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- Environmental Restoration

39 Years

Proposed Residential Development

1104 Halton Terrace

Transportation Impact Assessment

Proposed Residential Development
1104 Halton Terrace

Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

October 2021

Novatech File: 119024
Ref: R-2021-115

NOVATECH
Engineers, Planners & Landscape Architects

October 19, 2021

City of Ottawa
Planning and Growth Management Department
110 Laurier Ave. W., 4th Floor,
Ottawa, Ontario K1P 1J1

Attention: Ms. Neeti Paudel
Project Manager, Infrastructure Approvals

Dear Ms. Paudel:

Reference: 1104 Halton Terrace & 1150 Old Carp Road
Transportation Impact Assessment – Screening and Scoping Report
Novatech File No. 119024

We are pleased to submit the following Transportation Impact Assessment (TIA) in support of Site Plan Control and Zoning By-Law Amendment applications for the property located at 1104 Halton Terrace, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

If you have any questions or comments regarding this report, please feel free to contact the undersigned.

Yours truly,

NOVATECH

B. Byvelds

Brad Byvelds, P. Eng.
Project Coordinator | Transportation/Traffic

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

TIA Plan Reports

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

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

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

CERTIFICATION

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

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

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

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

Dated at Ottawa (City) this 19 day of October, 2021 .

Name: Brad Byvelds
(Please Print)

Professional Title: P. Eng. - Project Coordinator

B. Byvelds

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

Office Contact Information (Please Print)	
Address:	240 Michael Cowpland Drive
City / Postal Code:	Ottawa, ON K2M 1P6
Telephone / Extension:	613-254-9643 ext. 286
E-Mail Address:	b.byvelds@novaetch-eng.com

TABLE OF CONTENTS

Figures

Tables

Appendices

EXECUTIVE SUMMARY

This TIA has been prepared in support of Site Plan Control and Zoning By-Law Amendment applications for the property located at 1104 Halton Terrace. The site is currently vacant and is surrounded by the following:

- Old Carp Road, followed by vacant land to the north;
- Halton Terrace, followed by a stormwater management pond to the east;
- Halton Terrace, followed by existing low-density residential development to the south; and
- Low-density residential development to the west.

The proposed development is designated as 'General Urban Area' in Schedule B of the City of Ottawa's Official Plan. The implemented zoning for 1104 Halton Terrace is 'Residential Third Density' (R3).

The proposed development will feature 86 apartment dwellings. Five single detached dwellings with frontage on Halton Terrace are proposed at the southern limits of the site but are not part of the subject application. The proposed development will be accessed by two new driveways along Halton Terrace and Old Carp Road. The access along Halton Terrace will serve a surface parking lot containing 55 parking spaces. The access along Old Carp Road will serve an underground parking lot containing 68 parking spaces. The proposed development is expected to be constructed in a single phase, with full occupancy in 2024.

The conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- The development is estimated to generate 35 person trips (including 17 vehicle trips) during the AM and PM peak hours.

Development Design and Parking

- Pedestrian connections will be provided between the building entrance and Halton Terrace. The sidewalk will be depressed and continuous across the Halton Terrace access.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Loading activities are anticipated to occur curbside along Halton Terrace. It is recommended that the existing centreline flex post be installed opposite the proposed middle hydrant following construction of the development. This will allow passenger vehicles to maneuver around a loading truck parked curbside in advance or following the centreline flex post.
- Garbage bins will be wheeled from a collection area within the underground parking garage, up the sidewalk adjacent to the parking ramp for curbside private collection on Old Carp Road.
- The proposed number of vehicle and bicycle parking spaces exceed the minimum requirements of the City's ZBL.

Boundary Streets

- Halton Terrace achieves the target PLOS C and BLOS D.
- Old Carp Road achieves the target BLOS B but does not meet the target PLOS C. Based on the PLOS criteria, the target PLOS C can be achieved through either a 1.8m wide curb face

sidewalk or a 1.5m wide sidewalk with a boulevard. This is identified for the City's consideration.

- As development progresses in the Kanata North Urban Expansion Area (KNUEA) and Old Carp Road is realigned to tie into the future Street A, a sidewalk will be constructed to current City standards on Street A adjacent to the site.

Access Design

- The proposed development will be served by an all-movement access to the underground parking garage on Old Carp Road or future Street A within the KNUEA, and an all-movement access to the surface parking lot on Halton Terrace.
- The width, location and number of accesses conform to the requirements of the Private Approach By-law and Zoning By-law.
- A maximum grade of 2% will be provided for the first 9m within the property at the Halton Terrace access, conforming to the requirements of the Private Approach By-law. However, the ramp to the parking garage on Old Carp Road will have a grade of 6% for 6m within the property where it transitions to an 11.8% grade for approximately 8.7m and a waiver to Section 25(u) of the Private Approach By-law is requested.
- Both accesses will meet the Stopping Sight Distance requirements before and after the future Street A construction.
- Prior to Street A construction, the Intersection Sight Distance to turn left from the Old Carp Road access will be limited by the Halton Terrace intersection. The Intersection Sight Distance to turn left from the Halton Terrace access will be limited by the future single detached houses to the south. However, as the required Stopping Sight Distance will be met at both accesses, a vehicle travelling on the main road will have sufficient distance to slow or stop should a vehicle turn left from either access.
- The required clear throat length will be provided at both accesses.

1.0 INTRODUCTION

This TIA has been prepared in support of Site Plan Control and Zoning By-Law Amendment applications for the property located at 1104 Halton Terrace. The site is currently vacant and is surrounded by the following:

- Old Carp Road, followed by vacant land to the north;
- Halton Terrace, followed by a stormwater management pond to the east;
- Halton Terrace, followed by existing low-density residential development to the south; and
- Low-density residential development to the west.

A view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site

2.0 PROPOSED DEVELOPMENT

The proposed development is designated as 'General Urban Area' in Schedule B of the City of Ottawa's Official Plan. The implemented zoning for 1104 Halton Terrace is 'Residential Third Density' (R3).

The proposed development will feature 86 apartment dwellings. Five single detached dwellings with frontage on Halton Terrace are proposed at the southern limits of the site but are not part of the subject application. The proposed development will be accessed by two new driveways along Halton Terrace and Old Carp Road. The access along Halton Terrace will serve a surface parking lot containing 53 parking spaces. The access along Old Carp Road will serve an underground parking lot containing 68 parking spaces. The proposed development is expected to be constructed in a single phase, with full occupancy in 2024.

A copy of the proposed Site Plan is included in **Appendix A**.

3.0 SCREENING

3.1 Screening Form

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form. The trigger results are as follows:

- Trip Generation Trigger – The development is not anticipated to generate over 60 peak hour person trips; further assessment is not required based on this trigger.

- Location Triggers – The development is not located within a Design Priority Area or Transit-Oriented Development zone, and does not propose a new driveway to a boundary street designated as part of the City's Rapid Transit, Transit Priority, or Spine Cycling networks; further assessment is not required based on this trigger.

- Safety Triggers – The horizontal curvature of Halton Terrace may limit sightlines at the proposed access to Halton Terrace; further assessment is required based on this trigger.

A copy of the TIA Screening Form is included in **Appendix B**.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa.

March Road is an arterial roadway that generally runs on a north-south alignment within the study area, running between Dunrobin Road and Highway 417. West of Dunrobin Road, the roadway runs on an east-west alignment until Appleton Sideroad in Almonte, where it continues as Ottawa Street. South of Highway 417, the roadway continues on a north-south alignment as Eagleson Road. Within

the study area, March Road has a four-lane divided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 80 km/h. March Road is classified as a truck route, allowing full loads. Street parking is not permitted.

Halton Terrace is a collector roadway that generally runs on an east-west alignment within the study area, running between Flamborough Way (south of Morgan's Grant Way) and March Road. East of March Road, the roadway continues on an east-west alignment as Maxwell Bridge Road before terminating at Celtic Ridge Crescent. Within the study area, Halton Terrace has a two-lane urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 40 km/h. Halton Terrace is not classified as a truck route. Street parking is permitted. The right-of-way (ROW) at the subject site is approximately 24m. No ROW protection is identified in the City's Official Plan, and therefore no widening is required.

Maxwell Bridge Road is a collector roadway that runs on an east-west alignment between March Road and Marconi Avenue, and is a local roadway between Marconi Avenue and Celtic Ridge Crescent. Within the study area, Maxwell Bridge Road has a two-lane urban cross-section, sidewalks on both sides of the roadway, and an unposted regulatory speed limit of 50 km/h under the Highway Traffic Act. Maxwell Bridge Road is not classified as a truck route. Street parking is permitted.

Old Carp Road is a collector roadway that generally runs on an east-west alignment within the study area, running between Halton Terrace and March Road (near the Village of Carp). West of March Road, the roadway continues as Donald B. Munro Drive. Within the study area, Old Carp Road has a two-lane rural cross-section, no sidewalks, and a posted speed limit of 40 km/h. Old Carp Road is not classified as a truck route. Street parking is not permitted. The ROW at the subject site is approximately 13m. A ROW protection of 26m is identified for Old Carp Road between Old Second Line Road and March Road.

4.1.2 Intersections

March Road/Halton Terrace/Maxwell Bridge Road

- Signalized four-legged intersection
- North/South Approaches (March Road):
  one left turn lane, two through lanes, and one right turn lane; pocket bike lanes on both approaches
- East Approach (Maxwell Bridge Road):
  one left turn lane and one shared through/right turn lane
- West Approach (Halton Terrace):
  one left turn lane and one shared through/right turn lane

Halton Terrace/Old Carp Road

- Unsignalized three-legged intersection
- Free flow on Halton Terrace, stop controlled on Old Carp Road
- North Approach (Halton Terrace): one shared through/right turn lane
- South Approach (Halton Terrace): one shared left turn/through lane
- West Approach (Old Carp Road): one shared left turn/right turn lane

4.1.3 Driveways

The City of Ottawa's 2017 TIA Guidelines requires a review of driveways on the boundary streets within 200m of any proposed access, which can be described as follows.

Halton Terrace, North Side:

- Nine driveways to residences at 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, and 1126 Halton Terrace

Old Carp Road, North Side:

- None

Halton Terrace, South Side:

- Twelve driveways to residences at 1095, 1097, 1099, 1101, 1103, 1105, 1109-1111, 1113-1115, 1117-1119, 1121-1123, 1125-1127, and 1129-1131 Halton Terrace

Old Carp Road, South Side:

- Two driveways to the residence at 1150 Old Carp Road

4.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of March Road, Halton Terrace, and Maxwell Bridge Road. There are no pedestrian facilities provided on Old Carp Road. Bike lanes are provided on March Road. There are no dedicated cycling facilities on Halton Terrace, Old Carp Road, and Maxwell Bridge Road.

In the City of Ottawa's primary cycling network, March Road is classified as a Spine Route, and Old Carp Road is classified as a Local Route. Halton Terrace is classified as a Local Route north of Old Carp Road and south of Klondike Road.

4.1.5 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed, or are currently in progress. Centreline flex posts are provided along Halton Terrace. SLOW text pavement markings and centreline flex posts are provided along Maxwell Bridge Road.

4.1.6 Transit

The nearest bus stops to the subject site are as follows:

Halton Terrace/Flamborough Way
- Stop #7570 – for route 63
  (located at the southeast corner)

Flamborough Way/Woliston Crescent
- Stop #0466 – for route 64
  (located at the northwest corner)

Locations of these bus stops are shown in **Figure 2**.

Figure 2: OC Transpo Bus Stop Locations

OC Transpo Routes 63 is a rapid transit that travels between the Briarbrook community and Tunney's Pasture Station, or Sacré-Coeur (Gatineau) during peak periods. Route 63 generally operates on 15 to 30 minute headways on weekdays and 30 to 60 minute headways on weekends.

OC Transpo Routes 64 is a local transit route that travels between the Briarbrook community and Tunney's Pasture Station. Route 64 generally operates on 15 to 30 minute headways on weekdays.

OC Transpo maps for the routes outlined above is included in **Appendix C**.

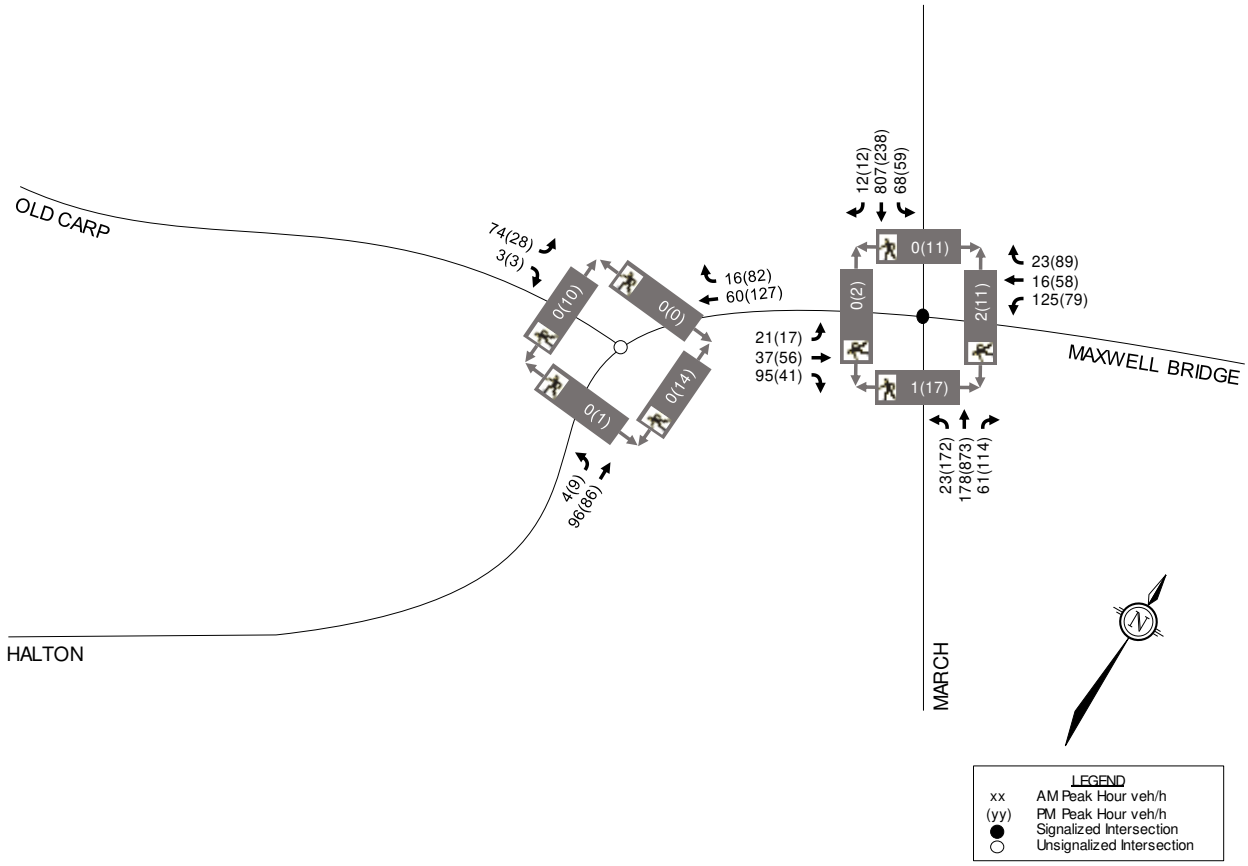
4.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa and Novatech have been used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. The traffic counts were completed on the following dates:

- March Road/Halton Terrace/Maxwell Bridge Road March 4, 2020 (City)
- Halton Terrace/Old Carp Road October 1, 2015 (Novatech)

Traffic count data is included in **Appendix D**. Traffic volumes within the study area are shown in **Figure 3**.

Figure 3: Existing Network Traffic Volumes



4.1.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department at the study area intersection. Copies of the collision summary reports are included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns. The number of collisions at each intersection from January 1, 2015 to December 31, 2019 is summarized in the following table.

Table 1: Reported Collisions

Intersection/ Roadway Segment	Impact Types					Total
	Rear End	Turning	Sideswipe	Angle	SMV(1)/ Other	
March Road/Halton Terrace/ Maxwell Bridge Road	2	5	4	1	2	**14**
Halton Terrace/ Old Carp Road	-	-	-	-	-	**0**
Halton Terrace – West of Old Carp Road	1	-	1	-	-	**2**

1. SMV: Single Motor Vehicle

March Road/Halton Terrace/Maxwell Bridge Road
A total of 14 collisions were reported at this intersection over the last five years, of which there were five turning movement impacts, four sideswipe impacts, two rear-end impacts, two single motor vehicle/other impacts, and one angle impact. Four of the collisions caused injuries, but none caused fatalities. Eleven of the collisions occurred in poor driving conditions.

Halton Terrace/Old Carp Road
No collisions were reported at this intersection over the last five years.

Halton Terrace – West of Old Carp Road
A total of two collisions were reported along this roadway over the last five years, of which there were one rear-end impact and one sideswipe impact. Both collisions involved eastbound travelling vehicles, occurred under clear driving conditions, and caused property damage only. Both collisions occurred on January 18, 2016 between 12:15PM and 1:00PM.

4.2 Planned Conditions

4.2.1 Planned Transportation Projects

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any upcoming roadway projects within the study area in its 2031 Affordable Road Network. A widening of March Road from two lanes to four between Halton Terrace/Maxwell Bridge Road and Dunrobin Road is identified in the 2031 Network Concept, to provide additional vehicular capacity for developments such as the Kanata North Urban Expansion Area.

The Rapid Transit and Transit Priority (RTTP) Network identifies transit improvements in its 2031 Affordable Network and 2031 Network Concepts. In the Network Concept, at-grade bus rapid transit (BRT) will be provided on March Road between Highway 417 and Halton Terrace/Maxwell Bridge Road. In the Affordable Network, at-grade BRT will be provided on March Road between Highway

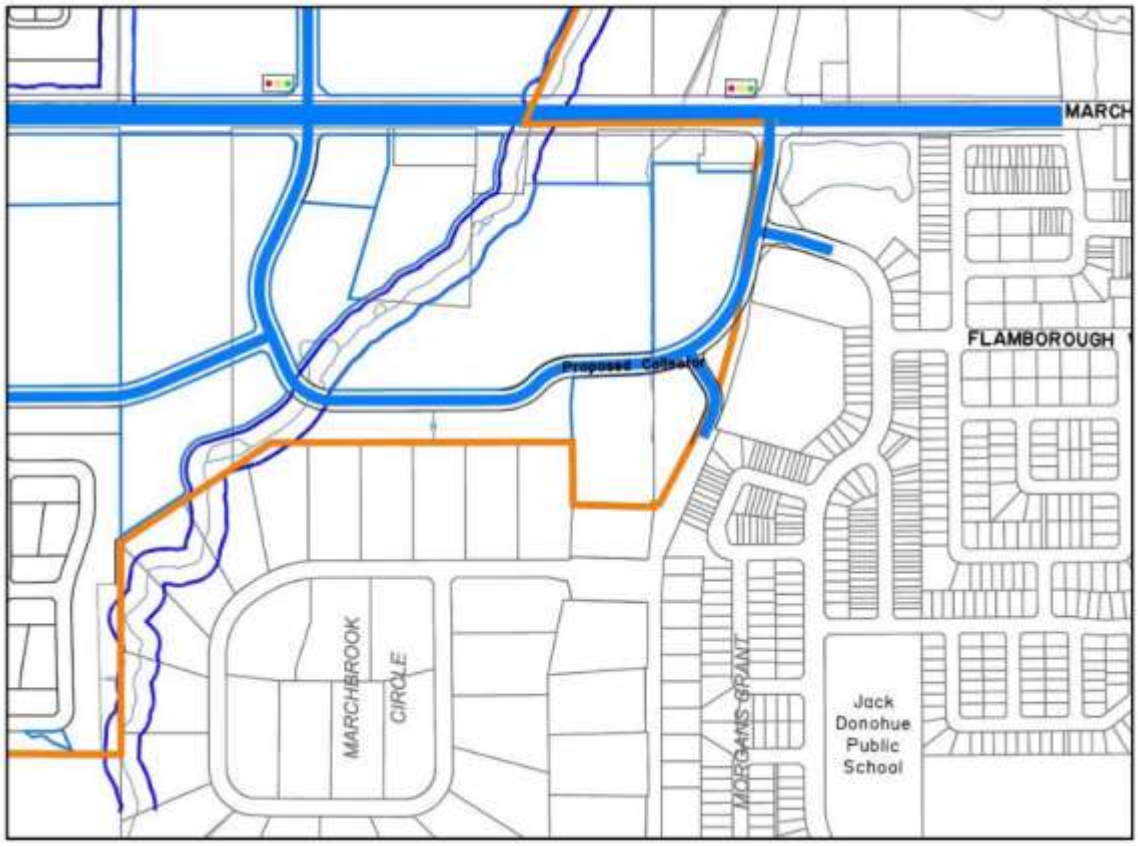
417 and Solandt Road, and transit priority measures such as transit priority signals and queue jump lanes will be provided on March Road between Carling Avenue and Halton Terrace/Maxwell Bridge Road.

The City's 2013 Cycling Plan identifies cycling infrastructure improvements south of the study area on Flamborough Way, between Klondike Road and Terry Fox Drive. The Phase 2 project (2020-2025) involves the implementation of bike lanes on Flamborough Way to improve connectivity to employment nodes in Kanata North.

A Community Design Plan (CDP) for the Kanata North Urban Expansion Area (KNUEA) was prepared by Novatech in June 2016. The KNUEA is approximately 181 hectares, located north of Old Carp Road and Maxwell Bridge Road. At full buildout, the TMP associated with the KNUEA CDP identifies that the development has the potential to include approximately 3,340 residential units, 400,000 ft^2 of shopping and specialty retail centres, four schools, and a park and ride. An aggressive buildout year of 2026 was used in the analysis of the KNUEA, which assumed a widening of March Road through the KNUEA by 2026.

As part of the KNUEA, a new collector roadway will be developed at near the southern limit of the property. Various alignments and connections to Old Carp Road and Halton Terrace were considered. Ultimately, it is proposed that the new collector roadway will be the main throughway and connect to March Road at the existing Halton Terrace traffic signal. Halton Terrace and Old Carp Road will be re-aligned to tie into the new collector roadway at T-intersections. The proposed collector roadway alignment and intersection configuration is shown in the following figure.

Figure 4: KNUEA Roadway Design



4.2.2 Other Area Developments

In proximity of the proposed development, there are multiple other residential and mixed-use developments are under construction, approved, or in the approval process. Other developments in the area include the following.

706-714 March Road
A TIA was prepared by CGH in December 2020, in support of a development including a 4,165 m^2 GFA supermarket, 350 m^2 GFA fast-food restaurant with drive-through, and 1,500 m^2 GFA of multi-unit commercial space. The TIA identified a buildout year of 2023.

788 March Road
A TIA and three subsequent addenda were prepared by Parsons (originally submitted in August 2018, with the addenda submitted in October 2018, December 2018, and March 2020), in support of a development including 92 apartment dwellings. The TIA identified a buildout year of 2023.

910 March Road
A TIA was prepared by CGH in January 2021, in support of a development including a 1,835 m^2 hardware store, a 234 m^2 restaurant with drive-through, a 191 m^2 coffee shop with drive-through, a 416 m^2 retail store, and a 249 m^2 gas bar. The TIA identified a buildout year of 2022.

Kanata North Urban Expansion Area (KNUEA)
The KNUEA TMP was prepared by Novatech in June 2016, and estimated that the development of the Kanata North lands has the potential to consist of 960 single-detached homes, 950 street townhomes, 1,040 multi-unit residential dwellings, 400,000 ft^2 GFA of commercial space, three elementary schools, one high school, and a 500-space park and ride.

Subsequent TIA reports have been prepared in support of all developments within the KNUEA, and cumulatively account for traffic generated by 980 single-detached homes, 1,282 townhomes, 2,170 multi-unit residential units, and 145,600 ft^2 GFA of commercial space. Compared to the TMP, this equates to 20 additional single-detached homes, 332 additional townhomes, 1,130 additional multi-unit residential dwellings, and 254,400 ft^2 GFA less of commercial space. A summary of each TIA is summarized as follows.

927 March Road
A TIA was prepared by Stantec in November 2020, in support of a subdivision that includes 35 single-detached homes, 78 townhomes, 1,838 apartment dwellings, and 65,600 ft^2 GFA of commercial space. The TIA identified that the subdivision will be built in seven phases, with an ultimate buildout year of 2034.

936 March Road
A TIA was prepared by CGH in April 2020, in support of a subdivision that includes 353 single-detached homes and 575 townhomes. The TIA did not identify phasing, but estimated an ultimate buildout year of 2023.

1020 and 1070 March Road
A TIA was prepared by Stantec in May 2020, in support of a subdivision that includes 297 single-detached homes, 315 townhomes, 116 apartment dwellings, 80,000 ft^2 GFA of commercial space, and an elementary school of approximately 580 students. The TIA did not identify phasing, but estimated an ultimate buildout year of 2031.

1053, 1075, and 1145 March Road
A TIA was prepared by Novatech in October 2018, in support of a subdivision that includes 295 single-detached homes, 314 townhomes, and 216 multi-unit dwellings. The TIA did not identify phasing, but estimated an ultimate buildout year of 2026.

4.3 Study Area and Time Periods

The study area for this report will include the roadways Halton Terrace, and Old Carp Road, the signalized intersection at March Road/Halton Terrace/Maxwell Bridge Road, and the unsignalized intersection at Halton Terrace/Old Carp Road.

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The proposed development is expected to be constructed in one phase, with full occupancy in 2024.

4.4 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the TIA guidelines. The applicable exemptions for this site are shown in **Table 2**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Not Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Not Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for non-residential site plans expected to have fewer than 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
4.8 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 the established zoning	Exempt

As the trip generation trigger on the TIA Screening Form is not met, the TIA will be limited to the Design Review components of the guidelines. As the proposed number of parking spaces are anticipated to meet the requirements of the City's *Zoning By-law* (ZBL), Module 4.2.2 – Spillover Parking is exempt from the analysis. Based on the foregoing, the following modules will be included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design

5.0 FORECASTING

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation

The *TRANS Trip Generation Manual Summary Report*, prepared in October 2020 by WSP, includes data to estimate the trip generation and mode shares for residential uses, divided into single-family detached housing, low-rise multifamily housing (one or two storeys), and high-rise multifamily housing (three or more storeys). Trips generated by the proposed residential units during the weekday AM and PM peak periods are summarized in the following table.

Table 3: Proposed Residential – Peak Period Person Trip Generation

Land Use	TRANS Rate	Units	AM Peak Period (ppp[1])			PM Peak Period (ppp)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	86	21	48	69	45	32	77

1. ppp: Person Trips per Peak Period

The *TRANS Trip Generation Manual* identifies the subject site as being located within the Kanata/Stittsville district, which has the following observed mode shares during the peak hours:

AM Peak Hour
- Auto Driver: 43%
- Auto Passenger: 26%
- Transit: 28%
- Cyclist: 0%
- Pedestrian: 4%

PM Peak Hour
- Auto Driver: 55%
- Auto Passenger: 19%
- Transit: 21%
- Cyclist: 0%
- Pedestrian: 5%

The assumed modal shares for the development have been taken as the average of the TRANS AM and PM peak hour modal shares. The breakdown of the peak period person trips generated by the residential units by modal share is shown in the following table.

Table 4: Proposed Residential – Peak Period Person Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Peak Period Person Trips		**21**	**48**	**69**	**45**	**32**	**77**
Auto Driver	50%	11	24	35	23	16	39
Auto Passenger	20%	4	10	14	9	6	15
Transit	25%	5	12	17	11	8	19
Cyclist	0%	0	0	0	0	0	0
Pedestrian	5%	1	2	3	2	2	4

Table 4 of the *TRANS Trip Generation Manual* includes adjustment factors to convert the estimated number of trips generated for each mode from peak period to peak hour. A breakdown of the peak hour person trips by mode is shown in the following table.

Table 5: Proposed Residential – Peak Hour Person Trips by Mode Share

Travel Mode	Adj. Factor		AM Peak Hour			PM Peak Hour		
	AM	PM	IN	OUT	TOT	IN	OUT	TOT
Auto Driver	0.48	0.44	5	12	17	10	7	17
Auto Passenger	0.48	0.44	2	5	7	4	3	7
Transit	0.55	0.47	3	6	9	5	4	9
Cyclist	0.58	0.48	0	0	0	0	0	0
Pedestrian	0.58	0.52	1	1	2	1	1	2
Peak Hour Person Trips			**11**	**24**	**35**	**20**	**15**	**35**

From the previous table, the development is estimated to generate 35 person trips (including 17 vehicle trips) during the AM and PM peak hours.

5.2 Background Traffic

5.2.1 Other Area Developments

The City of Ottawa Development Application Search Tool identifies the following other area developments in proximity of the subject site. Relevant excerpts from other area development traffic reports are included in **Appendix F**.

706-714 March Road
Development of a 4,165 m^2 GFA supermarket, 350 m^2 GFA fast-food restaurant with drive-through, and 1,500 m^2 GFA of multi-unit commercial space. The TIA identified a buildout year of 2023. Traffic generated by this development has been added to the 2024 background traffic volumes.

788 March Road
Development of a 92 apartment dwellings. The TIA identified a buildout year of 2023. Traffic generated by this development has been added to the 2024 background traffic volumes.

910 March Road
Development of a 1,835 m^2 hardware store, a 234 m^2 restaurant with drive-through, a 191 m^2 coffee shop with drive-through, a 416 m^2 retail store, and a 249 m^2 gas bar. The TIA identified a buildout year of 2022. Traffic generated by this development has been added to the 2024 background traffic volumes.

927 March Road
A subdivision that includes 35 single-detached homes, 78 townhomes, 1,838 apartment dwellings, and 65,600 ft^2 GFA of commercial space. The TIA identified that the subdivision will be built in seven phases, with an ultimate buildout year of 2034. The first two phases consisting of 633 units are anticipated to be built-out by 2024, and first four phases consisting of 997 units will be built-out by 2029.

For the purposes of this assessment, Halton Terrace and Old Carp Road are assumed to be realigned to tie into the new collector roadway through the 927 March Road subdivision. Development within the subdivision is assumed to be 35% built-out by 2024 and 55% built-out by 2029.

936 March Road
A subdivision that includes 353 single-detached homes and 575 townhomes. The TIA did not identify phasing, but estimated an ultimate buildout year of 2023. Traffic generated by this development has been added to the 2024 background traffic volumes.

1020 and 1070 March Road
A subdivision that includes 297 single-detached homes, 315 townhomes, 116 apartment dwellings, 80,000 ft^2 GFA of commercial space, and an elementary school of approximately 580 students. The TIA did not identify phasing but estimated an ultimate buildout year of 2031. For the purposes of this assessment, it is assumed that this subdivision is 25% built-out by 2024 and 75% built-out by 2029.

1053, 1075, and 1145 March Road
A subdivision that includes 295 single-detached homes, 314 townhomes, and 216 multi-unit dwellings. The TIA did not identify phasing but estimated an ultimate buildout year of 2026. For the purposes of this assessment, it is assumed that this subdivision is 50% built-out by 2024 and fully built-out by 2029.

5.2.2 General Background Growth Rate

Existing traffic volumes along March Road are assumed to grow at a rate of 0.5% per annum. This growth rate is consistent with other traffic reports in the area as well as the approved KNUEA TMP.

Background traffic during the 2024 build-out year and 2029 horizon year are shown in **Figures 5** and **6**.

Figure 5: 2024 Background Traffic

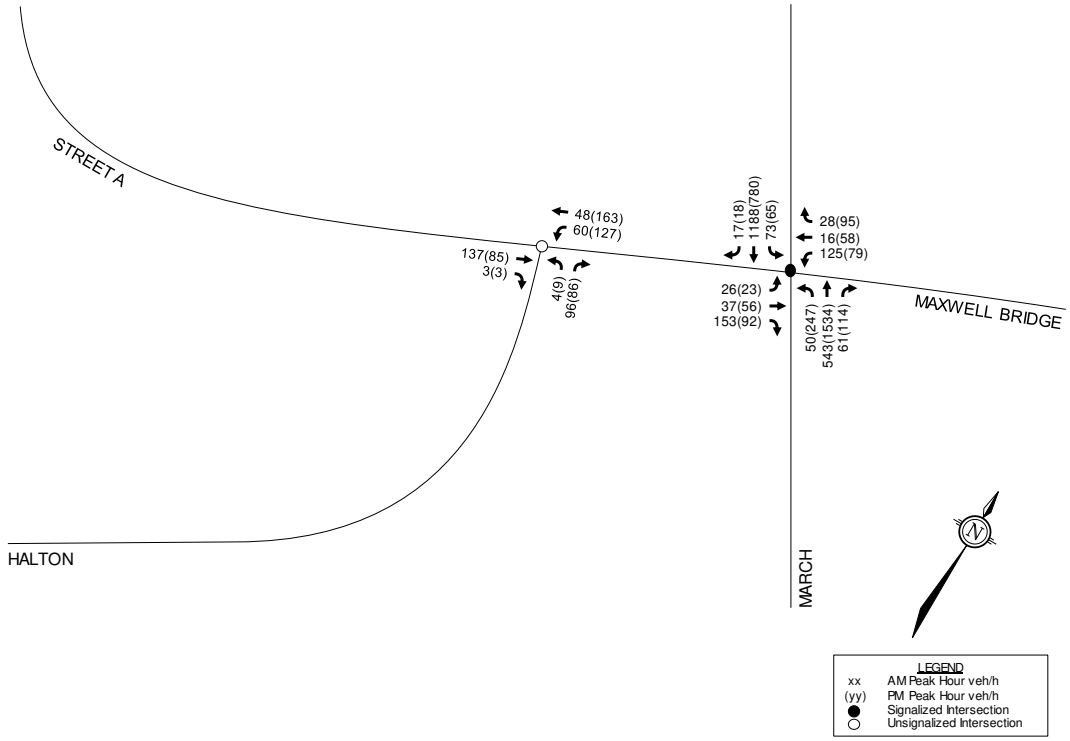
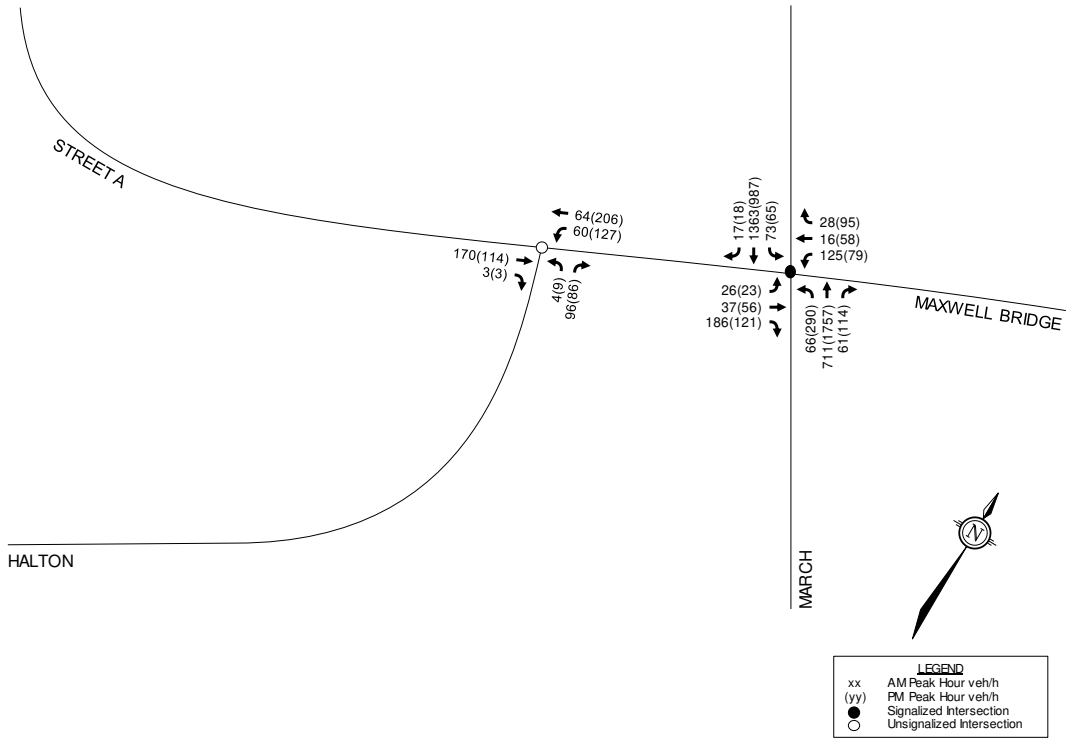


Figure 6: 2029 Background Traffic



6.0 ANALYSIS

6.1 Development Design

Pedestrian connections will be provided between the building entrance and Halton Terrace. The sidewalk will be depressed and continuous across the Halton Terrace access.

A total of seven bicycle parking spaces will be provided outdoors, and 38 will be provided in the underground parking garage. Further review of the number of bicycle parking spaces is included in Section 6.2: Parking.

OC Transpo guidelines recommend that all developments within the vicinity of a bus route should have at least one bus stop within a walking distance of 400m, roughly a 5-minute walk. OC Transpo bus stops #7570 and #0466 are located within a 400m walking distance of the subject site. These bus stops serve OC Transpo routes 63 and 64.

A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* has been conducted. A copy of the TDM checklist is included in **Appendix G**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met. In addition to the required measures, the proposed development also meets the following 'basic' or 'better' measures as defined in the *TDM-Supportive Development Design and Infrastructure Checklist*:

- Locate building close to the street, and do not locate parking areas between the street and building entrances;
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations;
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort;
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops.

Loading activities are anticipated to occur curbside along Halton Terrace. Halton Terrace has an 11m road platform with two 5.5m travel lanes and parking permitted on both sides of the road. The proposed access is located approximately 75m from the Old Carp Road right-of-way limit. Three new hydrants are proposed along the sites frontage, located approximately 10m, 50m, and 95m measured from the Old Carp Road right-of-way limit. In addition, the City of Ottawa seasonally installs one centreline flex post along the sites Halton Terrace frontage approximately 55m south of Old Carp Road right-of-way limit. Transportation Association of Canada (TAC) Geometric Design Guidelines identify a length of 11.5m and width of 2.6m for a Heavy Single Unit Truck and a width of 2.0m for a passenger car. Based on the foregoing, loading trucks will have the ability to park curbside between the two northernmost hydrants or between the middle hydrant and the proposed access. It is recommended that the centreline flex post be installed opposite the proposed middle hydrant following construction of the development. This will allow passenger vehicles to maneuver around a loading truck parked curbside in advance or following the centreline flex post.

Garbage bins will be wheeled from a collection area within the underground parking garage, up the sidewalk adjacent to the parking ramp for curbside private collection on Old Carp Road.

The fire route for the development is curbside along Halton Terrace.

6.1 Parking

The subject site is located in Area C of Schedule 1 and 1A of the City of Ottawa's ZBL. Minimum parking rates for vehicles and bicycles are summarized in **Table 6**.

Table 6: Parking Requirements

Land Use	Rate	Units	Required
Vehicle Parking			
Residential	Parking Rate: 1.2 per dwelling unit	86 units	103
	Visitor Rate: 0.2 per dwelling unit		17
		Minimum	**120**
		Provided	**121**
Bicycle Parking			
Residential	Minimum Bicycle Rate: 0.5 per dwelling unit	86 units	43
		Minimum	**43**
		Provided	**45**

The proposed number of vehicle and bicycle parking spaces exceed the minimum requirements of the City's ZBL.

6.2 Boundary Streets

This section provides a review of the boundary streets Halton Terrace and Old Carp Road using complete streets principles. The *Multi-Modal Level of Service* (MMLOS) guidelines produced by IBI Group in October 2015 have been used to evaluate the level of service of boundary roadways for each mode of transportation.

Schedule B of the City of Ottawa's Official Plan identifies both Halton Terrace and Old Carp Road as being in the General Urban Area. Within the boundaries of the subject site, both roadways are classified as collector roads. Therefore, Halton Terrace and Old Carp Road have been evaluated using the targets set for collector roadways within the General Urban Area.

6.2.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of Halton Terrace and Old Carp Road. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for all roadways within the General Urban Area. The results of the segment PLOS analysis are summarized in **Table 7**.

Table 7: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	PLOS
Halton Terrace (East side)					
2.0m	None	< 3000 vpd	N/A	50 km/h	A
Halton Terrace (West side)					
2.0m	2.0m	< 3000 vpd	N/A	50 km/h	B
Old Carp Road (Both sides)					
None	None	< 3000 vpd	N/A	50 km/h	F

1. Operating speed taken as the posted speed limit plus 10 km/h

6.2.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of Halton Terrace and Old Carp Road. Old Carp Road is designated as a local route, and Halton Terrace does not have a cycling designation adjacent to the site. Exhibit 22 of the MMLOS guidelines suggests a target BLOS B for local routes on collector roadways, and a BLOS D along collector roadways with no bike route classification within the General Urban Area. The results of the segment BLOS analysis are summarized in **Table 8**.

Table 8: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	BLOS
Halton Terrace					
Collector	No Class	Mixed Traffic	Two	50 km/h	B
Old Carp Road					
Collector	Local Route	Mixed Traffic	Two	50 km/hr	B

6.2.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of Halton Terrace and Old Carp Road. As both roadways are not included in the City's Rapid Transit or Transit Priority Network, Exhibit 22 of the MMLOS guidelines does not identify a target TLOS. The results of the segment TLOS analysis are summarized in **Table 9**.

Table 9: TLOS Segment Analysis

Facility Type	Level/Exposure to Congestion Delay, Friction and Incidents			LOS
	Congestion	Friction	Incident Potential	
Halton Terrace				
Mixed Traffic	Yes	Low	Medium	D
Old Carp Road				
Mixed Traffic	Yes	Low	Medium	D

6.2.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of Halton Terrace and Old Carp Road. Both roadways are not classified as a truck route. Exhibit 22 of the MMLOS guidelines does not identify a target TkLOS for collector roadways that are not classified as

truck routes within the General Urban Area. The results of the segment TkLOS analysis are summarized in **Table 10**.

Table 10: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	TkLOS
Halton Terrace		
> 3.7m	One	B
Old Carp Road		
≤ 3.3m	One	D

6.2.5 Segment MMLOS Summary

A summary of the foregoing segment MMLOS analysis is provided in the following table.

Table 11: Segment MMLOS Summary

Segment	PLOS	BLOS	TLOS	TkLOS
Halton Terrace	B	B	D	B
Target	**C**	**D**	**-**	**-**
Old Carp Road	**F**	B	D	D
Target	**C**	**B**	**-**	**-**

Halton Terrace achieves the target PLOS C and BLOS D.

Old Carp Road achieves the target BLOS B, but does not meet the target PLOS C. As Old Carp Road currently has a two-lane undivided rural cross section with gravel shoulders, a PLOS F is achieved. Based on the PLOS criteria, the target PLOS C can be achieved through a 1.8m wide curb face sidewalk. This is identified for the City's consideration. As development progresses in the Kanata North Urban Expansion Area (KNUEA) and Old Carp Road is realigned to tie into the future Street A, a sidewalk will be constructed to current City standards on Street A adjacent to the site.

6.3 Access Design

The proposed development will be served by an all-movement access to the underground parking garage on Old Carp Road or future Street A within the KNUEA, and an all-movement access to the surface parking lot on Halton Terrace. The driveway on Old Carp Road/Street A will be 6.1m in width and located approximately 3.0m from the western property line and 70m from the Halton terrace ROW limit. The driveway to Halton Terrace will be 6.1m in width and be located approximately 29m from the southern property line and 74m from the Old Carp Road right-of-way limit.

Section 25 (a) of the City of Ottawa's *Private Approach By-Law* (PABL) identifies a requirement for properties with a frontage of 46m to 150m to have no more than two two-way private approaches for each frontage. One two-way access is proposed along each frontage, conforming to the requirements of the PABL.

Section 25 (c) of the PABL identifies a requirement for two-way accesses to have a width no greater than 9m, as measured at the street line. Section 107 (1)(a) of the ZBL identifies a minimum width requirement of 6.0m for a double traffic lane. Despite Section 107 (1)(a), any apartment building access must also meet Section 107 (1)(aa), which identifies a maximum width requirement of 6.7m

for any double traffic lane which leads to 20 or more parking spaces. The width of the proposed accesses conform to the requirements of the PABL and ZBL.

Section 25 (o) of the PABL identifies a requirement to provide a minimum distance of 6m between the private approach and the nearest intersecting street line, as measured at the street line. Section 25 (p) of the PABL identifies a requirement to provide a minimum distance of 3m between the private approach and the adjacent property line. The location of both accesses conform to the requirements of the PABL.

Section 25 (u) of the PABL identifies a requirement that any private approach leading to 50 or more parking spaces may not exceed a grade of 2% within 9m of the street line. A maximum grade of 2% will be provided for the first 9m within the property at the Halton Terrace access, conforming to the requirements of the PABL. However, the ramp to the parking garage on Old Carp Road will have a grade of 6% for 6m within the property where it transitions to an 11.8% grade for approximately 8.7m and a waiver to Section 25(u) of the PABL is required.

TAC Geometric Design Guidelines provide vehicle characteristics for various design vehicles. Based on TAC, passenger vehicles have a wheelbase of 3.2m and a front bumper overhang of 1.1m. Based on the foregoing vehicle characteristics, the proposed 6% grade for a distance of 6m within the property is sufficient for a passenger vehicle to stop entirely on private property with both tires on the 6% grade and have appropriate sight lines to vehicles, pedestrians and cyclists on Old Carp Road. Further, the TAC Geometric Design Guidelines Section 8.9.11 identifies a maximum recommended downgrade of 7% for low volume driveways. Based on the foregoing, a waiver to the Section 25(u) of the PABL is recommended.

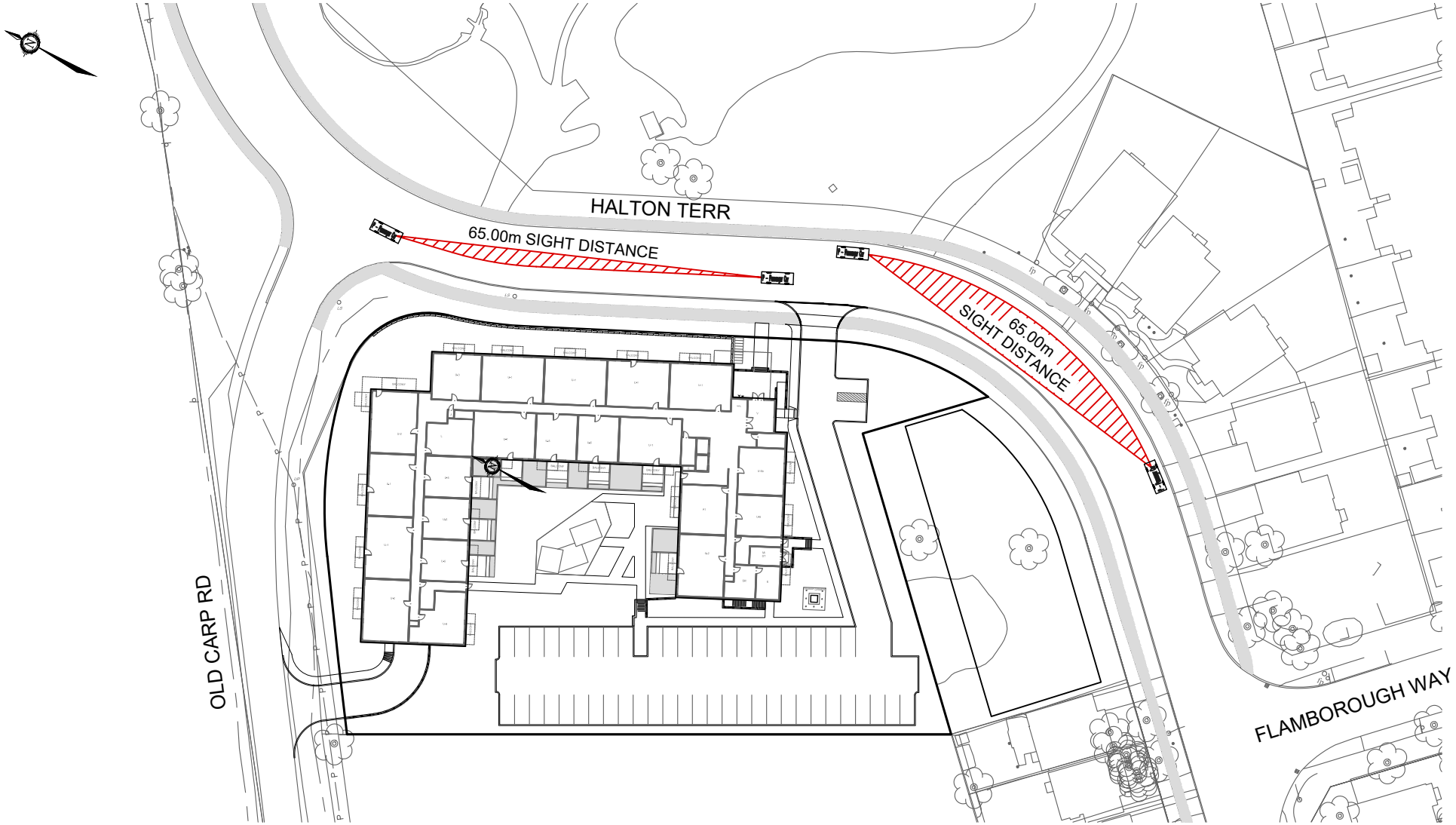
TAC Geometric Design Guidelines identify the following Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD) requirements, based on a design speed of 50km/hr.

- SSD = 65m
- ISD to turn left = 105m
- ISD to turn right = 95m

Should the development proceed in advance of the Street A construction and Halton Terrace/Old Carp Road realignment, the SSD and ISD at both accesses are shown in **Figures 7** to **10**. The SSD and ISD at both accesses following the Street A construction is shown in **Figures 11** to **12**.

Based on the foregoing, both accesses will meet the SSD requirements before and after the future Street A construction. During the interim, the ISD to turn left from the Old Carp Road access will be limited to approximately 100m by the Halton Terrace intersection. The ISD to turn left from the Halton Terrace access will be limited to approximately 80m by the future single detached houses to the south. However, as the required SSD will be met at both accesses, a vehicle travelling on the main road will have sufficient distance to slow or stop should a vehicle turn left from either access.

TAC Geometric Design Guidelines identify a minimum clear throat length of 8m for apartment buildings with less than 100 units on a collector roadway. A clear throat length greater than 8m is provided in advance of the parking garage door on Old Carp Road. A clear throat length of 8m is provided before the first on-site parking space at the Halton Terrace access.



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

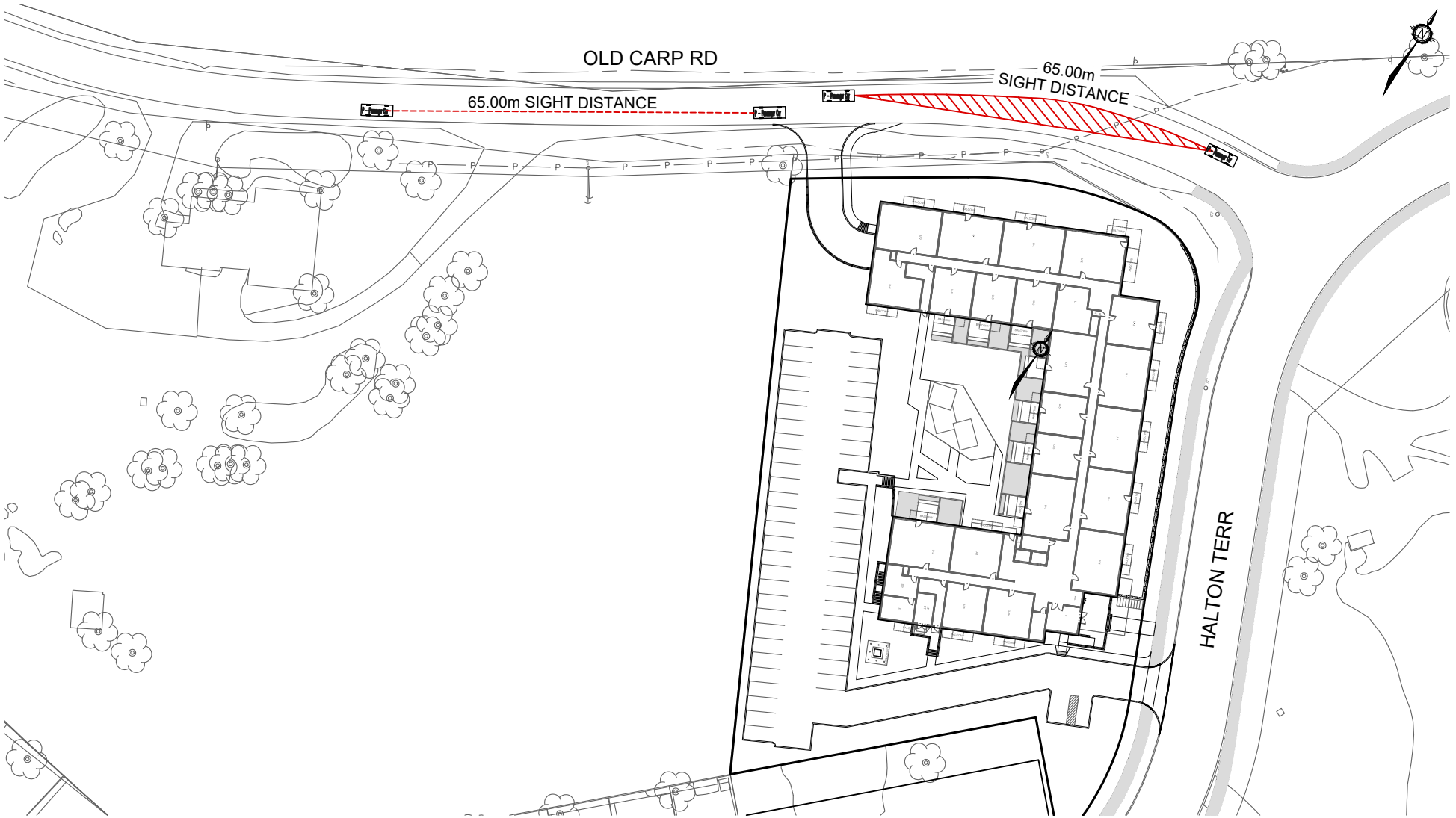
1104 HALTON TERRACE

STOPPING SIGHT DISTANCE

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 7

SHT8X11.DWG - 216mmx279mm



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1104 HALTON TERRACE

STOPPING SIGHT DISTANCE

SCALE 1 : 1000 (0 10 20 30 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 8

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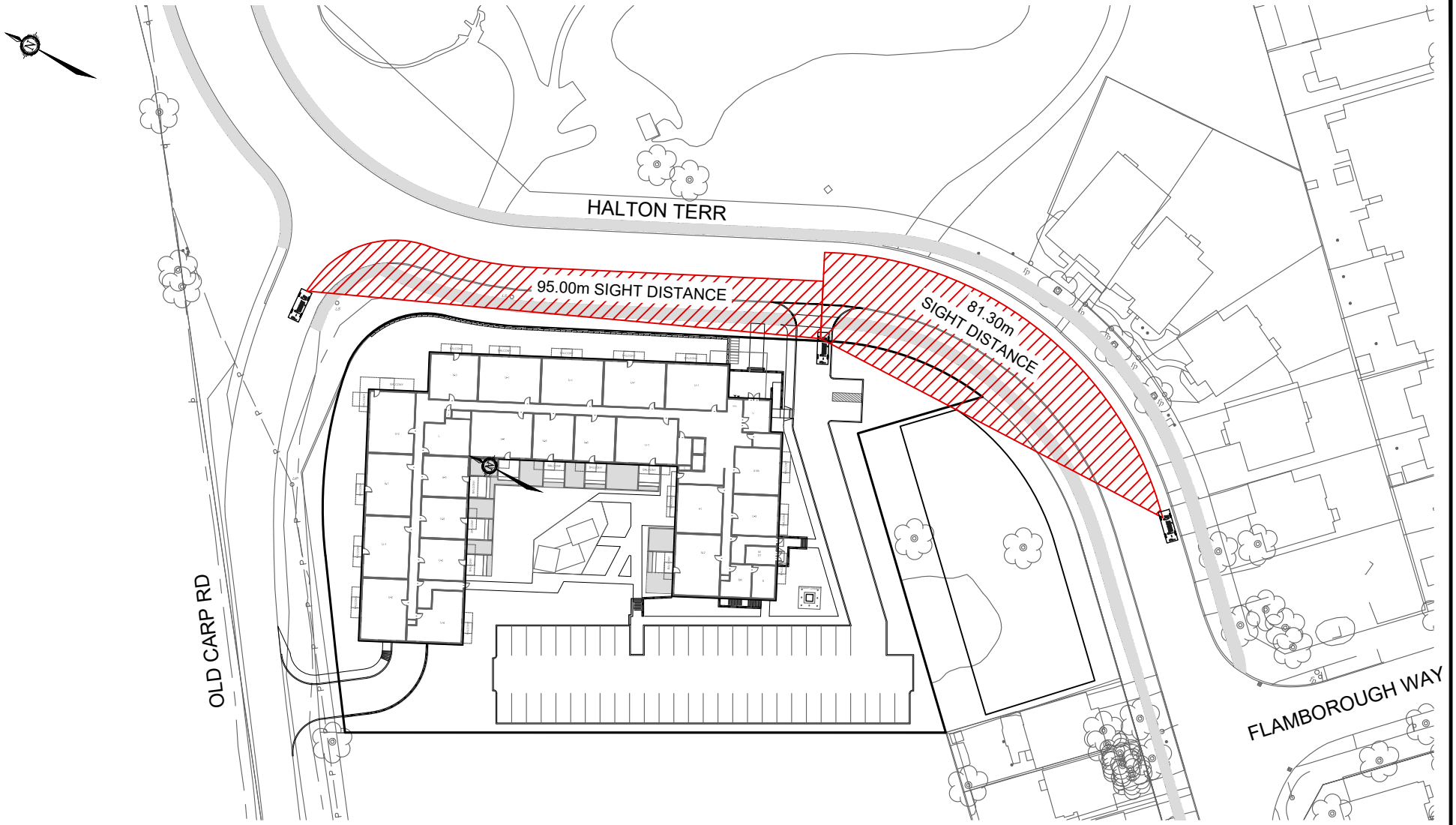

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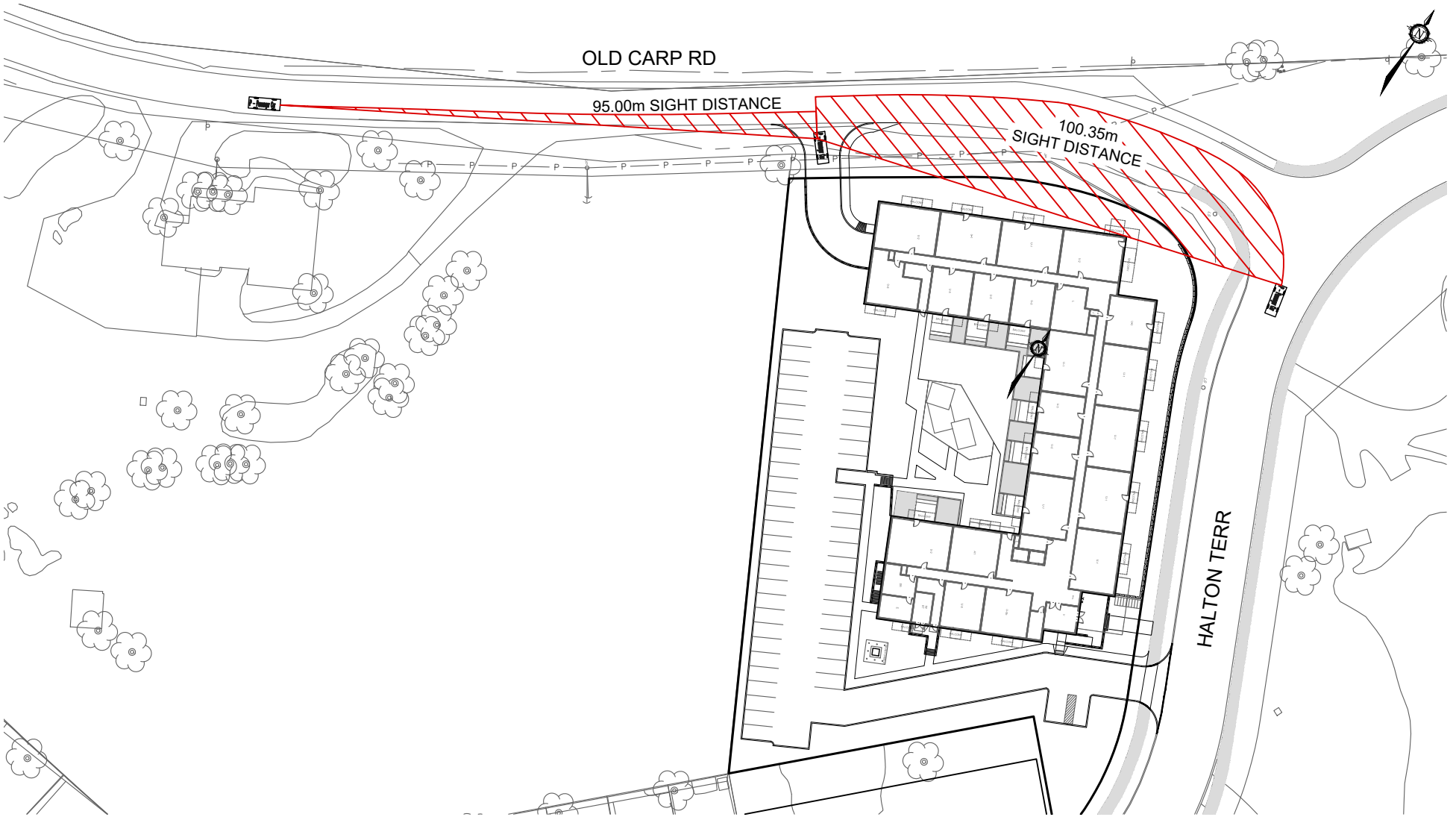
1104 HALTON TERRACE

INTERSECTION SIGHT DISTANCE

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 9

SHT8X11.DWG - 216mmx279mm



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1104 HALTON TERRACE

INTERSECTION SIGHT DISTANCE

SCALE 1 : 1000 (0 10 20 30 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 10

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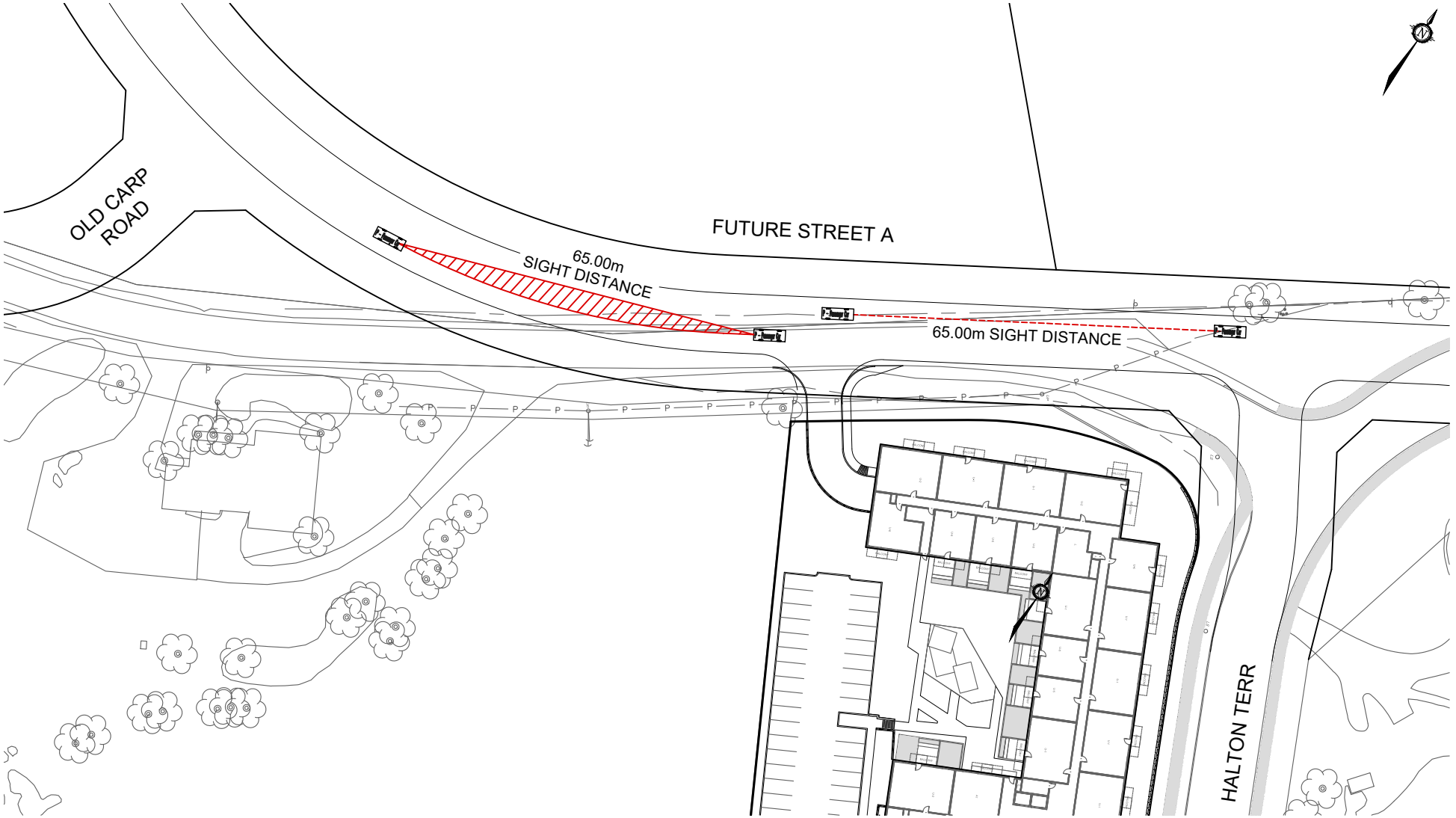

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1104 HALTON TERRACE

STOPPING SIGHT DISTANCE

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 11

SHT8X11.DWG - 216mmx279mm

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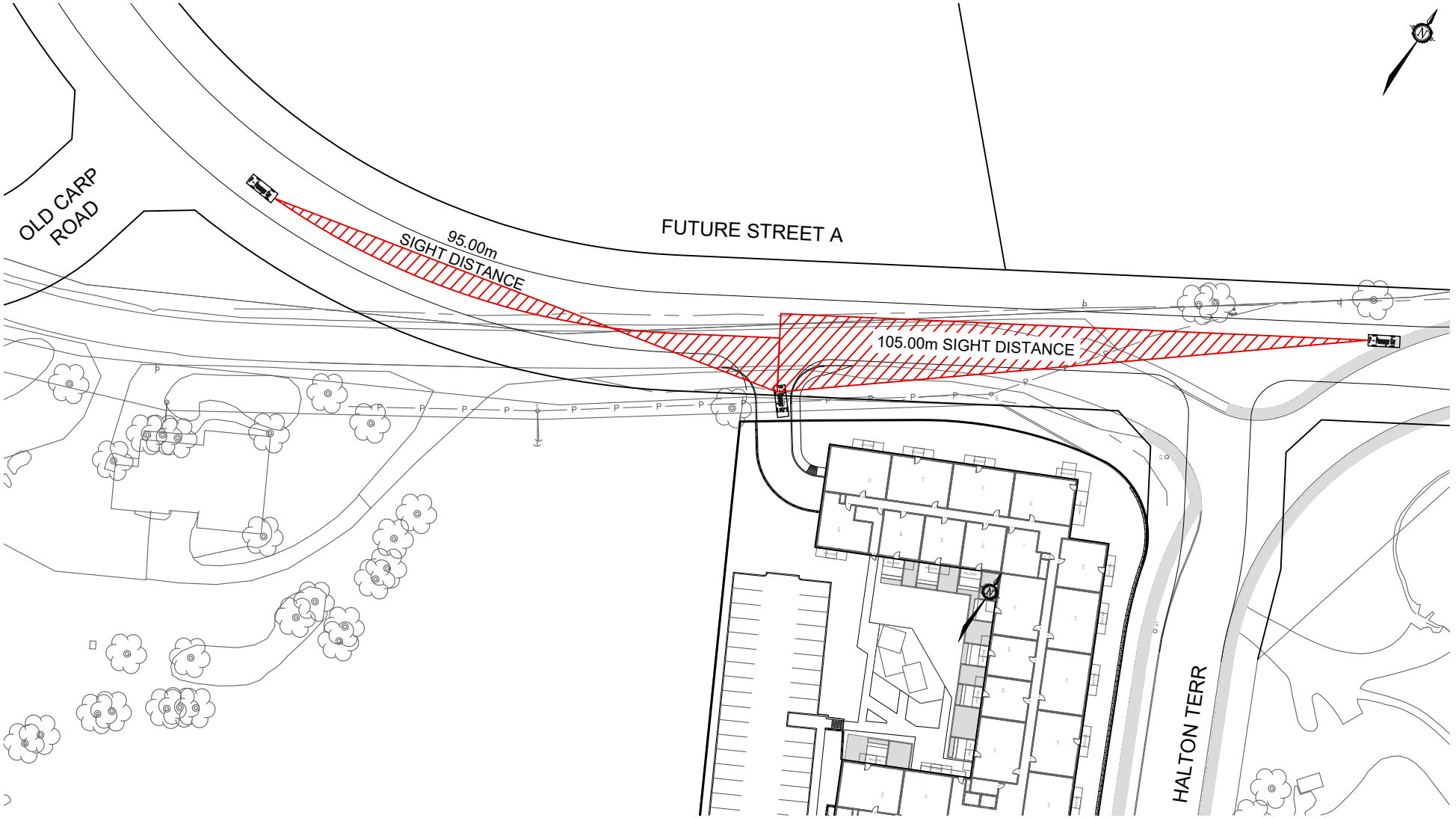

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1104 HALTON TERRACE

INTERSECTION SIGHT DISTANCE

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE OCT 2021 | JOB 119024 | FIGURE FIGURE 12

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- The development is estimated to generate 35 person trips (including 17 vehicle trips) during the AM and PM peak hours.

Development Design and Parking

- Pedestrian connections will be provided between the building entrance and Halton Terrace. The sidewalk will be depressed and continuous across the Halton Terrace access.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Loading activities are anticipated to occur curbside along Halton Terrace. It is recommended that the existing centreline flex post be installed opposite the proposed middle hydrant following construction of the development. This will allow passenger vehicles to maneuver around a loading truck parked curbside in advance or following the centreline flex post.
- Garbage bins will be wheeled from a collection area within the underground parking garage, up the sidewalk adjacent to the parking ramp for curbside private collection on Old Carp Road.
- The proposed number of vehicle and bicycle parking spaces exceed the minimum requirements of the City's ZBL.

Boundary Streets

- Halton Terrace achieves the target PLOS C and BLOS D.
- Old Carp Road achieves the target BLOS B but does not meet the target PLOS C. Based on the PLOS criteria, the target PLOS C can be achieved through either a 1.8m wide curb face sidewalk or a 1.5m wide sidewalk with a boulevard. This is identified for the City's consideration.
- As development progresses in the Kanata North Urban Expansion Area (KNUEA) and Old Carp Road is realigned to tie into the future Street A, a sidewalk will be constructed to current City standards on Street A adjacent to the site.

Access Design

- The proposed development will be served by an all-movement access to the underground parking garage on Old Carp Road or future Street A within the KNUEA, and an all-movement access to the surface parking lot on Halton Terrace.
- The width, location and number of accesses conform to the requirements of the Private Approach By-law and Zoning By-law.
- A maximum grade of 2% will be provided for the first 9m within the property at the Halton Terrace access, conforming to the requirements of the Private Approach By-law. However, the ramp to the parking garage on Old Carp Road will have a grade of 6% for 6m within the property where it transitions to an 11.8% grade for approximately 8.7m and a waiver to Section 25(u) of the Private Approach By-law is requested.
- Both accesses will meet the Stopping Sight Distance requirements before and after the future Street A construction.
- Prior to Street A construction, the Intersection Sight Distance to turn left from the Old Carp Road access will be limited by the Halton Terrace intersection. The Intersection Sight

Distance to turn left from the Halton Terrace access will be limited by the future single detached houses to the south. However, as the required Stopping Sight Distance will be met at both accesses, a vehicle travelling on the main road will have sufficient distance to slow or stop should a vehicle turn left from either access.

- The required clear throat length will be provided at both accesses.

Based on the foregoing, the proposed development is recommended from a transportation perspective.

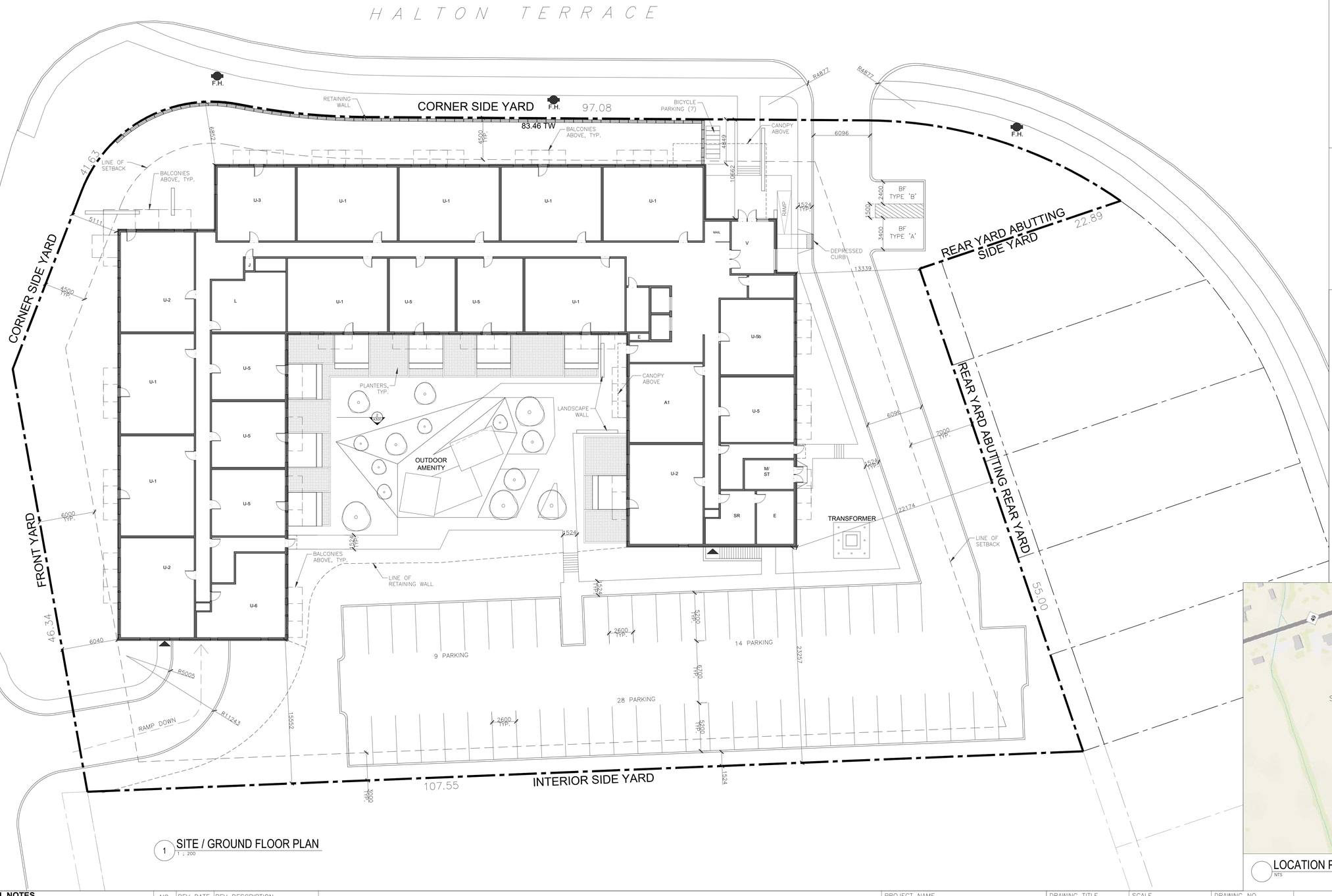
NOVATECH

Prepared by:

Brad Byvelds, P.Eng.
Project Coordinator, Transportation/Traffic

APPENDIX A

Proposed Site Plan



1 SITE / GROUND FLOOR PLAN
1 : 200

1104 HALTON
86 UNIT APARTMENT BUILDING

DEVELOPMENT INFORMATION

ZONING: R4S
LOT AREA: 7,175 Sq.M. (77,226 Sq.Ft.)
LOT WIDTH: 25 MIN.;
FRONT SETBACK: 6M MIN; PROVIDED - 6M
REAR SETBACK: 7M MIN; PROVIDED - 7.0M
SIDE SETBACK: PROVIDED-4.5M
LOT COVERAGE: 31.2%
AVERAGE GRADE:
BUILDING HEIGHT: 14.5M MAX;
LANDSCAPE AREA:

PARKING

PARKING REQUIRED: 121 SPACES (1.2/UNIT + 0.2/UNIT VISITOR)
PARKING PROVIDED: 121 SPACES (1.2/UNIT + 0.2/UNIT VISITOR)
INDOOR PARKING: 68 SPACES
OUTDOOR PARKING: 53 SPACES
VISITOR PARKING: 18 SPACES
BARRIER-FREE PARKING: 5 SPACES
BICYCLE PARKING REQUIRED: .5/UNIT = 43 SPACES
BICYCLE PARKING PROVIDED: 45 SPACES (7 OUTDOOR, 38 INDOOR)

UNIT BREAKDOWN

UNIT TYPE	# OF UNITS	Sq.METRES (Ft²)
UNIT 1	32	91.9 M² (990 Ft²)
UNIT 2	18	93.6 M² (1007 Ft²)
UNIT 3	4	73.9 M² (844 Ft²)
UNIT 4	6	85.9 M² (924 Ft²)
UNIT 5	24	61.1 M² (658 Ft²)
UNIT 5b	1	69.4 M² (747 Ft²)
UNIT 6	1	76.1 M² (820 Ft²)
TOTAL UNITS	86	7071 M² (76,108 Ft²)

ABBREVIATIONS:

U-1	UNIT TYPE 1
U-2	UNIT TYPE 2
U-3	UNIT TYPE 3
U-4	UNIT TYPE 4
U-5	UNIT TYPE 5
U-5b	UNIT TYPE 5b
U-6	UNIT TYPE 6
A1	AMENITY
B	BIKE STORAGE
E	ELEVATOR CHASE
GR	GARBAGE ROOM
J	JANITOR CLOSET
L	LOCKER ROOM
MR	MECHANICAL ROOM
S	SERVICE ROOM
SR	SPRINKLER ROOM
V	VESTIBULE
WS	WATER SERVICES

DEVELOPER/OWNER:
MAPLE LEAF CUSTOM HOMES
144 CONSTANCE CREEK DR
DUNROBIN, ON
K0A 1T0

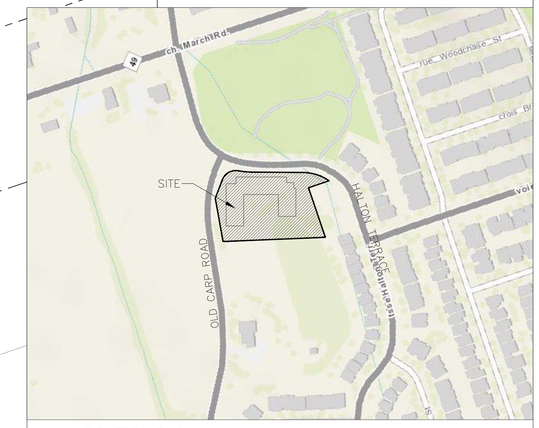
ARCHITECT:
COLIZZA BRUNI ARCHITECTURE INC.
76 CHAMBERLAIN AVE,
OTTAWA, ON.
K1S 1V9

SURVEYOR:
ANNIS O'SULLIVAN VOLLEBEKK LTD
14 CONCOURSE GATE, SUITE 500
OTTAWA, ON
K2E 7S6

CIVIL ENGINEER:
NOVATECH ENGINEERING CONSULTANTS
240 MICHAEL COWPLAND DR.
KANATA, ON.
K2M 1P6

LANDSCAPE ARCHITECT:
NOVATECH ENGINEERING CONSULTANTS
240 MICHAEL COWPLAND DR.
KANATA, ON.
K2M 1P6

PLANNER:
Q9 PLANNING + DESIGN
24 KIRKSTALL AVE,
NEPEAN, ON.
K2G3M5



LOCATION PLAN
NTS

GENERAL NOTES

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY ERRORS AND OMISSIONS TO THE ARCHITECT. ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS. DO NOT SCALE DRAWINGS. THESE DRAWINGS MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF COLIZZA BRUNI ARCHITECTURE INCORPORATED.COPYRIGHT RESERVED.

NO	REV DATE	REV DESCRIPTION

PROJECT NAME
1104 HALTON
86 UNIT APARTMENT BUILDING
OTTAWA, ON

DRAWING TITLE
SITE PLAN

SCALE	AS NOTED
DRAWN BY	EA
DATE	10/14/21
PROJECT NO.	03020

DRAWING NO.
SP1

COLIZZA BRUNI
architecture
76 CHAMBERLAIN AVE • OTTAWA • ONTARIO • K1S 1V9
T 613.236.2944 • F 613.236.6777 • www.colizzabruni.com

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**1104 Halton Terrace**
Description of Location	**Southwest corner of Old Carp Road/Halton Terrace**
Land Use Classification	**Residential**
Development Size (units)	**86 apartment units**
Development Size (m^2)	
Number of Accesses and Locations	**One full movement access to Old Carp Road and one full movement access to Halton Terrace**
Phase of Development	**1**
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
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m^2
Industrial	5,000 m^2
Fast-food restaurant or coffee shop	100 m^2
Destination retail	1,000 m^2
Gas station or convenience market	75 m^2

** 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?	✓	
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

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?	✓	

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).

APPENDIX C

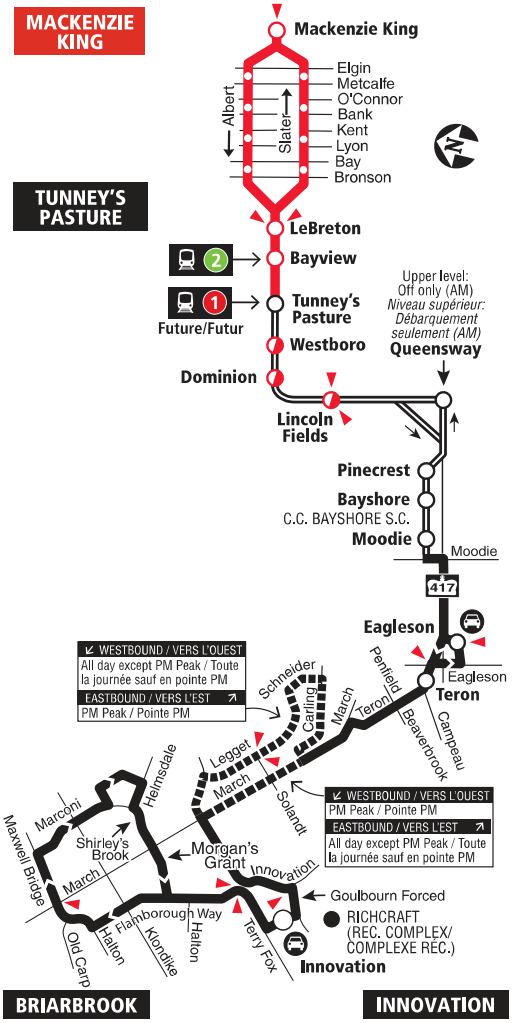
OC Transpo Route Maps

63 Rapide

TUNNEY'S PASTURE
MACKENZIE KING
INNOVATION
BRIARBROOK

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Transitway & Station

Peak Periods Only / Périodes de pointe seulement

Eastbound: AM Off only - Westbound: Full Service
Vers l'est AM: Débarquement seulement
Vers l'ouest: Service complet

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2018.06

Schedule / Horaire.....613-560-1000
Text / Texto 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Relations
Service à la clientèle 613-842-3600

Lost and Found / Objets perdus.....613-563-4011

Security / Sécurité.....613-741-2478

Effective June 24 , 2018
En vigueur 24 juin 2018

OC Transpo
INFO 613-741-4390
octranspo.com

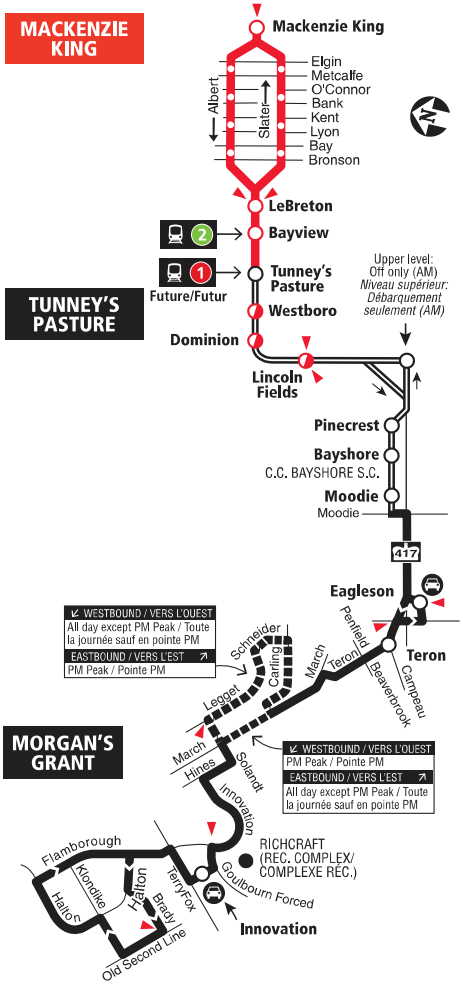
64

TUNNEY'S PASTURE
MACKENZIE KING
MORGAN'S GRANT

Local

Monday to Friday / Lundi au vendredi

All day service
Service toute la journée



2018.06

Schedule / Horaire.....613-560-1000
Text / Texto 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Relations
Service à la clientèle **613-842-3600**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité..... **613-741-2478**

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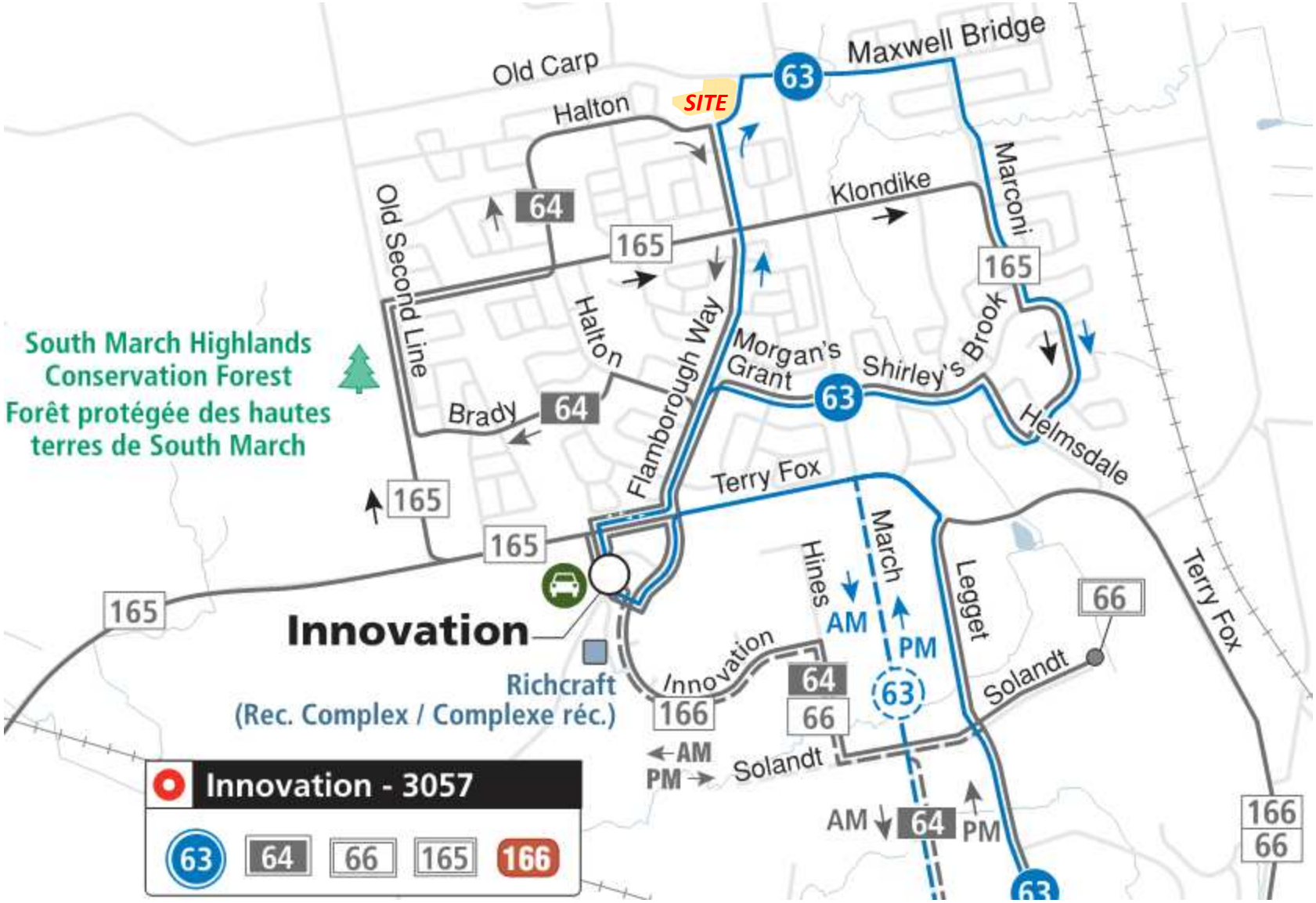

Old Carp
Halton
SITE
63
Maxwell Bridge
Klondike
Marconi
64
165
Old Second Line
Halton
Flamborough Way
Morgan's Grant
Shirley's Brook
Helmsdale
South March Highlands
Conservation Forest
Forêt protégée des hautes
terres de South March
Brady
64
Terry Fox
165
165
165
Innovation
Richcraft
(Rec. Complex / Complexe réc.)
Hines
March
AM
PM
Legget
66
Terry Fox
Innovation
166
64
66
63
Solandt
AM
PM
Solandt
AM
64
PM
166
66
63
Innovation - 3057
63
64
66
165
166

APPENDIX D

Traffic Count Data

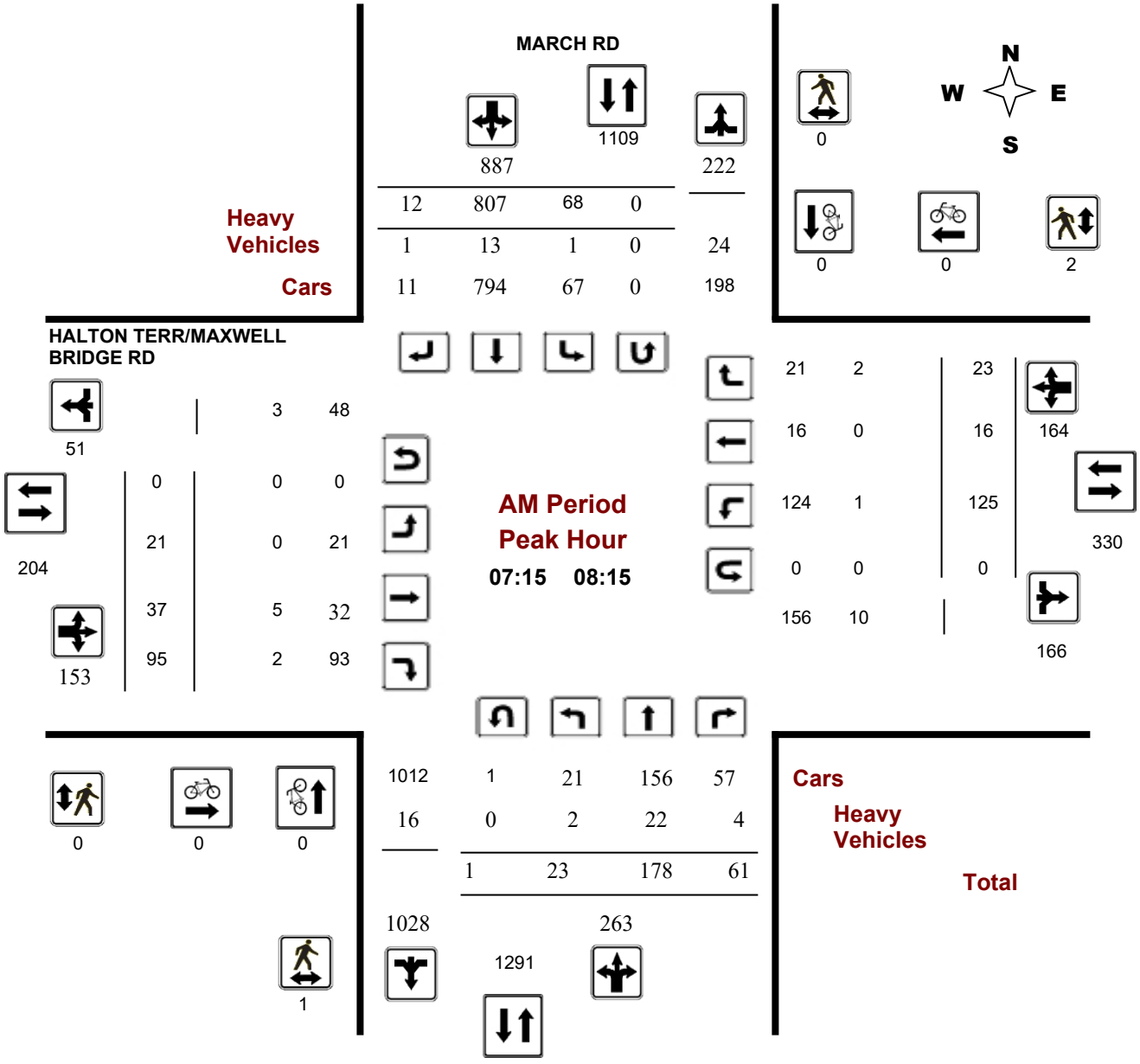
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HALTON TERR/MAXWELL BRIDGE RD @ MARCH RD

Survey Date: Wednesday, March 04, 2020 **WO No:** 39372

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



Comments 5472187 - WED JAN 22, 2020 - 8HRS - LORETTA

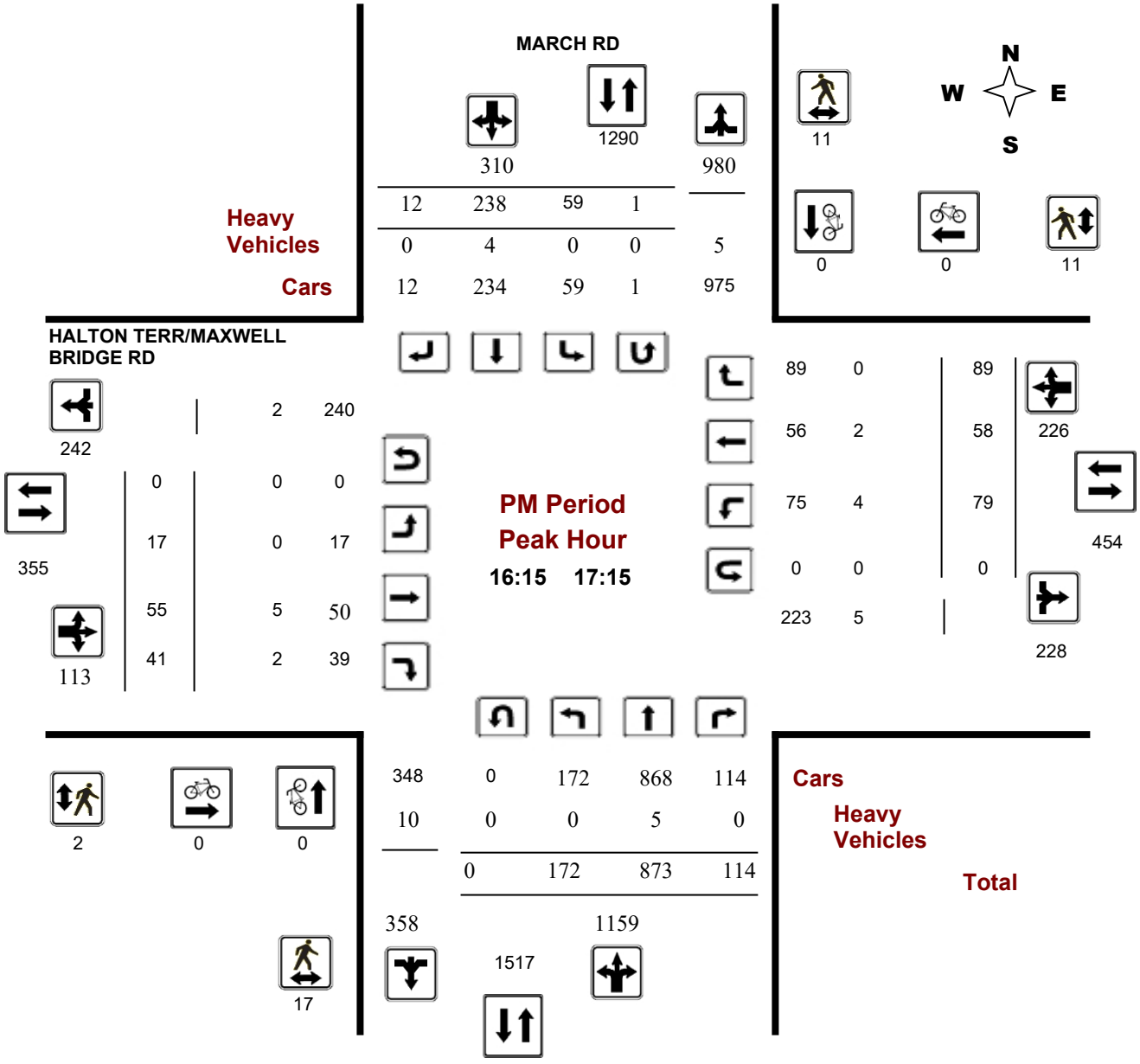
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HALTON TERR/MAXWELL BRIDGE RD @ MARCH RD

Survey Date: Wednesday, March 04, 2020 **WO No:** 39372

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



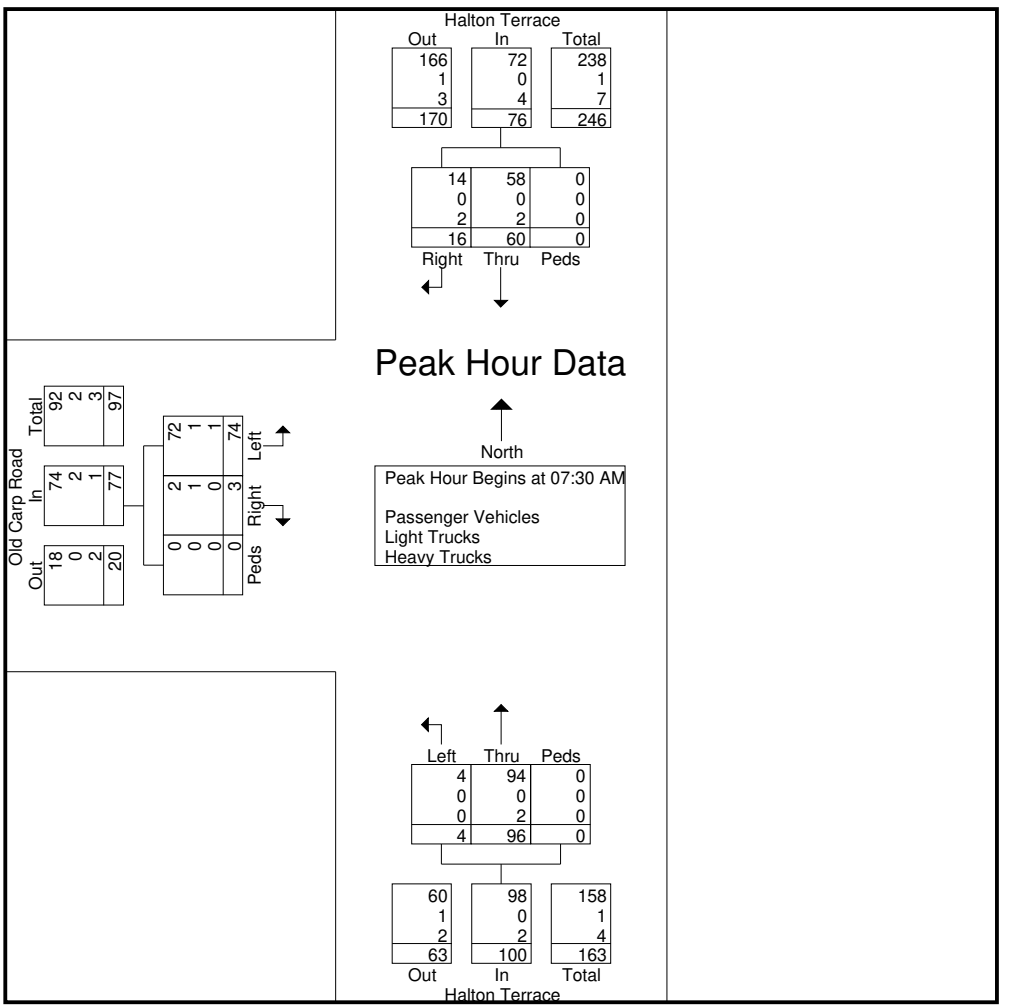
Comments 5472187 - WED JAN 22, 2020 - 8HRS - LORETTA

240 Michael Cowpland Drive, Suite 200
Kanata ON, K2M 1P6

Weather: Rainy
Serial Number: N/A
Collected By: TB/AH
Notes: Sept30/Oct1

File Name : halton&old carp
Site Code : 11211702
Start Date : 01/10/2015
Page No : 3

	Halton Terrace Southbound				Halton Terrace Northbound				Old Carp Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	3	10	0	13	23	**3**	0	26	0	19	0	19	58
07:45 AM	1	**21**	0	**22**	20	0	0	20	0	15	0	15	57
08:00 AM	5	15	0	20	**30**	1	0	**31**	**2**	19	0	21	**72**
08:15 AM	**7**	14	0	21	23	0	0	23	1	**21**	0	**22**	66
Total Volume	16	60	0	76	96	4	0	100	3	74	0	77	253
% App. Total	21.1	78.9	0		96	4	0		3.9	96.1	0		
PHF	.571	.714	.000	.864	.800	.333	.000	.806	.375	.881	.000	.875	.878
Passenger Vehicles	14	58	0	72	94	4	0	98	2	72	0	74	244
% Passenger Vehicles	87.5	96.7	0	94.7	97.9	100	0	98.0	66.7	97.3	0	96.1	96.4
Light Trucks	0	0	0	0	0	0	0	0	1	1	0	2	2
% Light Trucks	0	0	0	0	0	0	0	0	33.3	1.4	0	2.6	0.8
Heavy Trucks	2	2	0	4	2	0	0	2	0	1	0	1	7
% Heavy Trucks	12.5	3.3	0	5.3	2.1	0	0	2.0	0	1.4	0	1.3	2.8

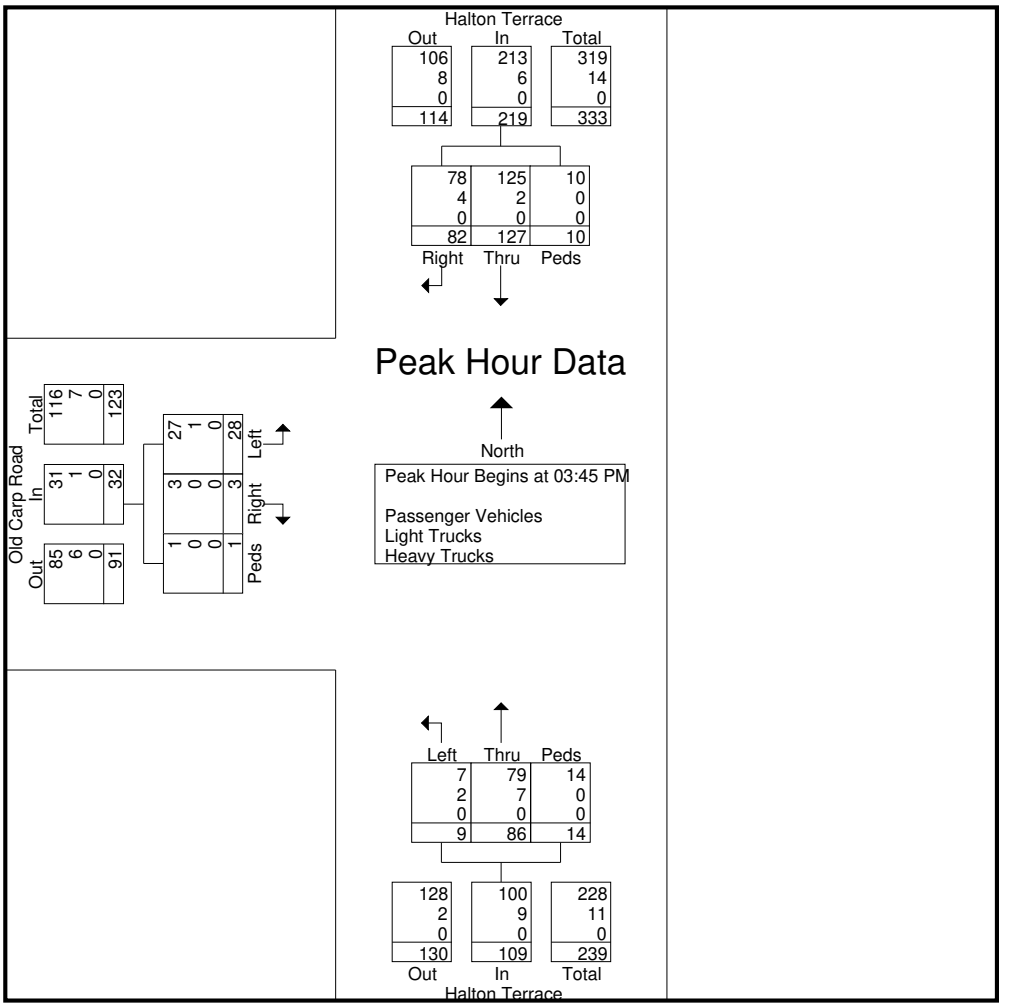


240 Michael Cowpland Drive, Suite 200
Kanata ON, K2M 1P6

Weather: Rainy
Serial Number: N/A
Collected By: TB/AH
Notes: Sept30/Oct1

File Name : halton&old carp
Site Code : 11211702
Start Date : 01/10/2015
Page No : 4

	Halton Terrace Southbound				Halton Terrace Northbound				Old Carp Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:45 PM													
03:45 PM	15	25	0	40	**33**	**5**	5	**43**	0	5	**1**	6	89
04:00 PM	19	30	**5**	54	15	2	**8**	25	1	**9**	0	10	89
04:15 PM	21	**39**	4	**64**	19	1	1	21	0	5	0	5	90
04:30 PM	**27**	33	1	61	19	1	0	20	**2**	9	0	**11**	**92**
Total Volume	82	127	10	219	86	9	14	109	3	28	1	32	360
% App. Total	37.4	58	4.6		78.9	8.3	12.8		9.4	87.5	3.1		
PHF	.759	.814	.500	.855	.652	.450	.438	.634	.375	.778	.250	.727	.978
Passenger Vehicles	78	125	10	213	79	7	14	100	3	27	1	31	344
% Passenger Vehicles	95.1	98.4	100	97.3	91.9	77.8	100	91.7	100	96.4	100	96.9	95.6
Light Trucks	4	2	0	6	7	2	0	9	0	1	0	1	16
% Light Trucks	4.9	1.6	0	2.7	8.1	22.2	0	8.3	0	3.6	0	3.1	4.4
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



APPENDIX E

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: HALTON TER btwn Continuation of HALTON TER & OLD CARP RD

Traffic Control: No control **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jan-18, Mon,12:14	Clear	Sideswipe	P.D. only	Slush	East	Going ahead	Passenger van	Other motor vehicle	0
					East	Stopped	Passenger van	Other motor vehicle	
2016-Jan-18, Mon,13:16	Clear	Rear end	P.D. only	Slush	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Passenger van	Other motor vehicle	

Location: HALTON TERR/MAXWELL BRIDGE RD @ MARCH RD

Traffic Control: Traffic signal **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Dec-13, Sun,17:23	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Passenger van	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2016-Feb-28, Sun,19:57	Freezing Rain	Turning movement	P.D. only	Ice	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Sep-30, Fri,19:32	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2016-Nov-24, Thu,06:47	Snow	Turning movement	Non-fatal injury	Ice	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-05, Mon,08:23	Snow	Sideswipe	P.D. only	Loose snow	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-23, Fri,10:59	Clear	Turning movement	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2017-Apr-19, Wed,14:14	Rain	Angle	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Jun-22, Thu,10:59	Clear	Other	P.D. only	Dry	West	Reversing	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: HALTON TERR/MAXWELL BRIDGE RD @ MARCH RD

Traffic Control: Traffic signal **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Nov-28, Tue,22:03	Rain	SMV other	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Pedestrian	1
2018-Nov-15, Thu,17:20	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-05, Wed,18:26	Snow	Turning movement	P.D. only	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Feb-02, Sat,16:10	Snow	Rear end	P.D. only	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Feb-12, Tue,15:00	Snow	Sideswipe	P.D. only	Wet	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-29, Fri,17:24	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	

APPENDIX F

Relevant Excerpts from Other Area Developments

Figure 22: Net New Site Generation Auto Volumes

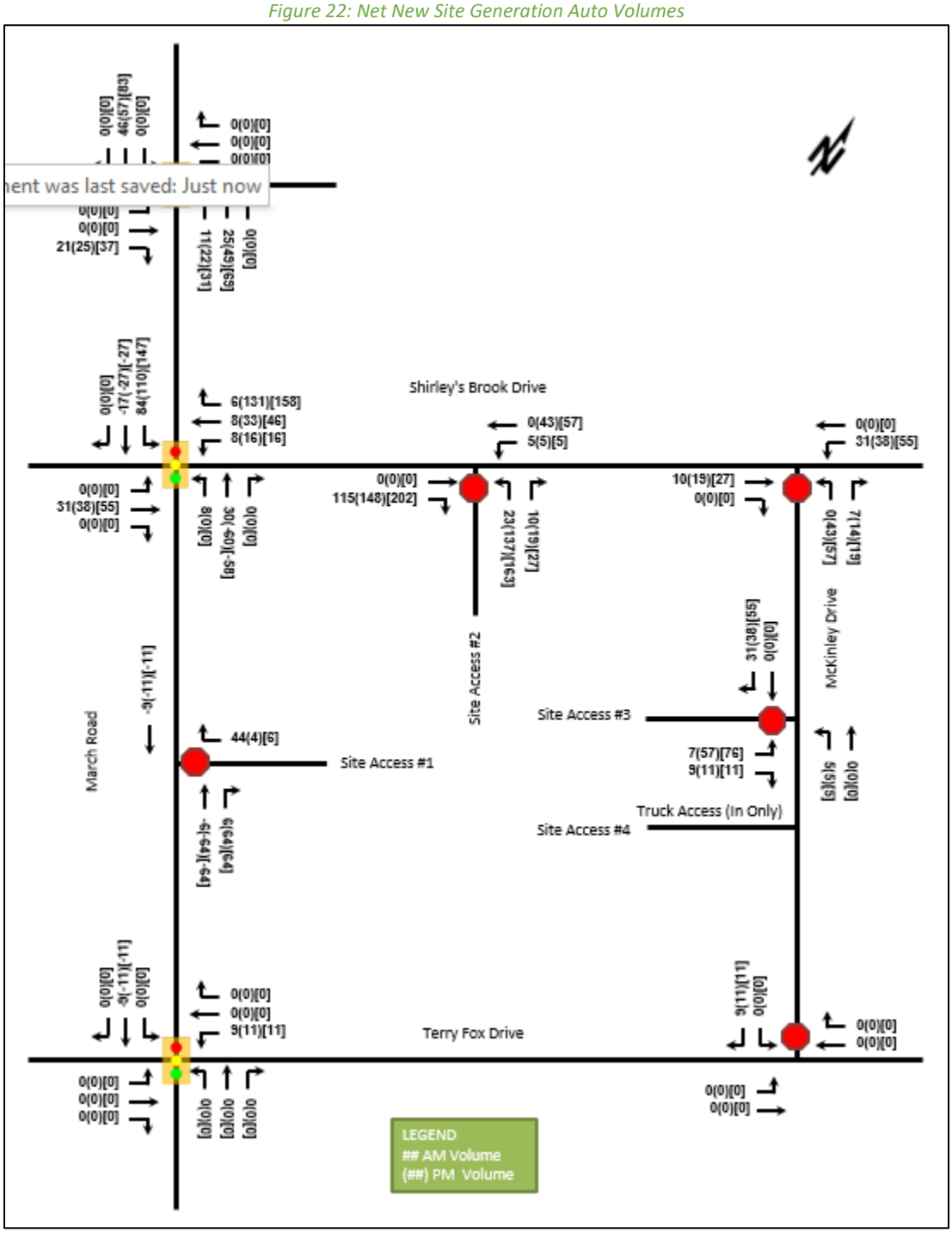
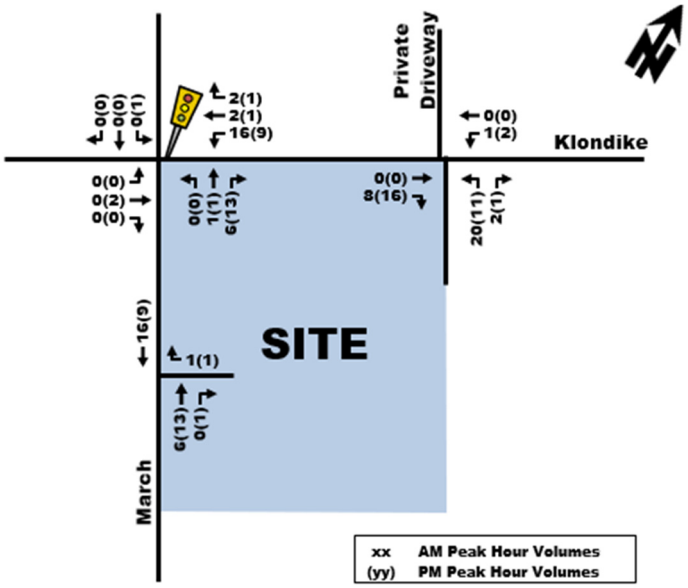


Table 2: Site Person Trip Generation Using OD-Survey Mode Share – Updated

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Peak (persons/h)		
		In	Out	Total	In	Out	Total
Auto Driver	50%	9	23	32	19	13	32
Auto Passenger	10%	1	5	6	4	3	7
Transit	25%	4	13	17	9	7	16
Non-motorized	15%	3	7	10	5	5	10
Total People Trips	100%	17	48	65	37	28	65
Total 'New' High-Rise Condominium (2023) Auto Trips		9	23	32	19	13	32

The total two-way anticipated site generated person trips are 65 for the AM and PM peak hours, and the total two-way vehicle generated trips are 32 trips for the AM and PM peak hours. Figure 1, below shows the updated vehicle volumes assigned to the local roadways within the study area.

Figure 1: Updated Total Site Generated Vehicle Trips



2.3. Difference in Forecasted Trips

To understand the difference between the previous Site Plan and the updated Site Plan with regard to trip generation, the forecasted volumes from the original TIA were compared to those associated with the updated Site Plan. Table 3 summarizes the difference (Table 2 - Table 1 values).

Figure 22: New Site Generation 2022 Auto Volumes

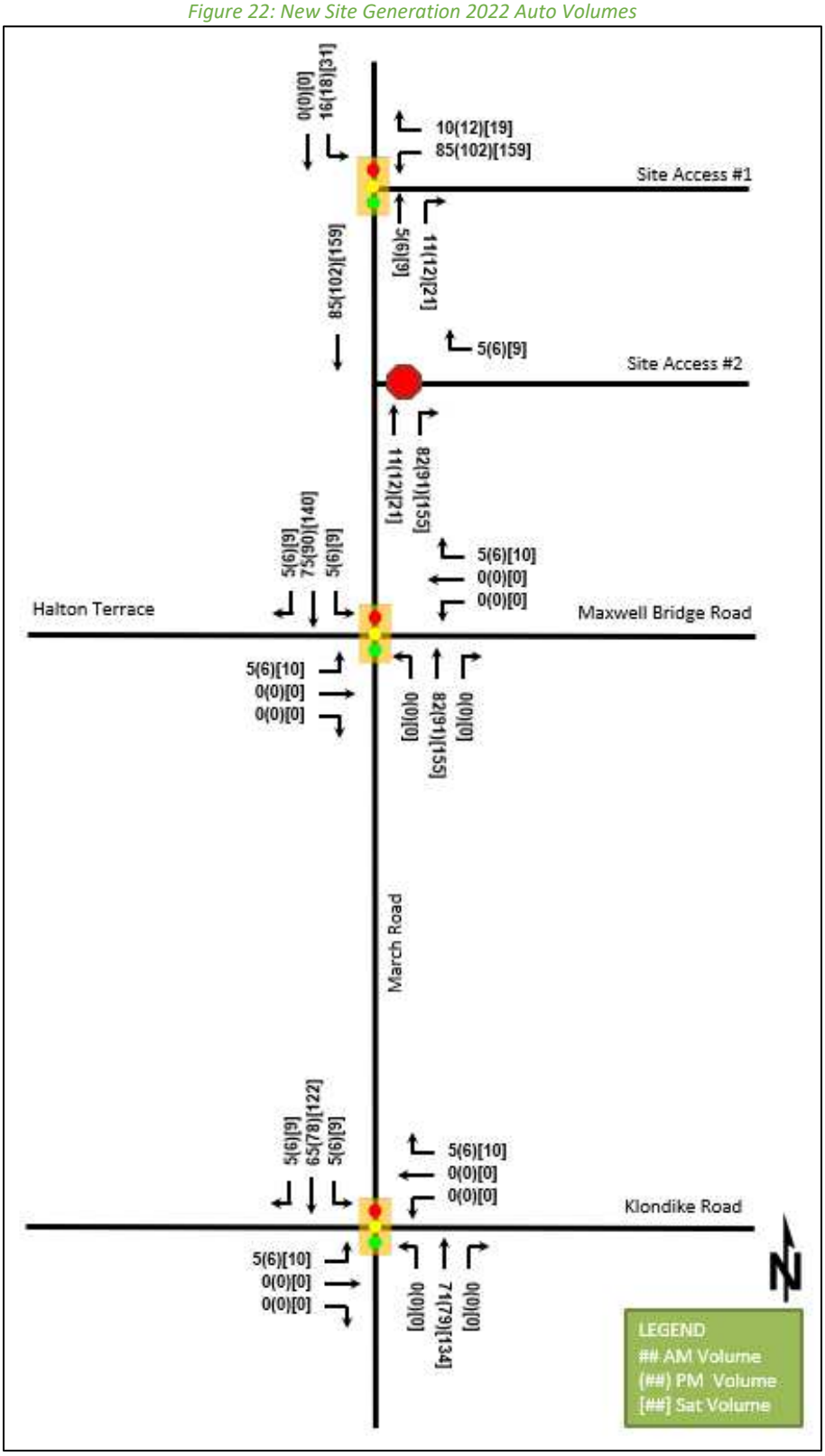


Figure 23: New Site Generation 2027 Auto Volumes

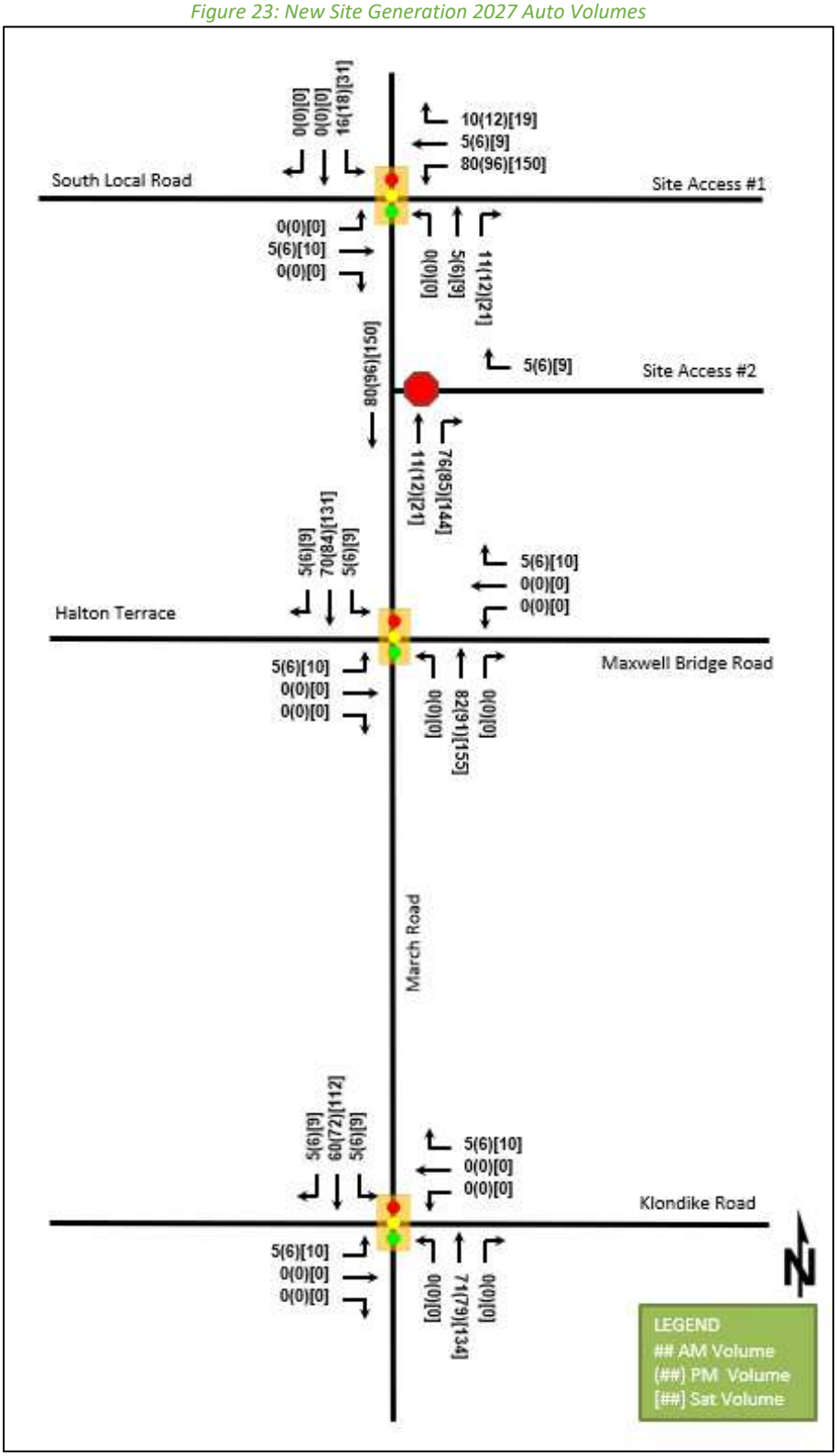


Figure 12 - Site Traffic Volumes

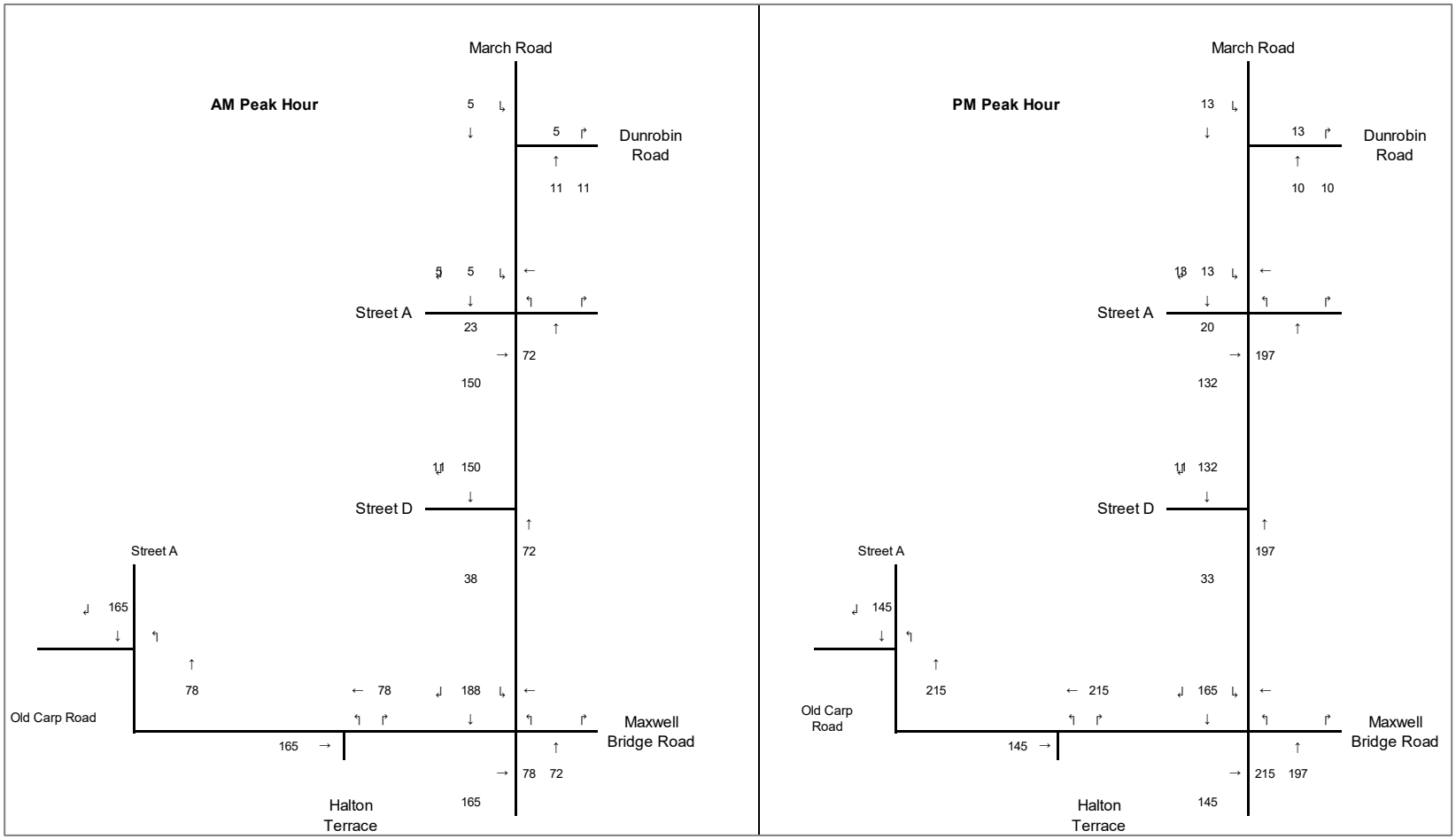


Figure 8: Assignment (Volumes)

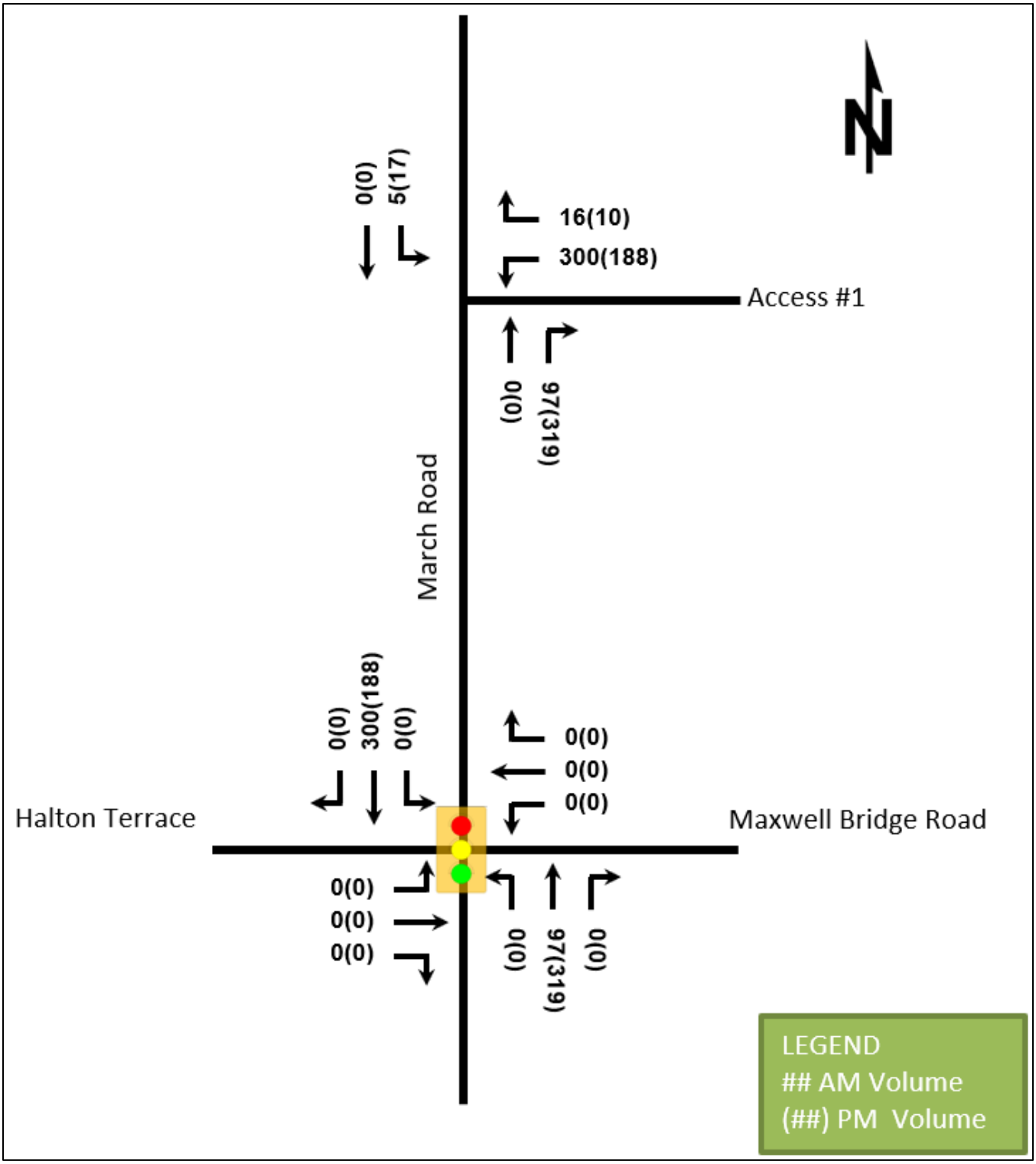
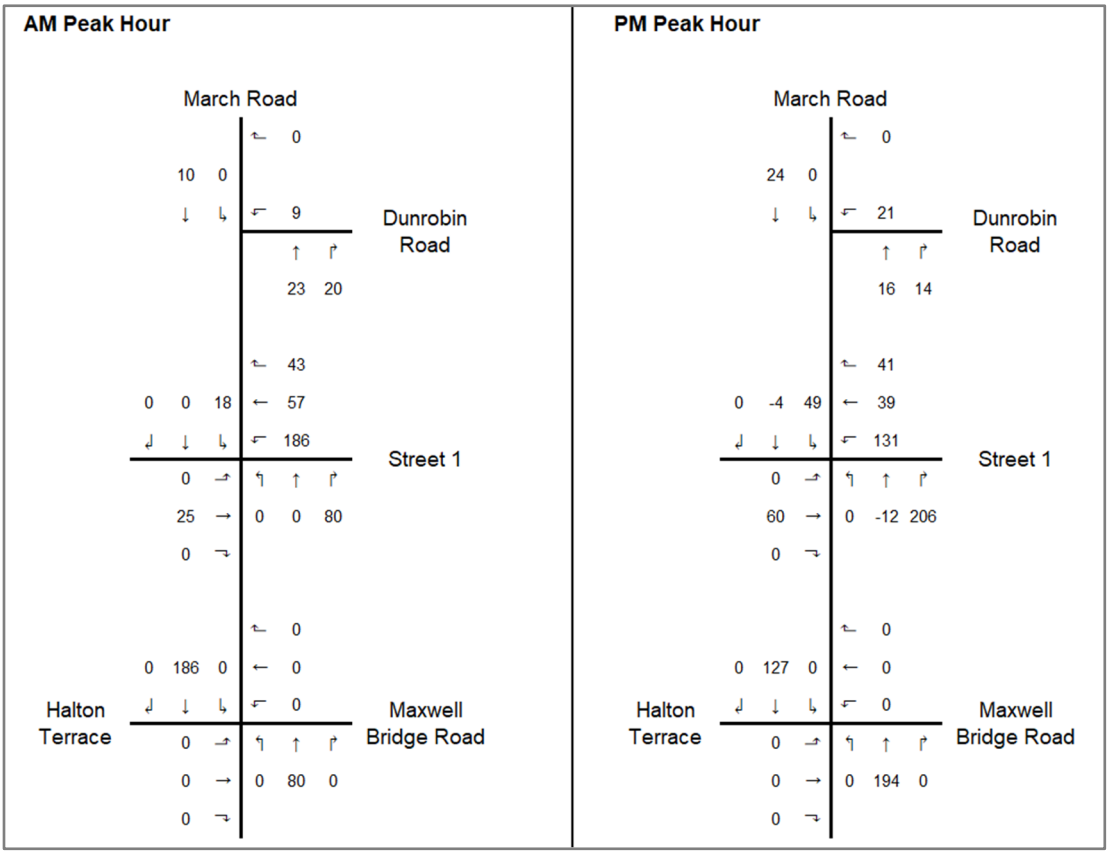


Figure 9 - Site Traffic Volumes



3.2 BACKGROUND NETWORK TRAVEL DEMAND

3.2.1 Transportation Network Plans

As outlined in **Table 3** in **Section 2.1.3.1**, the March Road widening and March Road Transit projects are anticipated to occur within the study area. In the absence of any definitive timelines in the TMP, these transportation improvements are not assumed to be in place for the study horizons of the subject TIA.

3.2.2 Background Growth

Existing traffic volumes were grown at a rate of 0.5% annually, non-compounding, to represent 2031 background traffic volumes. This rate of growth is consistent with the approved *Kanata North Community Design Plan Transportation Master Plan* (Novatech, June 2016).

The modal shares associated with the proposed development are anticipated to be consistent with the KNUEA CDP TMP. The transit modal share in the KNUEA CDP TMP was developed based on the 2031 target in the City's 2013 TMP for the Kanata/Stittsville area. The modal shares identified in the 2011 TRANS O-D Survey Report for the Kanata/Stittsville area were adjusted to reflect the increased transit modal share of 21%, with the auto driver share reduced accordingly. A comparison of the person trips by modal share between the proposed development and the assumed development in the KNUEA CDP TMP is provided in the following table.

Table 4: Site-Generated Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOTAL	IN	OUT	TOTAL
KNUEA CDP TMP							
Total Person Trips		**140**	**531**	**671**	**542**	**294**	**836**
Auto Driver	59%	82	314	396	320	173	493
Auto Passenger	15%	21	79	100	81	44	125
Transit	21%	30	111	141	114	62	176
Non-Auto	5%	7	27	34	27	15	42
Proposed Development							
Total Person Trips		**138**	**434**	**572**	**442**	**259**	**701**
Auto Driver	59%	82	256	338	261	153	414
Auto Passenger	15%	21	65	86	66	39	105
Transit	21%	29	92	121	93	54	147
Non-Auto	5%	6	21	27	22	13	35
Auto Driver (Difference)		**0**	**-58**	**-58**	**-59**	**-20**	**-79**
Auto Passenger (Difference)		**0**	**-14**	**-14**	**-15**	**-5**	**-20**
Transit (Difference)		**-1**	**-19**	**-20**	**-21**	**-8**	**-29**
Non-Auto (Difference)		**-1**	**-6**	**-7**	**-5**	**-2**	**-7**

Based on the foregoing, the proposed development is anticipated to generate approximately 60 to 80 less vehicle trips compared to the assumed development in the KNUEA CDP TMP.

3.1.2 Trip Distribution

The distribution of traffic generated by the proposed development is anticipated be consistent with the distribution presented in the KNUEA CDP TMP, and is summarized as follows:

- 85% to/from the south
- 15% to/from the north

As the trips generated by the proposed development are anticipated to be less than the assumed development in the KNUEA CDP TMP, the site traffic projections in the TMP are considered a

APPENDIX G

Transportation Demand Management Checklist

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

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

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☒ Not Applicable.
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐