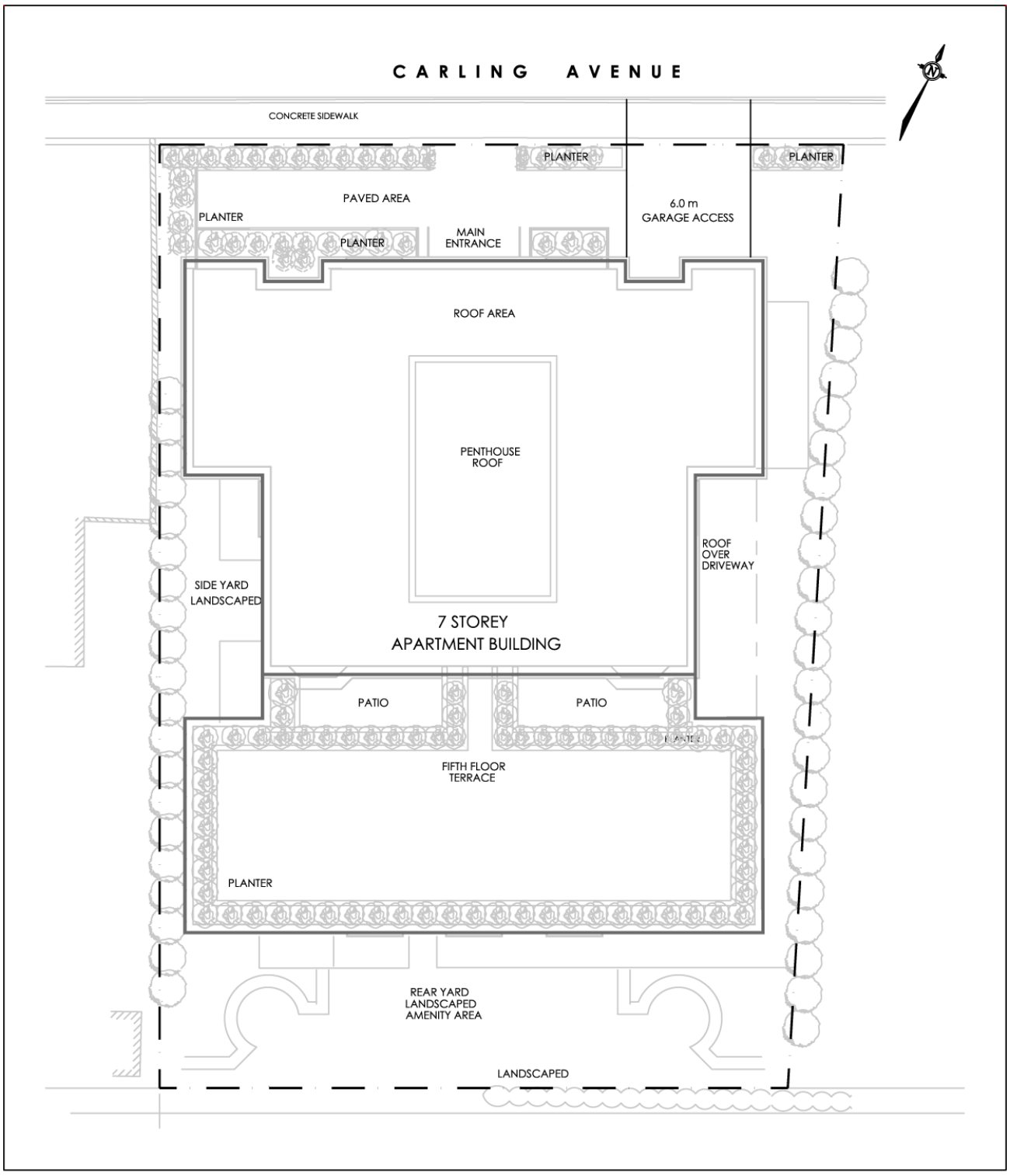
The road has an urban cross section with 1.5 m wide sidewalks along both sides of the road adjacent to the curb. The posted speed limit is 60 km./h. in the vicinity of the site.

STREETS WITHIN THE STUDY AREA

Maitland Avenue located 315 m east of the site is designated in the TMP as an arterial road and Sherbourne Road a major collector road. Iroquois Road 555 m west and Hare Avenue 345 m west of the site are both designated as local streets.

Local streets and driveways along the south side of Carling Avenue in close proximity to the site would be Dunlevie Avenue locate 55 m east of the site, Maplecrest Avenue located 95 m west of the site, and a private driveway to the adjacent single-family home located 22 m west of the site. Due to the continuous centre median along Carling Avenue, all intersections have turning movements restricted to right-in/right-out.

FIGURE 2.2
CONCEPTUAL SITE PLAN



NOT TO SCALE

INTERSECTION OF CARLING AVENUE AND MAITLAND AVENUE

The Carling/Maitland intersection is a signalized intersection with Carling Avenue forming the eastbound and westbound approaches, Maitland Avenue the northbound approach, and Sherbourne Road the southbound approach. The intersection is located 315 m east of the site. Below is the existing lane configuration to the intersection:

Northbound Maitland Avenue	One left turn lane (70 m storage) One shared through/right lane
Southbound Sherbourne Road	One left turn lane (40 m storage) One shared through/right lane
Eastbound Carling Avenue	One left turn lane (51 m storage) Two through lanes One shared through/right lane
Westbound Carling Avenue	Two left turn lanes (105 m storage each) One through lane One shared through/right lane

An aerial photograph of the Carling/Maitland intersection showing the intersection geometry is provided below.

INTERSECTION OF CARLING AVENUE AND MAITLAND AVENUE

INTERSECTION OF CARLING AVENUE AND IROQUOIS ROAD

The intersection of Carling Avenue and Iroquois Road is controlled by traffic signals with Carling Avenue forming the eastbound and westbound approaches, and Iroquois Road the northbound and southbound approaches. The intersection is located 555 m west of the site. The Carling/Iroquois intersection has two traffic islands for the eastbound and westbound Carling Avenue right turn movement. Below is the existing lane configuration to the Carling/Iroquois intersection:

Northbound Iroquois Road	One shared left/through/right lane
Southbound Iroquois Road	One left turn lane (80 m storage)
	One shared through/right lane
Eastbound Carling Avenue	One left turn lane (25 m storage)
	Three through lanes
	One channelized right turn lane
Westbound Carling Avenue	One left turn lane (25 m storage)
	Three through lanes
	One channelized right turn lane

The westbound Carling Avenue channelized right turn lane becomes a bus priority lane from the termination of the right turn lane at the island to the stop bar at the intersection.

The intersection lane geometry is provided below in an aerial photograph.

INTERSECTION OF CARLING AVENUE AND IROQUOIS ROAD

INTERSECTION OF CARLING AVENUE AND HARE AVENUE

The intersection of Carling Avenue and Hare Avenue is a minor intersection which is located 345 m west of the site. Hare Avenue is designated in the City of Ottawa TMP as a local street. The intersection is a "T" intersection with Carling Avenue forming the eastbound and westbound approaches and Hare Avenue the northbound approach. The intersection is a two-way stop controlled intersection with a stop sign at the northbound Hare Avenue approach. Below is the existing lane configuration to the Carling/Hare intersection:

Northbound Hare Avenue	One shared left/right turn lane
Eastbound Carling Avenue	Two through lanes
	One shared through/right lane
Westbound Carling Avenue	One left turn lane (25 m storage)
	Three through lanes

An aerial photograph of the Carling/Hare intersection showing the intersection geometry is provided below.

INTERSECTION OF CARLING AVENUE AND HARE AVENUE

The most recent traffic counts were obtained from the City of Ottawa for the Carling/Maitland and Carling/Iroquois intersections with Figure 2.3 showing the peak AM and PM hour intersection counts. The counts are provided in the Appendix as

FIGURE 2.3
2017 PEAK AM AND PM HOUR TRAFFIC COUNTS

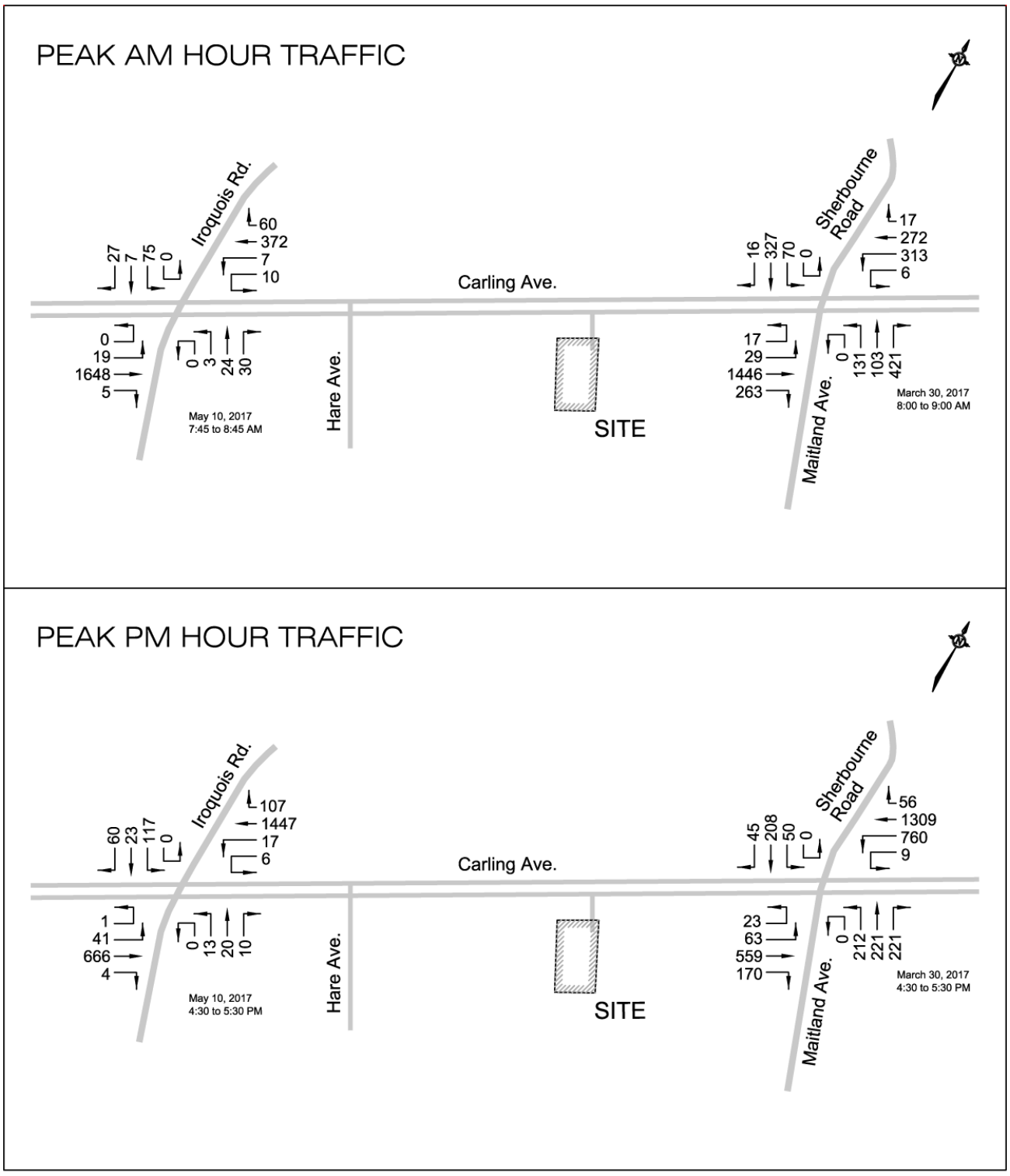


Exhibit 2.1 for the March 30, 2017 counts at the Carling/Maitland (Sherbourne) intersection, and Exhibit 2.2 for the May 10, 2017 counts at the Carling/Iroquois intersection.

TRANSIT

The site is serviced by OC Transpo Frequent Route 85 which travels along Carling Avenue past the site with bus stops located 45 m east of the site for eastbound travel, and on the north side of Carling Avenue 50 m east of the site for westbound travel. Route 85 provides 20 minute service during peak hours with service between the Pimisi Transit Station and Bayshore Shopping Centre.

Local Route 153 is a local route providing 7 day a week service. The nearest bus stop is located at a 720 m walk in the Carlingwood Shopping Centre. Route 153 provides 120 minute peak hour bus service with service to Tunney's Pasture.

The Route 85 and Route 153 maps are provided in the Appendix as Exhibit 2.3 with the location of the bus stops shown in Figure 2.1 (Site Location Plan).

COLLISION HISTORY

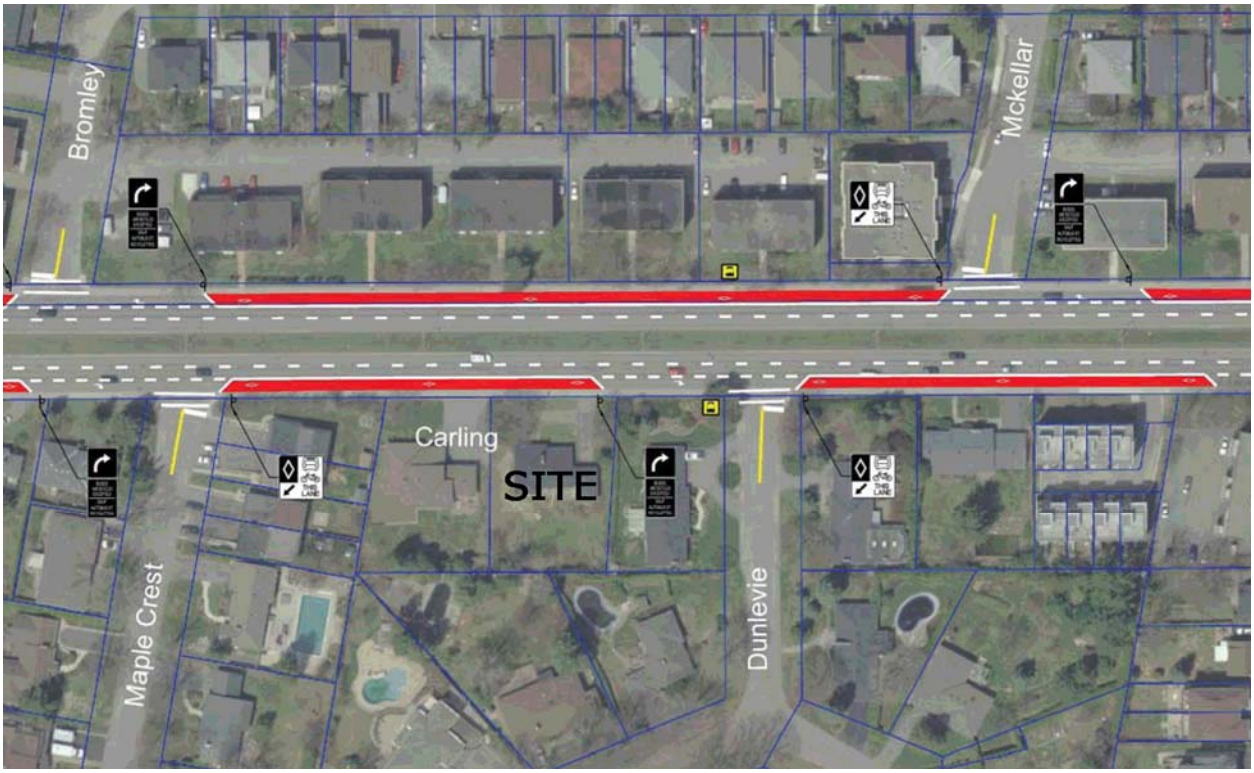
Collision reports were obtained from the City of Ottawa through Open Data Ottawa for the five year time period between the years January 1, 2015 and December 31, 2019. The collision reports were for the Carling/Maitland and Carling/Iroquois intersections. Reported collisions were also obtained for the Carling Avenue road segment between Maitland Avenue and Iroquois Road. Exhibit 2.4 in the Appendix summarizes the collisions by year and type.

Element 2.1.3 – Planned Conditions

The *Transportation Master Plan 2013* (TMP) was examined to determine if there were any road or transit projects identified within the road network of the surrounding area.

The TMP did not identify any road modifications projects in the Affordable Network Plan for the surrounding area.

The Transit Priority Projects identified under the 2031 Affordable Network in the TMP are exclusive bus lanes and transit signal priority between the Lincoln Fields Station and the Carling Avenue O-Train Station. The Transit Priority Corridor past the site would be provided by the conversion of an existing traffic lane to an exclusive bus lane. Some transit signal priority measures already exist along the corridor. Below is a plan showing the proposed bus lanes in the vicinity of the site.



The following are significant developments proposed within one kilometre of the site:

- A 210 unit apartment building is proposed at 1995 Carling Avenue approximately 150 m west of the site. The building would be located at the northwest corner of Carling Avenue and Bromley Road. The building is expected to be completed and occupied by the end of the year 2024.
- An apartment development located at 485 Ancaster Avenue, approximately one kilometre west of the site. The development will contain 290 apartment units in two buildings. Full occupancy is expected by 2022.
- Sears at Carlingwood shopping centre closed in January 2018, and will be replaced with a Canadian Tire store which is expected to open in 2022. The Canadian Tire store will relocate from its current location at Carling/Clyde.

MODULE 2.2 – Study Area and Time Periods

Element 2.2.1 – Study Area

The study area for the residential apartment development was determined to be confined to the site access onto Carling Avenue, and the major signalized intersections of Carling/Maitland located 315 m east of the site and Carling/Iroquois located 555 m west of the site.

The study will examine the intersection geometry and Carling Avenue roadway segment in accordance with the *Transportation Impact Assessment Guidelines (2017).*

Element 2.2.2 – Time Periods

The time period for the analysis would be the weekday peak AM and PM time period of traffic which would occur during the peak hour of the apartment development and the adjacent street traffic when drivers are travelling to and from work.

Element 2.2.3 – Horizon Years

The TIA will address the impact of the site generated trips from the proposed residential apartment building at 1940 Carling Avenue. The horizon year of the study will be the total completion of the development at the year 2024. The analysis will further examine the impact at the year 2029 which is five years beyond completion.

MODULE 2.3 – Exemptions Review

The exemptions, which provide possible reductions to the scope of work of the TIA Study, were examined using Table 4: Possible Exemptions which is provided in the City's *Transportation Impact Assessment Guidelines (2017).* Utilizing the table, the following lists the possible exemptions proposed for the TIA Study report:

MODULE	ELEMENT	EXEMPTION CONSIDERATIONS
Design Review Component		
4.1 Development Design	4.1.2 Circulation and Access	**Required** – The access onto Carling Avenue will be examined along with the circulation of traffic within the site.
	4.1.3 New Street Networks	**Not Required** - Only required for subdivisions.
4.2 Parking	4.2.1 Parking Supply	**Required** – The parking supply will be examined with the supply of parking compared to that required as determined from City By-laws.
	4.2.2 Spillover Parking	**Not Required** - Parking will meet the City of Ottawa By-laws.
Network Impact Component		
4.5 Transportation Demand Management	All Elements	**Required** – TDM measures will be examined.
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	**Not Required** – The site will have access onto an arterial road and would not exceed ATM capacity thresholds.
4.8 Network Concept		**Not Required** - The site would not generate more than 200 person-trips per peak hour in excess of the volume permitted by established zoning.

STEP 3 - FORECASTING

MODULE 3.1 - Development-generated Travel Demand

Element 3.1.1 – Trip Generation and Mode Shares

The Carling Apartments will comprise of 64 rental apartment units in a 7 storey apartment building. The number of expected site generated trips was determined utilizing the trip statistical data and procedure documented in the *TRANS Trip Generation Manual, Summary Report October 2020*. The analysis used the Person-Trip Generation Rates from Table 3 of the TRANS document for the ITE Land Use Code 221 & 222, "Multi-Unit (High-Rise)". Peak period person-trips would occur between 7:00 AM and 9:30 AM, and between 3:30 PM and 6:00 PM.

The TRANS document has divided the Ottawa-Gatineau area into 26 districts. The Carling Apartments development is located within the Ottawa West district which is depicted in Figure 1 of the document. The Ottawa West district data was used in the determination of the mode share.

Staff of the City of Ottawa has developed a spreadsheet that calculates the number of person-trips for each mode of transportation. Table 3.1 shows the peak AM and PM hour person-trips.

TABLE 3.1
MODE SHARE SPREADSHEET (Peak AM and PM Hour Person-Trips)

Time	Number of Units	Type of Unit	District		AM peak			PM peak			AM peak	PM peak
Peak Hour	64	High-Rise	Ottawa West		In	Out	Total	In	Out	Total	Mode Share	Mode Share
				Auto Driver	2	5	7	5	3	8	26%	31%
				Auto Passenger	1	2	3	2	1	3	10%	10%
				Transit	4	8	12	4	3	7	43%	26%
				Cycling	0	1	1	1	1	2	3%	7%
				Pedestrian	1	3	5	4	3	7	18%	26%
				Total	8	19	27	16	11	27	100%	100%

The TIA Guidelines allow for three Trip Reduction Factors. The three trip reductions would consist of trips from existing development on site, pass-by trips, and shared trips within the site between two or more uses. No trip reduction factors were applied for the following reasons:

1. The site currently has only one single-family home on site which would generate little peak hour traffic.
2. The residential use would generate all primary trips with no pass-by trips.
3. The residential rental apartment land use would be a single use with no shared trips between other uses on site.

Element 3.1.2 – Trip Distribution

The distribution of expected site generated trips onto the adjacent roads was determined from the examination of the 2017 peak hour traffic counts at the Carling/Maitland and Carling/Iroquois intersections which would show the traffic patterns in the area. These volumes would represent the weekday peak AM and PM hour commuter trips to/from the apartment building. The determination of trips also considered the shortest and most convenient routes to employment and retail areas along the road network. The site generated trips were distributed onto the adjacent roads to the following proportion:

To/From the West along Carling	30%		
To/From the East along Carling	70% →	To/From the North along Sherbourne	5%
		To/From the South along Maitland	10%
		To/From the East along Carling	55%

Note: The Site access is by right-in/right-out turning movements due to the median along Carling Avenue. Traffic would make legal "U" turns at Maitland Avenue and Iroquois Road in order to enter and exit the site to/from all directions.

Element 3.1.3 – Trip Assignment

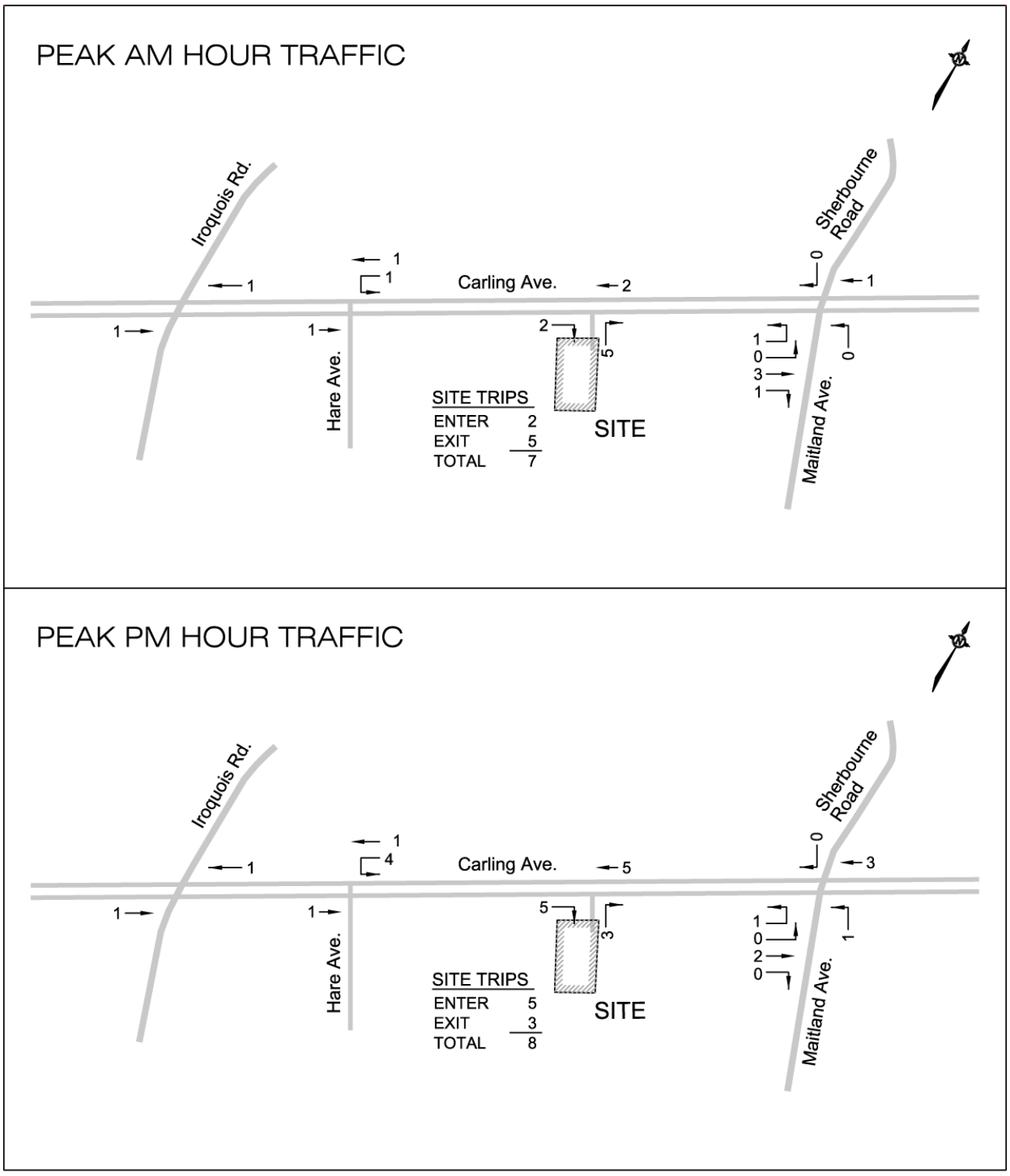
The distribution of site generated vehicle-trips was determined by applying the directional distribution of trips entering and exiting the site to all modes for the peak AM and PM hour person-trips as shown in Table 3.1, Mode Share Spreadsheet. It is assumed that one Auto Driver trip equals one vehicle-trip. Table 3.2 presents the peak hour distribution of vehicle-trips entering and exiting the site.

TABLE 3.2
PEAK HOUR DISTRIBUTION OF VEHICLE-TRIPS

PEAK HOUR TRIPS / BUILDING USE	WEEKDAY PEAK AM HR.			WEEKDAY PEAK PM HR.		
	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
64 Apartment Units	7	2 (31%)	5 (69%)	8	5 (58%)	3 (42%)

The trip distribution, as discussed in Element 3.1.2, was applied to the peak AM and PM peak hour vehicle-trips shown in Table 3.2. Figure 3.1 presents the peak AM and PM hour residential trips to/from the site.

FIGURE 3.1
PEAK AM AND PM HOUR SITE GENERATED TRIPS



MODULE 3.2 - Background Network Travel Demands

Element 3.2.1 – Transportation Network Plans

The City of Ottawa *Transportation Master Plan (TMP) 2013* was reviewed to identify transit and roadway projects in the vicinity of the development. The proposed changes to the transportation network are identified in this report under Element 2.1.3 - Planned Conditions. The TMP does identify under the 2031 Affordable Projects the construction of an exclusive lane for buses and bicycles past the site which would be constructed between Lincoln Fields Station to the Carling O-Train Station. The exclusive bus lane along with transit signal priority would improve transit service.

Element 3.2.2 – Background Growth

The growth in background traffic along Carling Avenue was determined by the examination of historical traffic volumes for various modes of travel. The trip trend of trips to/from the Ottawa West area for auto driver trips was examined in the *National Capital Region Travel Trends* document prepared by the IBI Group. The document showed that the auto driver trip trend from the Ottawa West area has decreased at an annual compounded rate of -2.29 percent for the AM peak period between the years of 2005 and 2011.

The study has also reviewed other traffic studies for development in the area which determined the growth in background traffic from historical traffic counts and travel trends. The studies found that traffic along Carling Avenue has decreased over the recent years and the studies have utilized an annual average compounded growth rate of between -0.05 and 0.00 percent.

In keeping with the auto driver growth trend and studies for other area developments, the TIA analysis has assumed a 0.00 percent increase in background traffic from development outside the study area.

Element 3.2.3 – Other Developments

Other development in the area which would contribute to the increase in background traffic is the following:

- The IBI Group has prepared a TIA report for a 210 unit apartment building at 1995 Carling Avenue approximately 150 m west of the site. The building would be located at the northwest corner of Carling Avenue and Bromley Road. The building is expected to be completed and occupied by the end of the year 2024.
- Novatech has prepared a TIA report for an apartment development located at 485 Ancaster Avenue, approximately one kilometre west of the site. The development will contain 290 apartment units in two buildings. Full occupancy is expected by 2022.

- The Sears store at Carlingwood shopping centre closed in January 2018, and will be replaced with a Canadian Tire store which is expected to open in 2022. The Canadian Tire store will relocate from its current location at Carling/Clyde.

The Carling Apartments TIA has included the expected site generated trips as documented in the TIA studies for both the 1995 Carling Avenue and 485 Ancaster residential developments in the expected 2024 and 2029 background traffic. It is assumed that the new site trips from the proposed Canadian Tire store at Carlingwood shopping centre would be approximately equal to the trips from the Sears store which it replaced. With the Sears store site trips included in the 2017 traffic counts obtained from the City of Ottawa, no additional trips from the proposed Canadian Tire store were accounted for in the background traffic.

Figure 3.2 presents the 2024 peak AM and PM peak hour background vehicle traffic (does not include trips from the proposed apartment development). Figure 3.3 shows the expected 2029 peak hour background traffic which represents five years beyond completion of the development.

MODULE 3.3 - Demand Rationalization

The City of Ottawa has identified a Transit Priority Corridor under the 2031 Affordable Network in the TMP which would reduce the automobile travel lanes along Carling Avenue by one lane in each direction between the Lincoln Fields Station and the Carling Avenue O-Train Station. The lane would be replaced with an exclusive bus/cycling lane. The bus lane would increase transit ridership which would be further improved with the completion of the LRT lines. This would allow the elimination of one automobile travel lane in each direction and result in a reduction in future traffic along Carling Avenue past the site.

The total vehicular traffic is the sum of the peak hour site generated trips and the peak hour background traffic. The site generated trips would be the addition of the apartment trips from Figure 3.1, and the background traffic (Figure 3.2 for the year 2024 and Figure 3.3 for the year 2029). Figure 3.4 presents the total 2024 peak hour vehicular traffic and Figure 3.5 the total 2029 peak hour vehicular traffic.

FIGURE 3.2
2024 PEAK AM AND PM HOUR BACKGROUND TRAFFIC

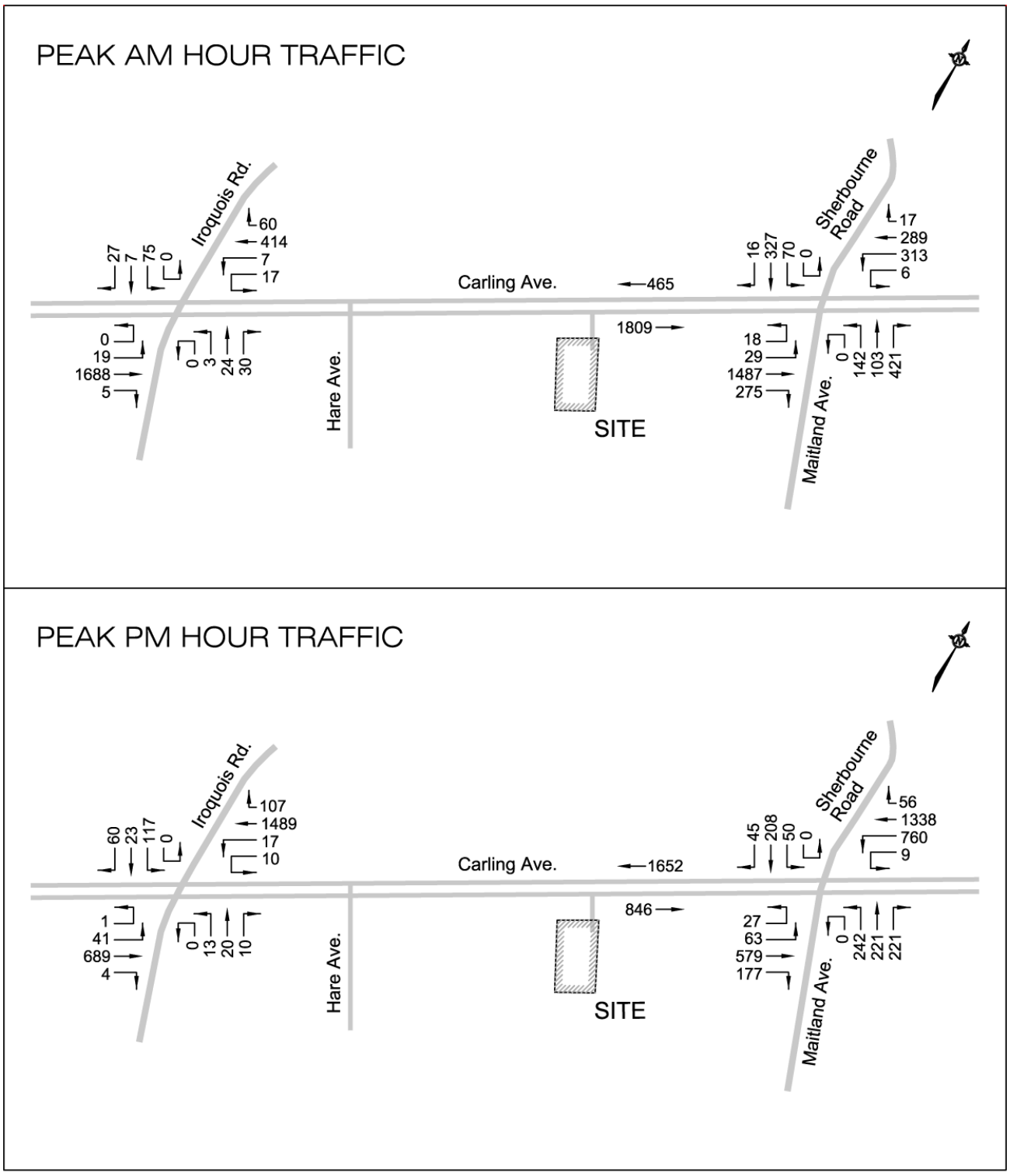


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FIGURE 3.3
2029 PEAK AM AND PM HOUR BACKGROUND TRAFFIC

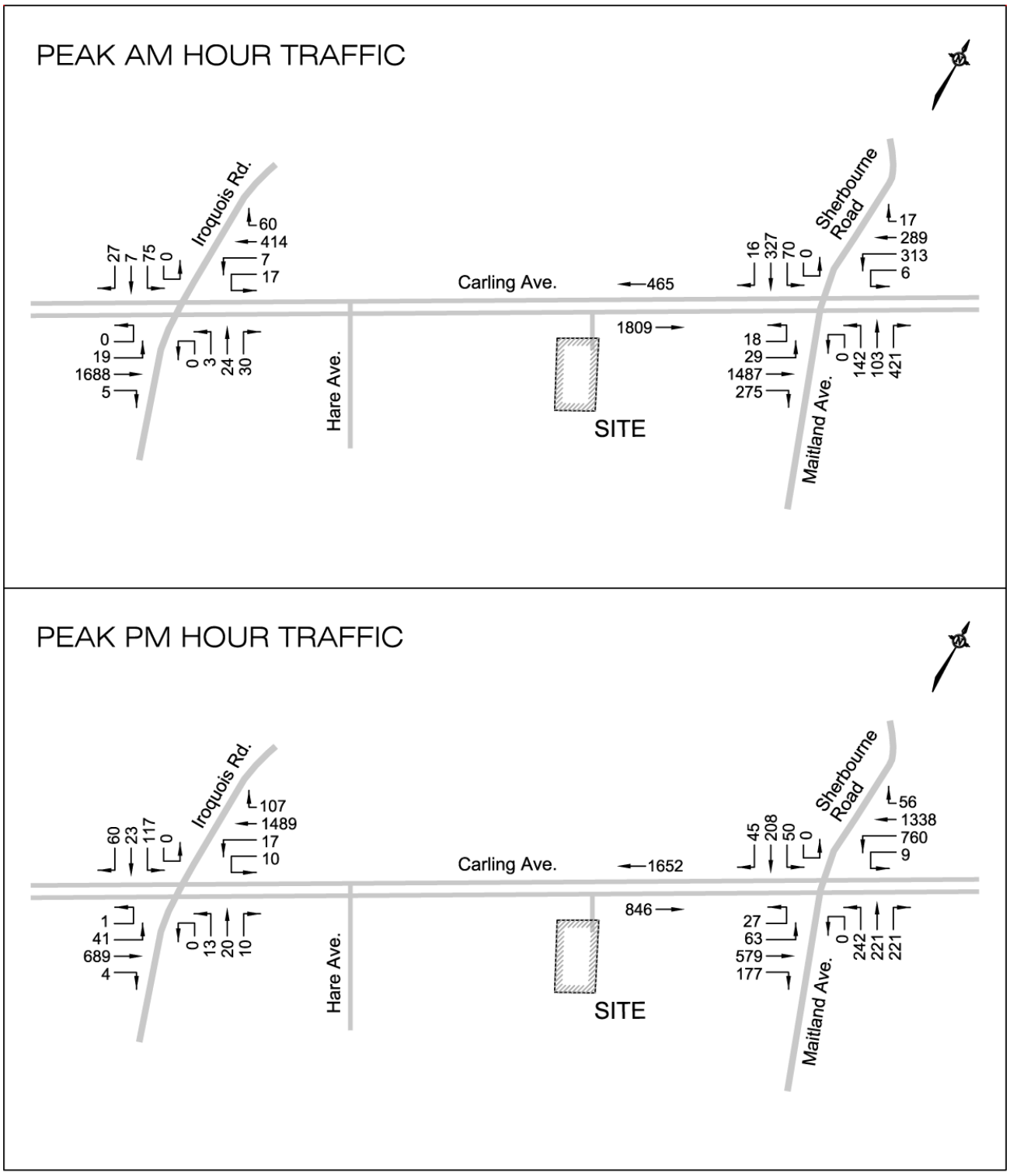

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FIGURE 3.4
2024 PEAK AM AND PM HOUR TOTAL TRAFFIC

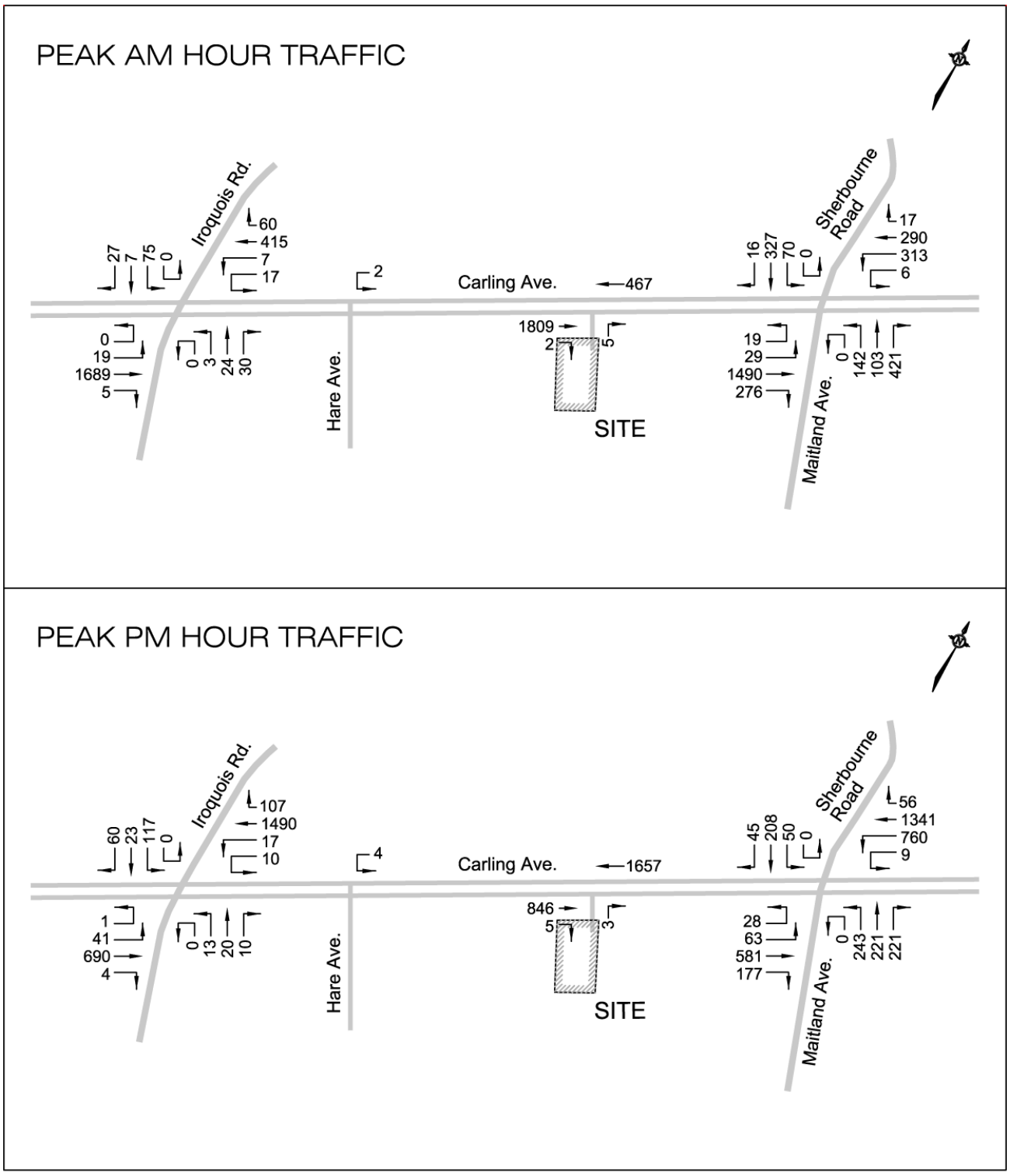
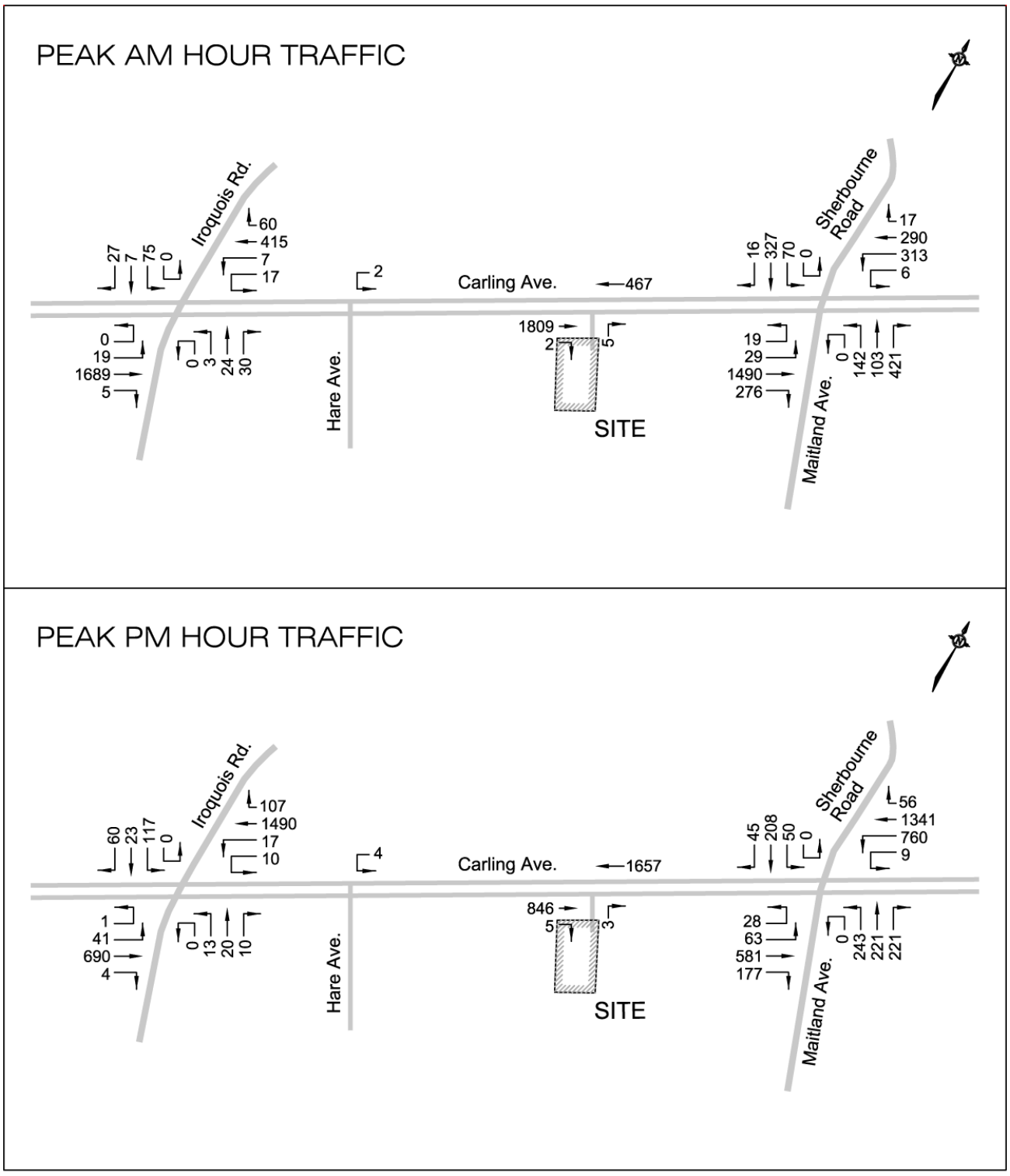


FIGURE 3.5
2029 PEAK AM AND PM HOUR TOTAL TRAFFIC



APPENDIX

CERTIFICATION FORM

SCREENING FORM

TRAFFIC COUNTS

OC TRANSPO BUS ROUTE MAPS

COLLISION SUMMARY

EXHIBIT 1.1
CERTIFICATION FORM

Transportation Impact Assessment Guidelines

Certification Form for TIA Study PM

TIA Plan Reports

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

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

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

CERTIFICATION

- [X] 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;
- [X] 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;
- [X] 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
- [X] I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise
  - [X] is either transportation engineering
  - [ ] or transportation planning .

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

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

Dated at Ottawa (City) this 2nd day of September, 20 21.

Name : David J. Halpenny

Professional title: President, D. J. Halpenny & Associates Ltd.

D J Halpenny

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

Office Contact Information (Please Print)	
Address:	P.O. Box 774
City / Postal Code:	Manotick ON K4M 1A7
Telephone / Extension:	613-692-8662
E-Mail Address:	David@DJHalpenny.com

Stamp

EXHIBIT 1.2
SCREENING FORM

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**1940 Carling Avenue, City of Ottawa**
Description of Location	South side of Carling Ave., 315 m west of Maitland Ave. (See Figure 2.1)
Land Use Classification	"AM10[2118] H(20)" Zoning – Arterial Mainstreet Zone
Development Size (units)	64 Apartment Units (See Figure 2.2)
Development Size (ha)	1,451.03 m^2 Lot Area
Number of Accesses and Locations	One access onto Carling Avenue
Phase of Development	Single Phase of development
Buildout Year	2024

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Apartment Units	64 units

	Yes	No
64 Apartment Units < 90 Minimum Development Size		X

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

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

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

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

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

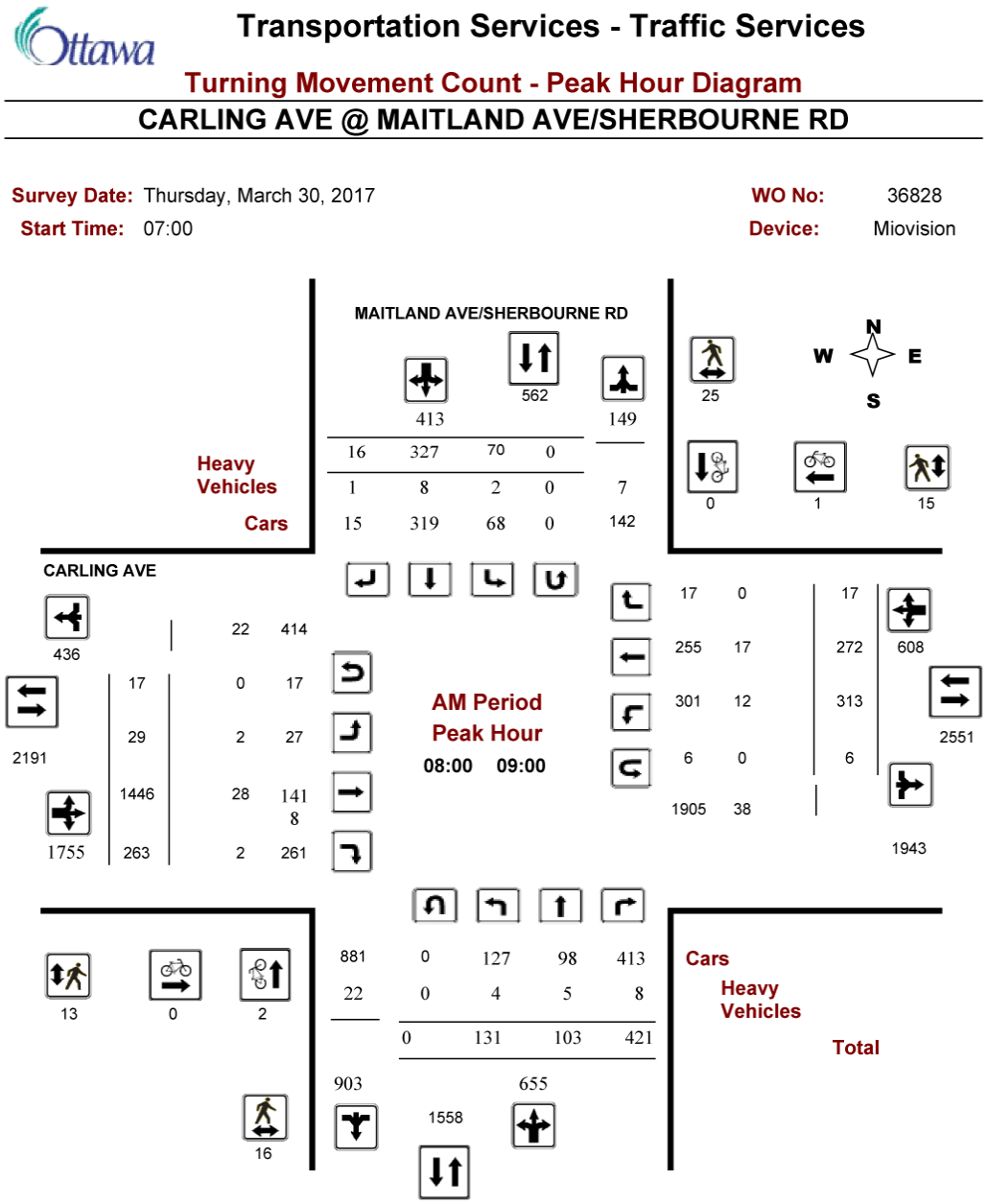
If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

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

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

EXHIBIT 2.1
2017 PEAK AM HOUR TRAFFIC COUNTS - CARLING/MAITLAND INTERSECTION



2017 PEAK PM HOUR TRAFFIC COUNTS - CARLING/MAITLAND INTERSECTION

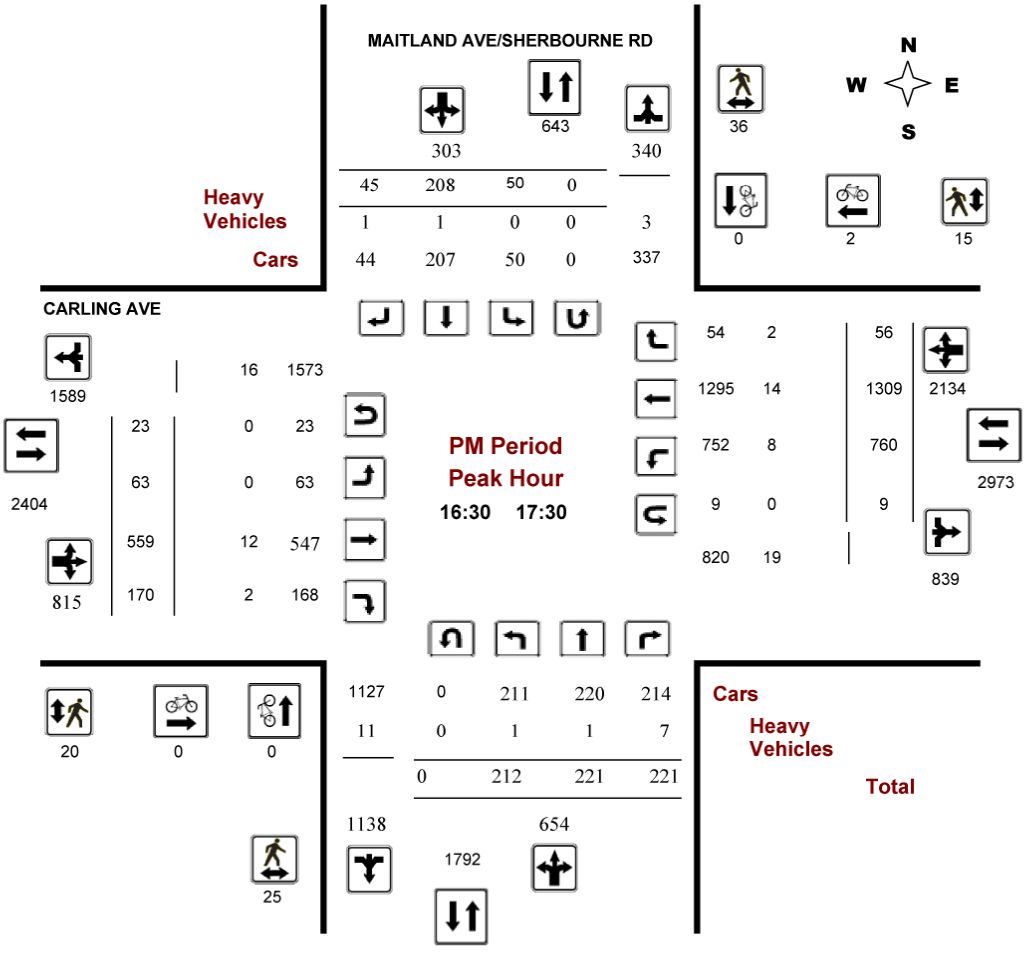
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Survey Date: Thursday, March 30, 2017 **WO No:** 36828

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



Comments

2017 TRAFFIC SUMMARY (8 Hour) - CARLING/MAITLAND INTERSECTION

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Survey Date: Thursday, March 30, 2017 **WO No:** 36828

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, March 30, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 133 Westbound: 129

AADT Factor 1.00

	MAITLAND AVE/SHERBOURNE RD								CARLING AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	88	73	264	**425**	56	228	8	**292**	**717**	17	1267	192	**1476**	223	201	17	**441**	**1917**	**2634**
08:00 09:00	131	103	421	**655**	70	327	16	**413**	**1068**	29	1446	263	**1738**	313	272	17	**602**	**2340**	**3408**
09:00 10:00	153	127	334	**614**	52	241	18	**311**	**925**	37	717	174	**928**	309	388	29	**726**	**1654**	**2579**
11:30 12:30	235	197	288	**720**	57	195	23	**275**	**995**	49	557	182	**788**	428	582	50	**1060**	**1848**	**2843**
12:30 13:30	225	156	287	**668**	62	163	23	**248**	**916**	59	614	202	**875**	420	605	49	**1074**	**1949**	**2865**
15:00 16:00	181	200	257	**638**	65	230	27	**322**	**960**	62	576	138	**776**	604	1022	51	**1677**	**2453**	**3413**
16:00 17:00	215	212	241	**668**	48	210	43	**301**	**969**	56	530	180	**766**	738	1254	53	**2045**	**2811**	**3780**
17:00 18:00	198	225	236	**659**	63	215	46	**324**	**983**	66	561	170	**797**	713	1240	52	**2005**	**2802**	**3785**
Sub Total	1426	1293	2328	**5047**	473	1809	204	**2486**	**7533**	375	6268	1501	**8144**	3748	5564	318	**9630**	**17774**	**25307**
U Turns				**0**				**0**	**0**				**133**				**129**	**262**	**262**
Total	1426	1293	2328	**5047**	473	1809	204	**2486**	**7533**	375	6268	1501	**8277**	3748	5564	318	**9759**	**18036**	**25569**
EQ 12Hr	1982	1797	3236	**7015**	657	2515	284	**3456**	**10471**	521	8713	2086	**11505**	5210	7734	442	**13565**	**25070**	**35541**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1868	1694	3050	**6612**	620	2370	267	**3257**	**10471**	491	8211	1966	**10843**	4910	7289	417	**12784**	**25070**	**35541**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	2447	2219	3995	**8661**	812	3104	350	**4266**	**12927**	644	10757	2576	**14204**	6432	9548	546	**16747**	**30951**	**43878**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

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

EXHIBIT 2.2
2017 PEAK AM HOUR TRAFFIC COUNTS - CARLING/IROQUOIS INTERSECTION

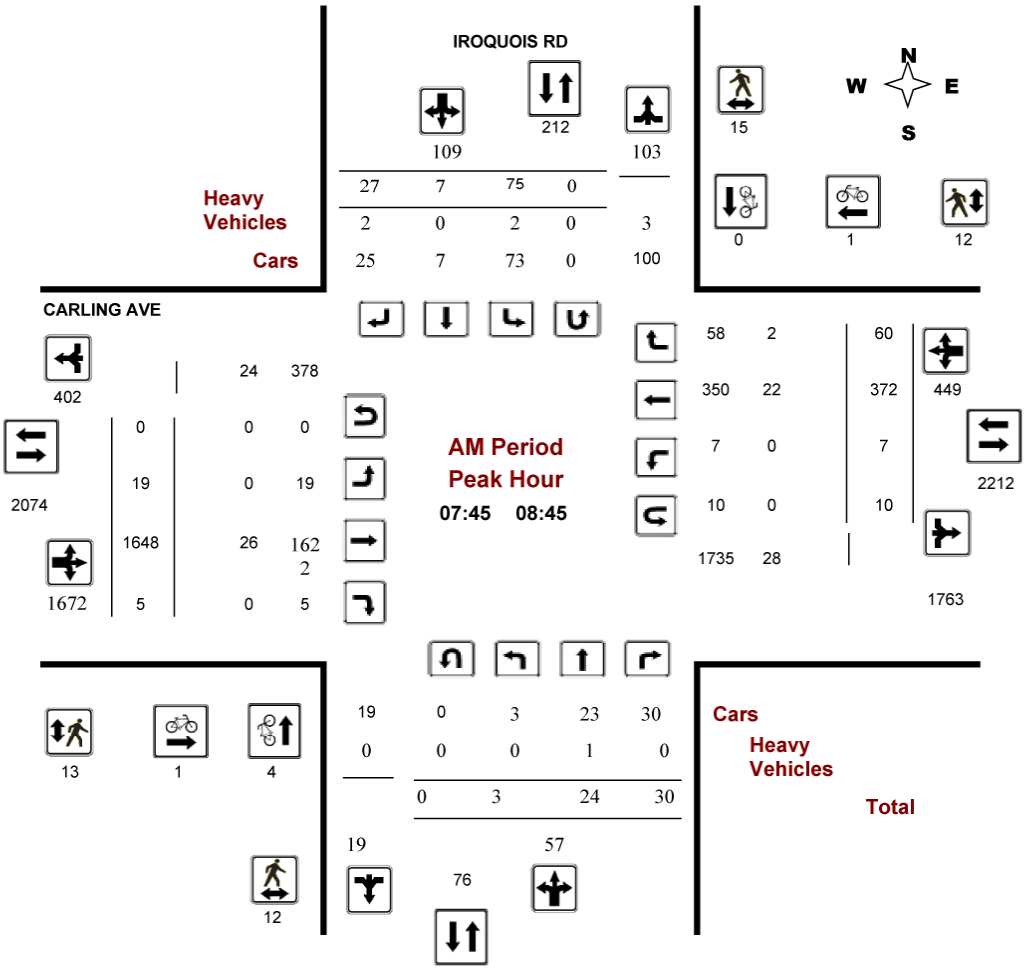
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ IROQUOIS RD

Survey Date: Wednesday, May 10, 2017 **WO No:** 37025

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



Comments

2017 PEAK PM HOUR TRAFFIC COUNTS - CARLING/IROQUOIS INTERSECTION

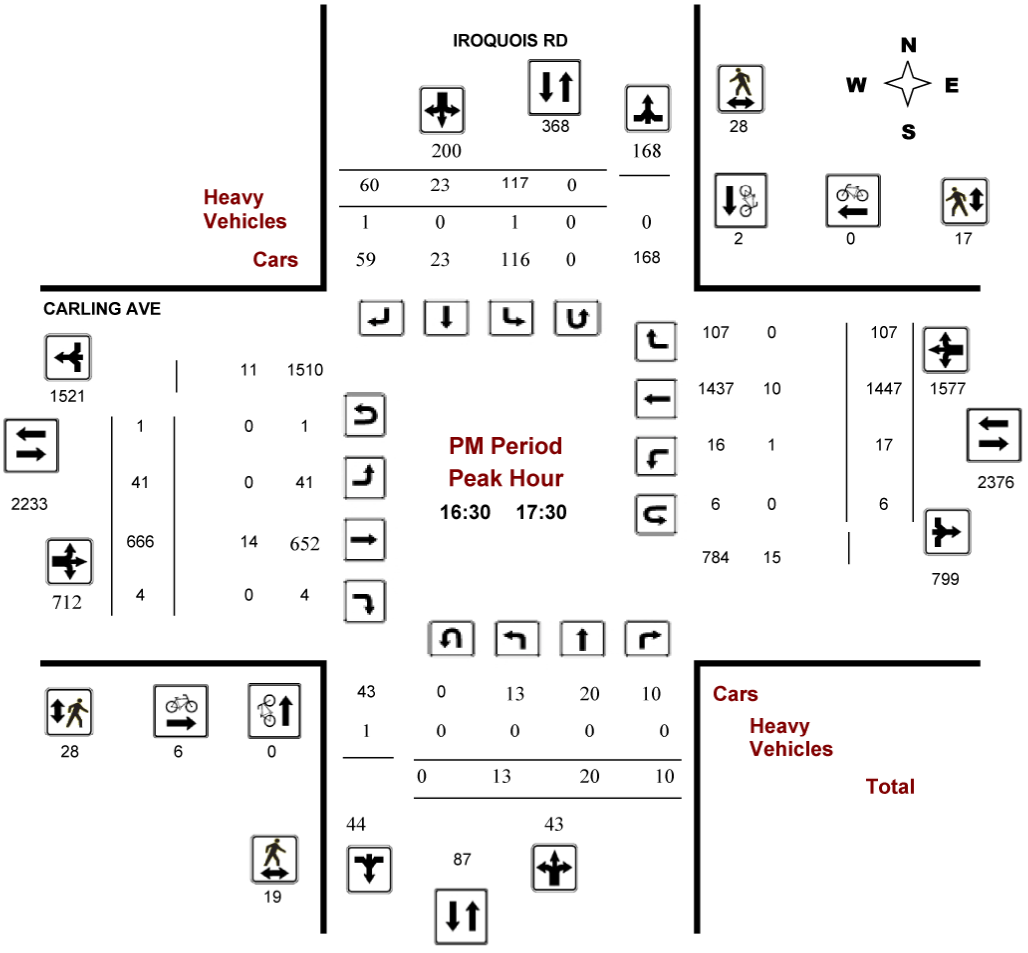
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ IROQUOIS RD

Survey Date: Wednesday, May 10, 2017 **WO No:** 37025

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



Comments

2017 TRAFFIC SUMMARY (8 Hour) - CARLING/IROQUOIS INTERSECTION

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ IROQUOIS RD

Survey Date: Wednesday, May 10, 2017 **WO No:** 37025

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, May 10, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 14 Westbound: 56

AADT Factor

.90

	IROQUOIS RD								CARLING AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	1	11	22	**34**	40	3	19	**62**	**96**	11	1713	2	**1726**	6	263	45	**314**	**2040**	**2136**
08:00 09:00	4	30	30	**64**	81	9	35	**125**	**189**	24	1566	10	**1600**	8	408	68	**484**	**2084**	**2273**
09:00 10:00	10	11	17	**38**	73	10	38	**121**	**159**	45	977	4	**1026**	7	451	89	**547**	**1573**	**1732**
11:30 12:30	12	19	19	**50**	116	17	48	**181**	**231**	45	790	10	**845**	7	701	110	**818**	**1663**	**1894**
12:30 13:30	7	10	9	**26**	111	20	64	**195**	**221**	37	684	12	**733**	11	694	104	**809**	**1542**	**1763**
15:00 16:00	9	21	12	**42**	111	23	58	**192**	**234**	32	628	10	**670**	17	1043	117	**1177**	**1847**	**2081**
16:00 17:00	11	17	13	**41**	109	34	48	**191**	**232**	33	609	3	**645**	17	1409	105	**1531**	**2176**	**2408**
17:00 18:00	10	16	10	**36**	112	24	68	**204**	**240**	54	714	11	**779**	21	1290	113	**1424**	**2203**	**2443**
Sub Total	64	135	132	**331**	753	140	378	**1271**	**1602**	281	7681	62	**8024**	94	6259	751	**7104**	**15128**	**16730**
U Turns				**0**				**0**	**0**				**14**				**56**	**70**	**70**
Total	64	135	132	**331**	753	140	378	**1271**	**1602**	281	7681	62	**8038**	94	6259	751	**7160**	**15198**	**16800**
EQ 12Hr	89	188	183	**460**	1047	195	525	**1767**	**2227**	391	10677	86	**11173**	131	8700	1044	**9952**	**21125**	**23352**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	75	159	156	**390**	888	165	446	**1499**	**2004**	331	9056	73	**9477**	111	7379	885	**8442**	**19012**	**21017**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**0.9**						
AVG 24Hr	99	209	204	**511**	1163	216	584	**1963**	**2474**	434	11863	96	**12415**	145	9667	1160	**11059**	**23474**	**25948**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

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

EXHIBIT 2.3
OC TRANSPO ROUTE MAPS

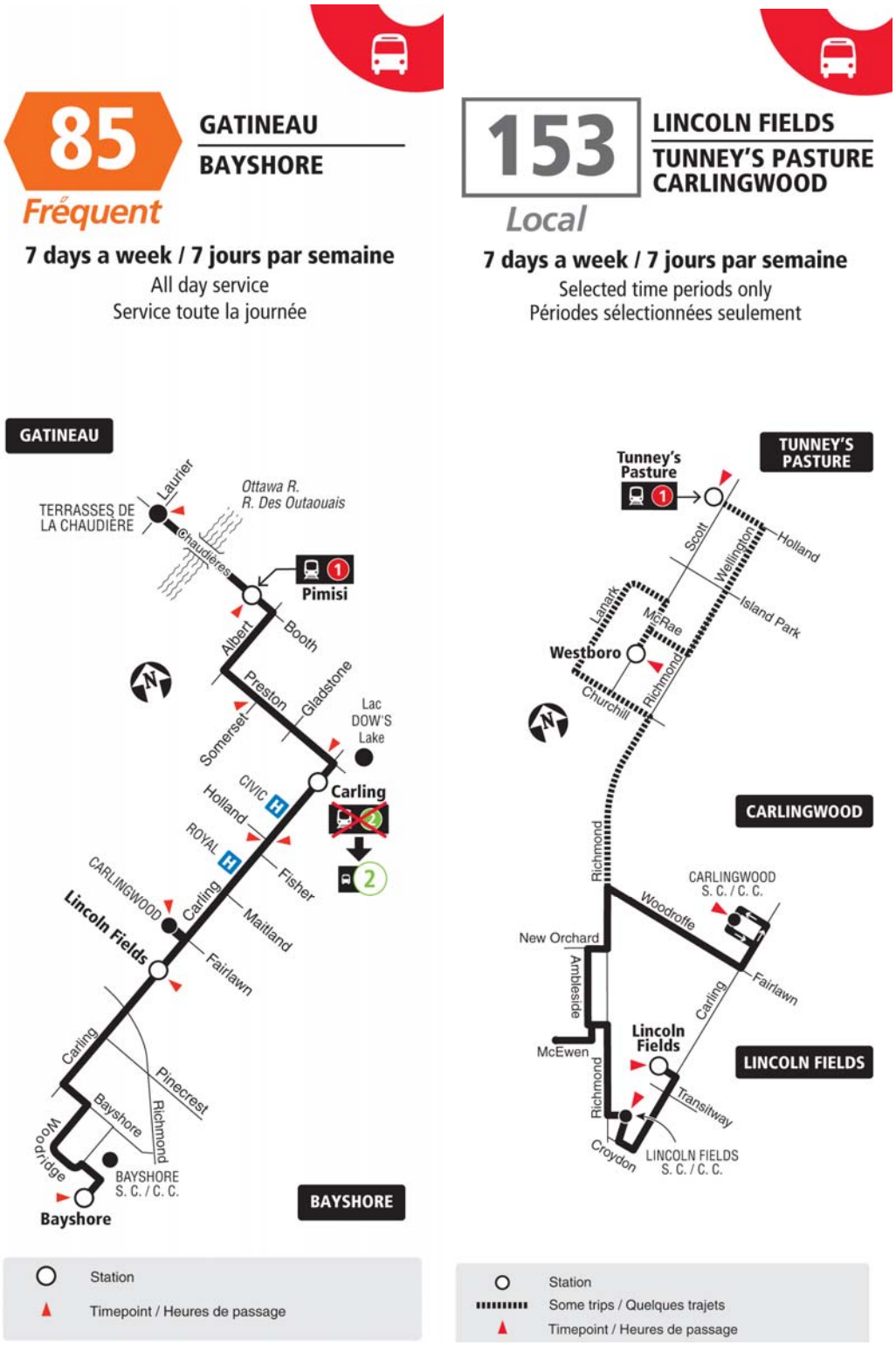


EXHIBIT 2.4
COLLISION SUMMARY

YEAR	COLLISION TYPE					TOTAL
	REAR END	ANGULAR	TURNING	SIDESWIPE	OTHER (SMV)	
Intersection of Carling Avenue and Maitland Avenue						
2015	9	1	1	2	0	13
2016	5	0	0	4	0	9
2017	7	1	0	5	0	13
2018	5	1	3	6	1	16
2019	2	3	3	3	1	12
Total	28	6	7	20	2	63
Intersection of Carling Avenue and Iroquois Road						
2015	0	1	0	0	0	1
2016	1	2	3	0	0	6
2017	1	6	2	2	1	12
2018	2	2	6	1	0	11
2019	0	2	0	0	2	4
Total	4	13	11	3	3	34
Carling Avenue Road Segment between Maitland Ave. and Iroquois Rd.						
2015	2	1	1	2	2	8
2016	2	0	2	0	1	5
2017	2	0	0	0	2	4
2018	1	0	0	1	0	2
2019	1	3	0	2	1	7
Total	8	4	3	5	6	26