

Engineering

Land / Site
Development

Municipal
Infrastructure

Environmental /
Water Resources

Traffic /
Transportation

Structural

Recreational

Planning

Land / Site
Development

Planning Application
Management

Municipal Planning
Documents &
Studies

Expert Witness
(OMB)

Wireless Industry

Landscape Architecture

Urban Design &
Streetscapes

Open Space, Parks &
Recreation Planning

Community &
Residential
Developments

Commercial &
Institutional Sites

Environmental
Restoration



Proposed High-Rise Residential and Care Facility 1705 Carling Avenue, Ottawa Transportation Impact Assessment

**Proposed High-Rise Residential and Care Facility
1705 Carling Avenue**

Transportation Impact Assessment

Prepared By:

NOVATECH

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

April 2020

Novatech File: 120010
Ref: R-2020-022

April 17, 2020

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

Attention: Mr. Mike Giampa
Senior Engineer, Infrastructure Applications

Dear Mr. Giampa:

Reference: 1705 Carling Avenue
Transportation Impact Assessment
Novatech File No. 112010

We are pleased to submit the following Transportation Impact Assessment (TIA) in support of Zoning By-Law Amendment and Site Plan Control applications for 1705 Carling Avenue, 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 Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH



Joshua Audia, B.Sc.
E.I.T. | Transportation/Traffic



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 licensed¹ or registered² 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.

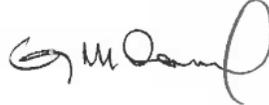
City Of Ottawa
Infrastructure Services and Community
Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

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 this 17th day of April, 2020.
(City)

Name: Greg MacDonald, P.Eng.
(Please Print)

Professional Title: Director, Land Development & Public Sector Infrastructure



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

Office Contact Information (Please Print)	
Address:	240 Michael Cowpland Drive, Suite 200
City / Postal Code:	Ottawa, ON, K2M 1P6
Telephone / Extension:	613-254-9643 x 279
E-Mail Address:	g.macdonald@novatech-eng.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

1.0 INTRODUCTION..... 1

2.0 PROPOSED DEVELOPMENT 2

3.0 SCREENING..... 2

 3.1 SCREENING FORM 2

4.0 SCOPING..... 3

 4.1 EXISTING CONDITIONS 3

 4.1.1 Roadways..... 3

 4.1.2 Intersections 4

 4.1.3 Driveways 4

 4.1.4 Pedestrian and Cycling Facilities 5

 4.1.5 Area Traffic Management 5

 4.1.6 Transit 5

 4.1.7 Existing Traffic Volumes 6

 4.1.8 Collision Records..... 7

 4.2 PLANNED CONDITIONS 9

 4.3 STUDY AREA AND TIME PERIODS 9

 4.4 EXEMPTIONS REVIEW..... 10

5.0 FORECASTING 10

 5.1 TRIP GENERATION 10

 5.2 TRIP DISTRIBUTION 13

 5.3 TRIP ASSIGNMENT 13

 5.4 OTHER AREA DEVELOPMENT 14

 5.5 GENERAL BACKGROUND GROWTH RATE 14

6.0 ANALYSIS 19

 6.1 DEVELOPMENT DESIGN 19

 6.1.1 Design for Sustainable Modes 19

 6.1.2 Circulation and Access 19

 6.2 PARKING 19

 6.3 BOUNDARY STREETS 21

 6.3.1 Pedestrian Level of Service (PLOS)..... 21

 6.3.2 Bicycle Level of Service (BLOS) 21

 6.3.3 Transit Level of Service (TLOS)..... 21

 6.3.4 Truck Level of Service (TkLOS) 22

 6.3.5 Vehicular Level of Service (Auto LOS)..... 22

 6.3.6 Segment MMLOS Summary 22

 6.4 ACCESS DESIGN 23

 6.5 TRANSPORTATION DEMAND MANAGEMENT 24

 6.6 TRANSIT 24

7.0 CONCLUSIONS AND RECOMMENDATIONS 24

Figures

Figure 1: View of the Subject Site 1
 Figure 2: OC Transpo Bus Stop Locations 6
 Figure 3: Carling Avenue Transit Priority Measures 10
 Figure 4: Existing Site-Generated Traffic Volumes 15
 Figure 5: Proposed Site-Generated Traffic Volumes 15
 Figure 6: Net Site-Generated Traffic Volumes 16
 Figure 7: Other Area Development-Generated Traffic Volumes 16
 Figure 8: 2024 Background Traffic Volumes 17
 Figure 9: 2029 Background Traffic Volumes 17
 Figure 10: 2024 Total Traffic Volumes 18
 Figure 11: 2029 Total Traffic Volumes 18

Tables

Table 1: Reported Collisions 7
 Table 2: Proposed Person Trip Generation, Existing and Proposed Development (ITE) 11
 Table 3: Proposed Vehicle Trip Generation, High-Rise Apartments (TRANS) 11
 Table 4: Person Trip Generation Comparison, High-Rise Apartments (TRANS vs ITE) 11
 Table 5: Person Trips by Modal Share 12
 Table 6: Parking Requirements Per Zoning By-Law 20
 Table 7: PLOS Segment Analysis 21
 Table 8: Segment BLOS Analysis 21
 Table 9: Segment TLOS Analysis 22
 Table 10: TkLOS Segment Analysis 22
 Table 11: Auto LOS Segment Analysis 22

Appendices

- Appendix A: Conceptual Site Plan
- Appendix B: TIA Screening Form
- Appendix C: OC Transpo Route Maps
- Appendix D: Traffic Count Data
- Appendix E: Collision Records
- Appendix F: Strategic Long-Range Model
- Appendix G: Other Area Developments
- Appendix H: TDM Checklists

EXECUTIVE SUMMARY

This Transportation Impact Assessment has been prepared in support of a proposed redevelopment of the property located at 1705 Carling Avenue. The subject site is currently occupied by an 80-unit motel, a 3,500 ft² restaurant, and one residence at the back of the property. The proposed redevelopment will include a 9-storey retirement home facility with 160 units and a 22-storey residential high-rise with 194 units.

The proposed redevelopment will include 19 surface parking spaces, as well as separate underground parking areas for the two buildings. A total of 47 underground parking spaces on two levels will be provided for the retirement residences. A total of 187 underground parking spaces on two levels will be provided for the residential high-rise. The proposed redevelopment will include a single right-in/right-out (RIRO) access to Carling Avenue. Lay-bys within the site are proposed for drop-offs and pick-ups to both buildings.

The study area for this report includes the boundary street Carling Avenue, as well as the signalized intersections at Carling Avenue/Broadview Avenue and Carling Avenue/Cole Avenue/Clyde Avenue.

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. Anticipated parking requirements will also be reviewed for the subject site. The proposed redevelopment is expected to be completed in a single phase by the year 2024.

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

Forecasting

- The net increase in trips generated by the proposed redevelopment is approximately 55 person trips in the AM and PM peak hours, which includes an increase of approximately 24 vehicle trips in the AM peak hour and 23 vehicle trips in the PM peak hour.

Development Design and Parking

- Pedestrian facilities will be provided between the proposed building entrances and the drop-off/pick-up and parking areas, as well as a connection to the sidewalk along Carling Avenue. Sidewalks will be depressed and continuous across the right-in/right-out access, in accordance with City standards.
- Fifteen surface bicycle parking spaces will be provided for each proposed building, with the remainder in secure areas on the first level of the underground garage.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Garbage collection will occur within the underground garage. A loading space is proposed at the northeast corner of the retirement home facility.
- The fire route for the proposed development is curbside along Carling Avenue.
- The minimum vehicle and bicycle parking requirements as outlined in the ZBL will be met by the proposed parking allocated for each use. A total of 66 vehicle and 40 bicycle parking

spaces will be provided for the retirement residences. A total of 187 vehicle and 97 bicycle parking spaces will be provided for the high-rise apartments.

- The minimum accessible parking space requirements will be met, with three accessible spaces proposed for the retirement residences and seven accessible spaces proposed for the high-rise apartments.

Boundary Streets

- Between Broadview Avenue and Cole Avenue/Clyde Avenue, Carling Avenue does not meet the target PLOS, BLOS, or TLOS. Carling Avenue does meet the target TkLOS and Auto LOS.
- The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous transit lanes in its Affordable Network. While these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services as well, as discussed further below.
- Per Exhibit 4 of the MMLOS guidelines, the PLOS of Carling Avenue can be improved to PLOS D by implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m.
- Per Exhibit 11 of the MMLOS guidelines, the BLOS of Carling Avenue can be improved to a BLOS A by implementing a cycle track or other physically separated bikeway. The *Ontario Traffic Manual – Book 18* identifies separated bicycle facilities as most appropriate for Carling Avenue, given the high operating speed and daily traffic volumes. In the absence of any planned facilities to the east and west of the site, there is no benefit in implementing a separated facility across the site's frontage.
- The City has identified transit improvements to Carling Avenue, including dedicated bus lanes on Carling Avenue. This measure will improve the TLOS beyond the target TLOS D.

Access Design

- The proposed redevelopment will be served by a right-in/right-out driveway at approximately the centre of the subject site's frontage to Carling Avenue, measuring 6.7m in width at the property line.
- Section 25 (c) of the *Private Approach By-Law* identifies a maximum width requirement of 9m for two-way accesses. This requirement is met by the proposed driveway.
- Section 107 (1)(a)(ii) of the ZBL identifies a minimum width requirement of 6.7m for a double traffic lane leading to a parking lot or garage. Section 107 (1)(a)(iii) of the ZBL identifies a maximum width requirement of 6.7m for internal drive aisles serving a parking garage for apartment dwellings. These requirements are met.
- Section 25 (m)(ii) of the *Private Approach By-Law* identifies a minimum distance requirement of 45m between the private approach and the nearest intersecting street line. This requirement is met by the proposed driveway.

- Section 25 (p) of the *Private Approach By-Law* identifies a minimum distance requirement of 3m between the nearest edge of the private approach and the property line, as measured at the street line. This requirement is met by the proposed driveway.

Transportation Demand Management

- The following measures will be implemented upon buildout of the proposed retirement residences:
 - Unbundle parking cost from purchase price (condominiums);
 - Unbundle parking cost from monthly rent (multi-family).

Transit

- The proposed redevelopment is projected to generate an additional 11 transit trips in both the AM and PM peak hours. No capacity problems are anticipated on OC Transpo routes 50 and 85.
- Based on the foregoing, the proposed redevelopment is recommended from a transportation perspective.

1.0 INTRODUCTION

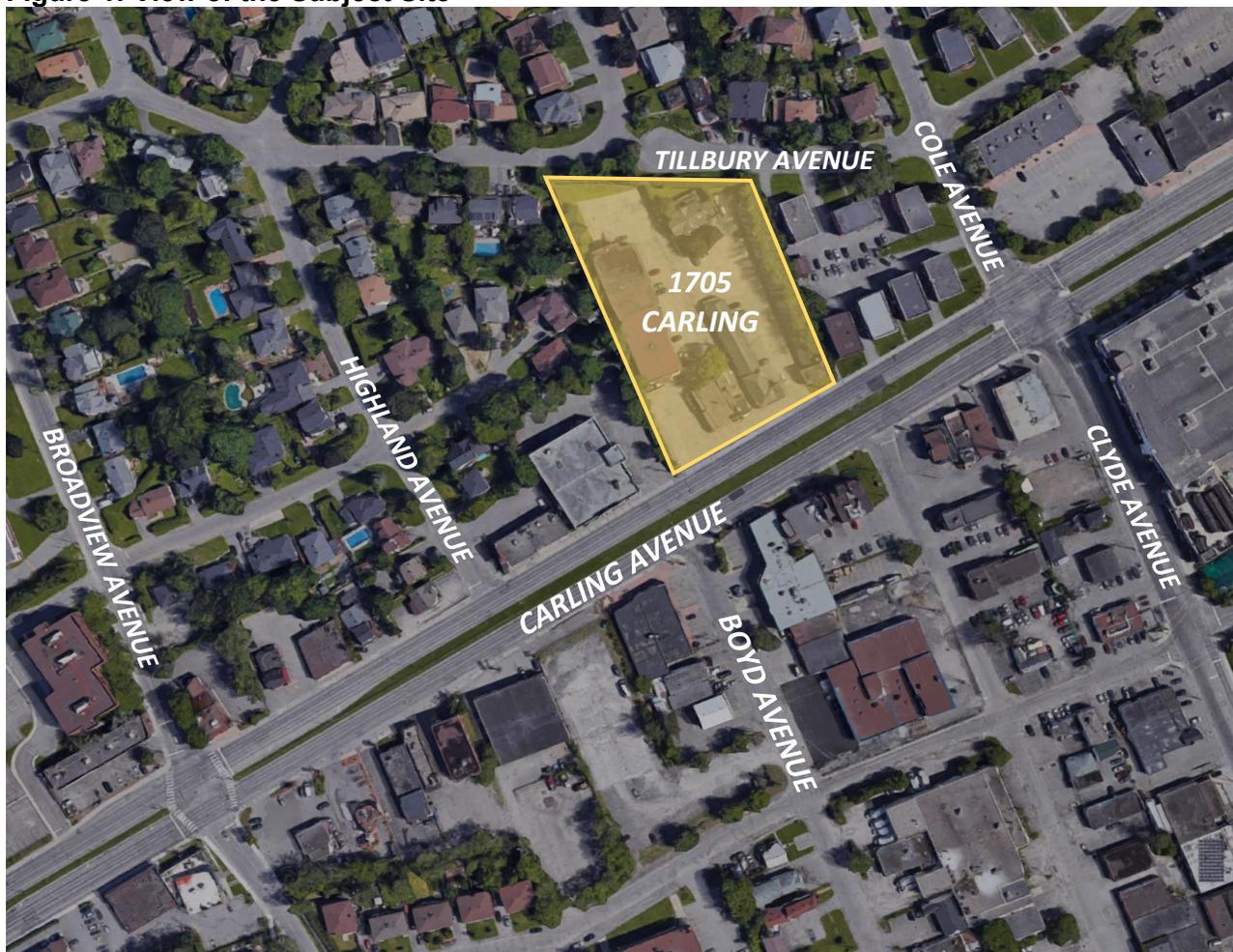
This Transportation Impact Assessment (TIA) has been prepared in support of a proposed residential high-rise and care facility at 1705 Carling Avenue. The subject site is currently occupied by an 80-unit motel, a 3,500 ft² restaurant and one residence at the back of the property. The proposed redevelopment will include a 9-storey retirement home facility with 160 units, a 22-storey residential high-rise with 194 units, and a combination of surface and underground parking.

The 0.92-hectare subject site is midblock on the north side of Carling Avenue, between Cole Avenue and Highland Avenue, and is surrounded by the following:

- Tillbury Avenue to the north;
- Low-rise apartments to the east;
- Carling Avenue to the south; and
- Commercial and residential properties 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

A previous site plan application was approved in December 2018 (SP D07-18-0062), which involved replacing the existing land uses with a 9-storey residential care facility containing 198 units, and a dedicated municipal parkette at the northwest corner of the site. This new application proposes to include a 9-storey retirement home facility containing 160 units and a 22-storey high-rise residential building containing 194 units. This results in a decrease of 38 retirement home units and an addition of 194 residential units. The dedicated municipal parkette at the northwest corner remains as part of this application.

The proposed redevelopment will include 19 surface parking spaces for the retirement residences, as well as separate underground parking areas for both buildings. A total of 47 underground parking spaces on two levels will be provided for the retirement residences. A total of 187 underground parking spaces on two levels will be provided for the residential high-rise.

The proposed redevelopment will include a single right-in/right-out (RIRO) access to Carling Avenue. Lay-bys within the site are proposed for drop-offs and pick-ups to both buildings.

Construction of the proposed redevelopment is anticipated to be completed in a single phase by 2024. A copy of the conceptual 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. A copy of the TIA Screening Form is included in **Appendix B**.

The trigger results are as follows:

- Trip Generation Trigger – The development is not expected to generate an additional 60 person trips during the weekday AM and PM peak hours. Further assessment is not required based on this trigger.
- Location Triggers – The development is located along Carling Avenue, which is designated as a Transit Priority route in the City's Affordable Plan, a Rapid Transit route in the City's Network Concept, and a Spine Cycling Route in the City's Cycling Network. It is also located in a Design Priority Area. Further assessment is required based on this trigger.
- Safety Triggers – The proposed access is within 150 metres of the signalized intersection at Carling Avenue/Cole Avenue/Clyde Avenue. Further assessment is required based on this trigger.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

Carling Avenue is an arterial roadway that generally runs on an east-west alignment between March Road in Kanata and Bronson Avenue. It has a six-lane divided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 60 km/h. Carling Avenue is classified as an urban truck route, allowing full loads. Street parking is not permitted. The right-of-way (ROW) at the subject site is currently 30m. The City of Ottawa's Official Plan identifies a ROW protection for Carling Avenue of 44.5m throughout the entire study area.

Broadview Avenue is a collector roadway that generally runs on a north-south alignment between Richmond Road and Carling Avenue. It continues as a local roadway south of Carling Avenue until it meets Ernest Avenue. It has a two-lane undivided urban cross-section, with sidewalks on both sides of the roadway north of Carling Avenue near the subject site. Broadview Avenue has a posted speed limit of 40 km/h north of Carling Avenue and an unposted speed limit of 50 km/h south of Carling Avenue. North of Carling Avenue, traffic calming devices have been installed, specifically flex posts in the school zone for Notre Dame High School and curb extensions at a number of all-way stop-controlled intersections. Broadview Avenue is not classified as a truck route. North of Carling Avenue, street parking is not permitted between 8:00 AM and 5:00 PM on weekdays. South of Carling Avenue, street parking is only permitted on the east side of Broadview Avenue.

Clyde Avenue is a local roadway that runs on a north-south alignment between Carling Avenue and Maitland Avenue. It is discontinuous south of the Queensway overpass. Going north through the intersection with Carling Avenue, Clyde Avenue becomes Cole Avenue. Near Carling Avenue, it has a two-lane undivided urban cross-section, sidewalks on the east side, and an unposted speed limit of 50 km/h. Clyde Avenue is classified as a truck route, allowing full loads. Street parking is not permitted.

Cole Avenue is a local roadway that runs on a north-south alignment between Dovercourt Avenue and Carling Avenue. Going south through the intersection with Carling Avenue, Cole Avenue becomes Clyde Avenue. At 150m north of the intersection with Carling Avenue, Cole Avenue comes to a T-intersection with Roosevelt Avenue. Cole Avenue continues west at this T until turning north again towards Dovercourt Avenue, while Roosevelt Avenue heads east and then north. It has a two-lane undivided urban cross-section, and sidewalks on both sides of the roadway south of Tillbury Avenue. North of Tillbury Avenue, sidewalks are only on the east side. The posted speed limit is 40 km/h. Cole Avenue is not classified as a truck route. Parking is not permitted between Tillbury Avenue and Carling Avenue, but is fully permitted north of Tillbury Avenue.

Tillbury Avenue is a local roadway that runs on an east-west alignment between Wavell Avenue and Churchill Avenue North. At the north end of the subject site, Tillbury Avenue is discontinuous where only pedestrians and cyclists can pass through a gap in the guardrails. It has a two-lane undivided urban cross-section, and no sidewalks except for east of Cole Avenue. The roadway has an unposted speed limit of 50 km/h. Tillbury Avenue is not classified as a truck route. Parking is not permitted between 8:00 AM and 4:00 PM on weekdays.

4.1.2 Intersections

Carling Avenue/Broadview Avenue

- Signalized intersection
- Northbound/Southbound: one shared through/right turn lane and one left turn lane
- Eastbound/Westbound: one shared through/right turn lane, two through lanes, and one left turn lane
- Priority pavement markings at the northbound/southbound crosswalks



Carling Avenue/Cole Avenue/Clyde Avenue

- Signalized intersection
- Northbound: one right turn lane, one through lane, and one left turn lane
- Southbound: one shared through/right turn lane and one left turn lane
- Eastbound/Westbound: one shared through/right turn lane, two through lanes, and one left turn lane



4.1.3 Driveways

In accordance with the City’s 2017 TIA guidelines, a review of adjacent driveways along the boundary roads are provided as follows:

Carling Avenue, North Side:

- 4 driveways to businesses at 1723, 1755, 1767 & 1775 Carling Avenue
- 1 driveway to a residence at 1765 Carling Avenue
- 2 driveways to a low-rise apartment complex at 1691, 1695, 1699 & 1703 Carling Avenue, 748 Cole Avenue, and 426 & 432 Tillbury Avenue

Carling Avenue, South Side:

- 6 driveways to businesses at 1688, 1696, 1702, 1754, 1762, 1766, 1772, 1778 & 1784 Carling Avenue

Tillbury Avenue, North Side:

- 7 driveways to residences at 423, 425, 431, 433, 435 & 437 Tillbury Avenue, and 729 Golden Avenue

Tillbury Avenue, South Side:

- 3 driveways to a low-rise apartment complex at 1691, 1695, 1699 & 1703 Carling Avenue, 748 Cole Avenue, and 426 & 432 Tillbury Avenue

4.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Carling Avenue, Broadview Avenue, and Cole Avenue between Carling Avenue and Tillbury Avenue. Concrete sidewalks are provided on the east side of Clyde Avenue.

Carling Avenue is classified as a Spine Cycling Route. There are no designated cycling facilities. Cole Avenue south of Roosevelt Avenue and Clyde Avenue are designated as local cycling routes.

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.

4.1.6 Transit

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

Carling Avenue/Clyde Avenue North

- Stop #0350 – for route 50
(located on the west side of Clyde Avenue, approximately 30m south of Carling Avenue)
- Stop #4908 – for routes 50 and 85
(located on the south side of Carling Avenue, approximately 50m east of Clyde Avenue)

Carling Avenue/Cole Avenue South

- Stop #7479 – for route 85
(located on the north side of Carling Avenue, approximately 80m west of Cole Avenue)

Carling Avenue/Highland Avenue

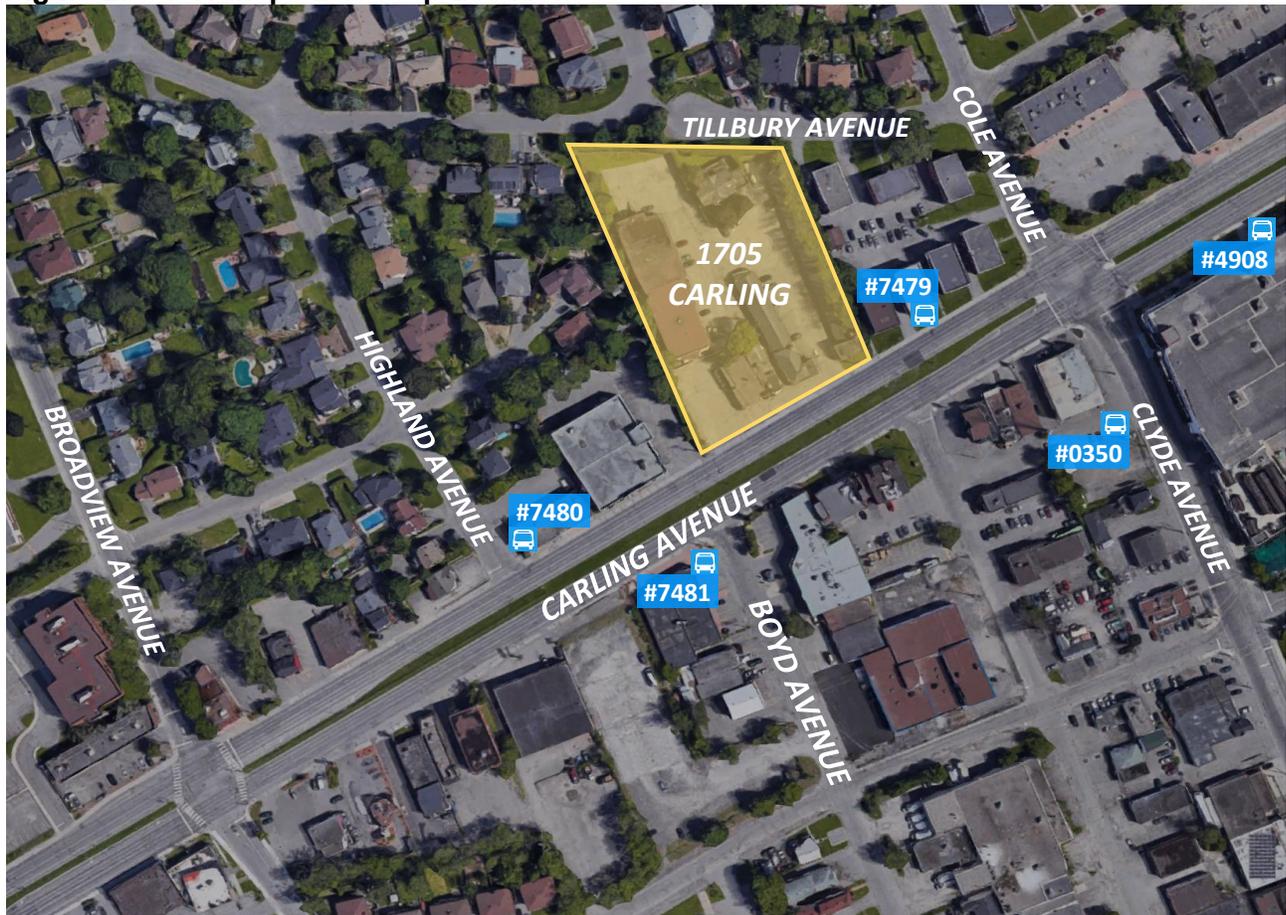
- Stop #7480 – for route 85
(located at the northeast corner)

Carling Avenue/Boyd Avenue

- Stop #7481 – for route 85
(located at the southwest corner)

These bus stop locations are shown in **Figure 2**. OC Transpo route maps and a copy of the system map are included in **Appendix C**.

Figure 2: OC Transpo Bus Stop Locations



OC Transpo Route 50 travels from Tunney’s Pasture to Lincoln Fields. On weekdays, the route operates every 15 minutes between 3:30pm and 7:00pm, and every 30 minutes from 7:00am-3:30pm and 7:00pm-9:30pm. On Saturdays, the route operates every 30 minutes between 9:00am and 7:00pm. It does not operate on Sundays.

OC Transpo Route 85 travels from Lees to Bayshore. On weekdays, the route operates every 10 minutes from 8:00am-10:00am and 11:00am-1:00pm, every 15 minutes from 6:00am-8:00am and 1:00pm-7:00pm, every 20 minutes from 7:00pm-12:00am, and every 30 minutes from 4:30am-8:00am.

4.1.7 Existing Traffic Volumes

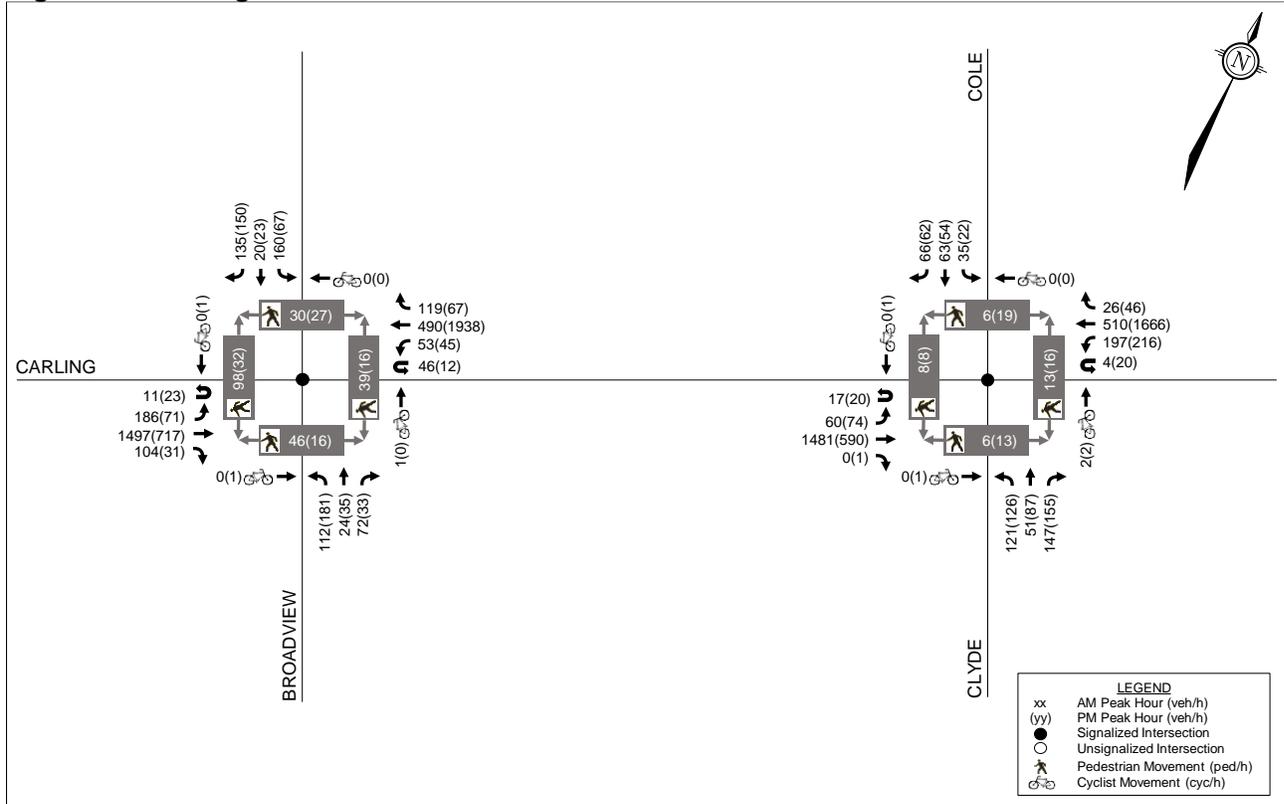
Weekday traffic counts completed by the City of Ottawa were used to determine the existing pedestrian, cyclist and vehicular traffic volumes at the study area intersections. The traffic counts were completed on the following dates:

- Carling Avenue/Broadview Avenue April 20, 2017
- Carling Avenue/Cole Avenue/Clyde Avenue January 27, 2016

The average annual daily traffic (AADT) of Carling Avenue east of Broadview Avenue is approximately 29,330 vehicles per day.

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

Figure 3: Existing 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 for the study area intersections. 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 following **Table 1** summarizes the number of collisions at each intersection and roadway segment from January 1, 2014 to December 31, 2018.

Table 1: Reported Collisions

Segment	Number of Reported Collisions
Carling Avenue/Broadview Avenue	52
Carling Avenue/Cole Avenue/Clyde Avenue	55
Carling Avenue between Broadview Avenue & Cole Avenue	7

Carling Avenue/Broadview Avenue

A total of 52 collisions were reported at this intersection over the last five years, of which there were 14 rear-end impacts, 23 turning movement impacts, seven sideswipe impacts, five angle impacts, and three single-vehicle/other impacts. Thirteen of the collisions caused injuries, but none caused fatalities. Eleven of the collisions occurred in poor driving conditions.

Of the 14 rear-end impacts, one occurred at the northbound approach, seven occurred at the eastbound approach (one left turn and six through vehicle incidents), and six occurred at the westbound approach. For eastbound drivers, approaches to a former Petro-Canada gas station and Tim Hortons are immediately after the intersection. These driveways may have been a factor for the eastbound rear-end impacts. High through traffic volumes in both directions on Carling Avenue are likely factors in westbound and eastbound rear-end impacts. Street level photography shows the gas station was removed between May 2016 and August 2017.

Of the 23 turning movement impacts, one involved a left turn at the northbound approach, one involved a left turn at the southbound approach, 13 involved a left turn at the eastbound approach, and eight involved a left turn at the westbound approach. Eastbound and westbound vehicles that wish to turn left have a protected and permitted turn phase. Given the traffic volumes of Carling Avenue, heavy oncoming traffic is likely a factor in these collisions.

Of the seven sideswipe impacts, one occurred at the southbound approach, four occurred at the eastbound approach, and two occurred at the westbound approach.

Carling Avenue/Cole Avenue/Clyde Avenue

A total of 55 collisions were reported at this intersection over the last five years, of which there were seven rear-end impacts, 29 turning movement impacts, 11 sideswipe impacts, three angle impacts, and five single-vehicle/other impacts. Thirteen of the collisions caused injuries, but none caused fatalities. Fourteen of the collisions occurred in poor driving conditions.

Of the seven rear-end impacts, one occurred at the northbound approach, one occurred at the southbound approach, one occurred at the eastbound approach, and four occurred at the westbound approach.

Of the 29 turning movement impacts, three involved turns at the northbound approach (three left turns), three involved turns at the southbound approach (two left turns and one right turn), 13 involved turns at the eastbound approach (ten left turns and three U-turns), and ten involved turns at the westbound approach (nine left turns and one U-turn).

In a previous application for the subject site, City staff had expressed concerns about the safety of westbound and eastbound U-turns at this intersection. The collision data shows four U-turn incidents in the past five years, equating to one incident every 15 months. Currently, eastbound and westbound drivers intending to make a U-turn can do so during a protected and permitted left turn phase.

Ontario Traffic Manual (OTM) Book 12 – Traffic Signals provides guidelines on determining the type of left turn phase. The OTM suggests consideration should be given to providing a fully protected left-turn phase where:

- Geometric or visibility problems exist at the intersection, or there is a historical pattern involving left-turning vehicles;

- Capacity analysis indicates that dual left turn lanes are required; or
- The opposing traffic has high volumes, resulting in poor availability of gaps.

Due to the heavy traffic volumes along Carling Avenue and the collision history involving eastbound and westbound vehicles, providing a fully protected left-turn phase for the eastbound and westbound left turn movements at the Carling Avenue/Cole Avenue/Clyde Avenue intersection has been identified for the City's consideration.

Carling Avenue between Broadview Avenue and Cole Avenue/Clyde Avenue

A total of seven collisions were reported on Carling Avenue between the two intersections listed above over the last five years. In this period, there was one rear-end impact, four sideswipe impacts, and two single-vehicle/other impacts. Two of the collisions caused injuries, but none caused fatalities. Two of the seven collisions occurred in poor driving conditions.

4.2 Planned Conditions

The City of Ottawa's 2013 TMP identifies Carling Avenue as a Design Priority Area, as well as a Transit Priority Corridor with continuous lanes as part of Ottawa's Affordable Rapid Transit and Transit Priority Network. Between Lincoln Fields Station and Bronson Avenue, the City intends to generally reallocate the outside travel lanes in both directions to transit-exclusive lanes. Transit signal priority and queue jump lanes will also be implemented at select intersections. The preliminary functional design of the Carling Avenue Transit Priority Measures within the study area is shown in **Figure 3**.

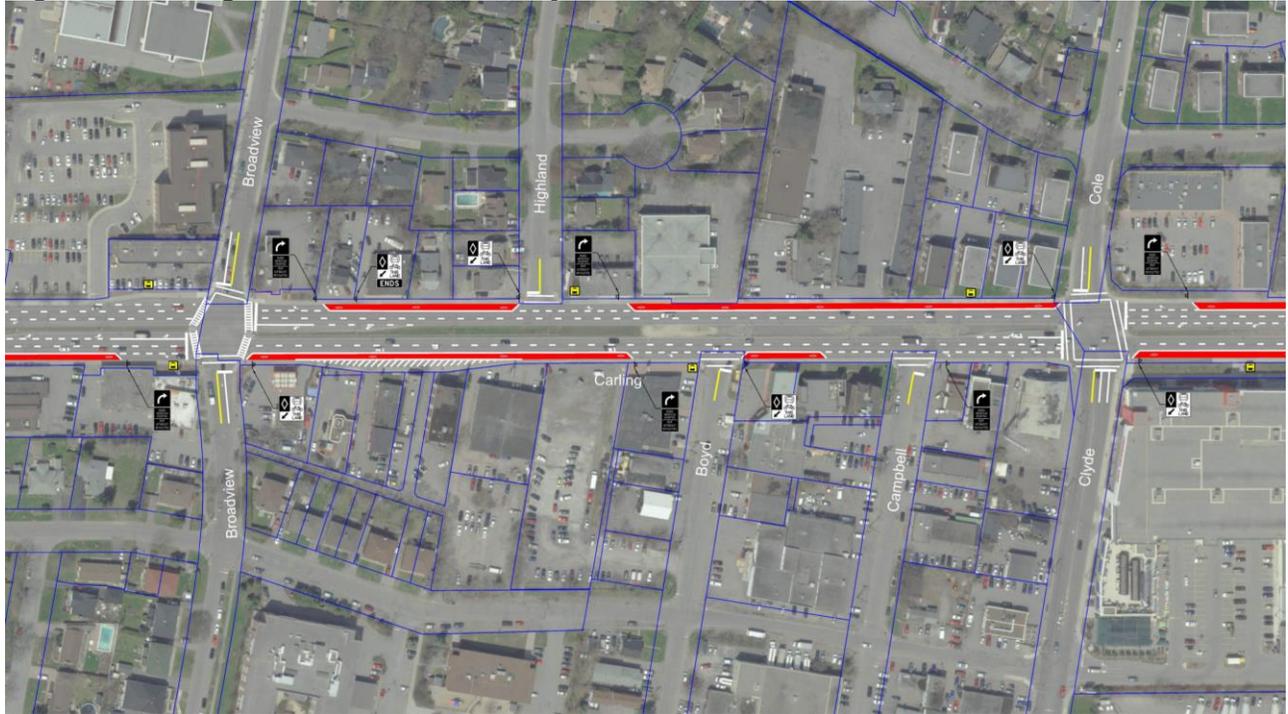
The City's 2031 Network Concept identifies Light Rail Transit in the median of Carling Avenue with at-grade crossings, between Lincoln Fields station and the Carling O-Train station.

A review of the City's Development Application search tool identifies a nearby development application currently in the approval process. A 22-storey high-rise residential development is proposed at 1655 Carling Avenue (east of the study area), with a total of 260 dwellings. The development is anticipated to be completed in a single phase, with a buildout year of 2022.

4.3 Study Area and Time Periods

The study area for this report includes the boundary streets Carling Avenue and Tillbury Avenue, as well as the signalized intersections at Carling Avenue/Broadview Avenue and Carling Avenue/Cole Avenue/Clyde Avenue.

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. Anticipated parking requirements will also be reviewed for the subject site. The proposed redevelopment is expected to be completed by the year 2024.

Figure 3: Carling Avenue Transit Priority Measures

4.4 Exemptions Review

As the trip generation trigger was not met, the Network Impact modules are typically not required for analysis. The number of trips generated by the proposed development, compared to the existing development, is shown in Section 5.1. However, the Transportation Demand Management (Module 4.5) and Transit (Module 4.7) have been included in this TIA report. Therefore, the following modules are included:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Intersections
- Module 4.5: Transportation Demand Management
- Module 4.7: Transit

5.0 FORECASTING

5.1 Trip Generation

The subject site is occupied by an 80-unit motel and a restaurant with 3,500 ft² GFA. The proposed redevelopment will include 160 retirement dwellings and 194 high-rise residential dwellings. Any amenities provided on the ground floor of the proposed buildings will only be provided to the building's residents and their guests.

All trip generation values were calculated using the *ITE Trip Generation Manual, 10th Edition*. To estimate the number of trips generated by the existing development, the Motel and Quality

Restaurant land use codes have been selected. To estimate the number of trips generated by the proposed redevelopment, the Multifamily Housing (High-Rise) and Congregate Care Facility land use codes have been selected. The person trips generated by the proposed redevelopment, compared to those generated by the existing development, are summarized in **Table 2**.

Table 2: Proposed Person Trip Generation, Existing and Proposed Development (ITE)

Land Use	ITE Code	Units/GFA	AM Peak (PPH ⁽¹⁾)			PM Peak (PPH ⁽¹⁾)		
			IN	OUT	TOT	IN	OUT	TOT
Existing Development								
Motel	320	80 units	15	25	40	22	19	41
Quality Restaurant	931	3,500 ft ²	4	0	4	23	12	35
Total			19	25	44	45	31	76
Proposed Redevelopment								
Multifamily Housing (High-Rise)	222	194 units	21	65	86	59	37	96
Congregate Care Facility	253	160 units	8	5	13	19	16	35
Total			29	70	99	78	53	131
Difference			10	45	55	33	22	55

1. PPH = Persons Per Hour – Calculated using an ITE Trip to Person Trip factor of 1.28, consistent with the 2017 TIA Guidelines

Based on the previous table, the proposed redevelopment is anticipated to generate an additional 55 person trips during the AM and PM peak hours.

It is recognized that use of the *TRANS Trip Generation Manual* is preferred by the City of Ottawa to estimate the trip generation of residential development. Therefore, the estimated trip generation of the proposed high-rise residential dwellings based on TRANS rates is included below. The vehicle trip generation rates, taken from Table 6.3 of the TRANS report, correspond to High-Rise Apartments (11+ floors), in the Urban Area (inside the greenbelt). The directional split between inbound and outbound trips are based on the blended splits presented in Table 3.17 of the report. Estimates of the trips generated by the proposed high-rise dwellings are shown in **Table 3**. To estimate the trip generation in person trips, the rates have been divided by the auto driver share corresponding to Apartments in the Urban Area, presented in Table 3.13. A comparison of the person trip estimates of the proposed high-rise dwellings based on TRANS and ITE rates are included in **Table 4**.

Table 3: Proposed Vehicle Trip Generation, High-Rise Apartments (TRANS)

Land Use	TRANS Rate	Units	AM Peak (PPH)			PM Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Apartment (11+ floors)	AM: 0.24 PM: 0.27	194 units	11	36	47	32	20	52

Table 4: Person Trip Generation Comparison, High-Rise Apartments (TRANS vs ITE)

Land Use (TRANS)	TRANS Auto Share	Units	AM Peak (PPH)			PM Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Apartment (11+ floors)	AM: 37% PM: 40%	194 units	30	96	126	82	50	132
Land Use (ITE)	ITE Code	Units	AM Peak (PPH)			PM Peak (PPH)		
Multifamily Housing (High-Rise)	222	194 units	21	65	86	59	37	96
Difference			9	31	40	23	13	36

Based on the foregoing table, the trip generation rates outlined in the TRANS report overestimate the number of person trips compared to the ITE rates, by approximately 40% to 50%. Further, it is our understanding that the City's Long-Range Strategic Planning group use TRANS rates for vehicle trip projections only, and have not used or tested TRANS data to project person trips in this way. Therefore, the ITE rates have been carried forward for the remainder of this TIA.

The modal shares for the proposed redevelopment are anticipated to be consistent with the modal shares outlined in the 2011 Trans O-D Survey Report, specific to the Ottawa West region. The modal share values applied to the trips generated by the existing motel are based on all observed trips to/from the Ottawa West district with an origin or destination beyond that area. The modal share values applied to the trips generated by the existing restaurant and the proposed residential uses are based on all observed trips to/from/within the Ottawa West district. A full breakdown of the projected net increase in person trips by modal share are shown in **Table 5**.

Table 5: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Existing Development							
<i>Motel Person Trips</i>		15	25	40	22	19	41
Auto Driver	60%	9	15	24	14	11	25
Auto Passenger	15%	2	4	6	3	3	6
Transit	20%	3	5	8	4	4	8
Non-Auto	5%	1	1	2	1	1	2
<i>Restaurant Person Trips</i>		4	0	4	23	12	35
Auto Driver	50%	2	0	2	12	6	18
Auto Passenger	15%	1	0	1	3	2	5
Transit	20%	1	0	1	5	2	7
Non-Auto	15%	0	0	0	3	2	5
Auto Driver (Total)		11	15	26	26	17	43
Auto Passenger (Total)		3	4	7	6	5	11
Transit (Total)		4	5	9	9	6	15
Non-Auto (Total)		1	1	2	4	3	7
Proposed Redevelopment							
<i>Residential Person Trips</i>		29	70	99	78	53	131
Auto Driver	50%	15	35	50	39	27	66
Auto Passenger	15%	4	11	15	12	8	20
Transit	20%	6	14	20	15	11	26
Non-Auto	15%	4	10	14	12	7	19
Auto Driver (Total)		15	35	50	39	27	66
Auto Passenger (Total)		4	11	15	12	8	20
Transit (Total)		6	14	20	15	11	26
Non-Auto (Total)		4	10	14	12	7	19
Auto Driver (Difference)		4	20	24	13	10	23
Auto Pass. (Difference)		1	7	8	6	3	9
Transit (Difference)		2	9	11	6	5	11
Non-Auto (Difference)		3	9	12	8	4	12

Based on the previous table, the proposed development is anticipated to generate an additional 24 vehicle trips during the AM peak hour and 23 vehicle trips during the PM peak hour.

It is acknowledged that some trips generated by the existing development are likely to be internally captured (for example, guests staying at the motel making a trip to the restaurant and vice versa). Trips generated by the existing development account for less than 1% of the total traffic within the study area, and it has been assumed for simplicity that all trips generated by the existing development have an origin and destination that lies beyond the subject site (i.e. external trips).

5.2 Trip Distribution

The assumed distribution of trips generated by the existing and proposed development has been derived from existing traffic patterns within the study area. As trips generated from the existing motel will have more of a regional draw, while the existing restaurant and the proposed retirement residences will predominantly originate within the district, the distribution of each use will be different.

Trips generated by the existing motel are anticipated to have a more regional draw, with a higher percentage of trips to/from Highway 417 to the south. Based on the off-peak count data along Carling Avenue, eastbound and westbound traffic is generally evenly split. Similarly, it has been assumed that 50% of the motel trips originate from the east on Carling Avenue and 50% of the motel trips originate from the west on Carling Avenue. The ramps to Highway 417 nearest to the subject site are both accessed via Carling Avenue. In summary, the distribution for the existing motel can be described as follows:

- 50% to/from the east via Carling Avenue
- 50% to/from the west via Carling Avenue

The distribution for the existing restaurant and the proposed residential uses have been derived based on the Annual Average Daily Traffic (AADT) along the study area roadways, and can be described as follows:

- 5% to/from the north via Broadview Avenue
- 5% to/from the north via Cole Avenue
- 5% to/from the south via Broadview Avenue
- 5% to/from the south via Clyde Avenue
- 40% to/from the east via Carling Avenue
- 40% to/from the west via Carling Avenue

5.3 Trip Assignment

Due to the existing median along Carling Avenue, some traffic will be required to perform a U-turn manoeuvre to access the subject site. All trips arriving to the study area via the intersection of Carling Avenue/Broadview Avenue will perform a U-turn at the intersection of Carling Avenue/Cole Avenue/Clyde Avenue. Similarly, all trips departing from the study area via the intersection of Carling Avenue/Cole Avenue/Clyde Avenue will perform a U-turn at the intersection of Carling Avenue/Broadview Avenue.

5.4 Other Area Development

Projected traffic volumes generated by a proposed 22-storey high-rise residential development at 1655 Carling Avenue has been considered in this TIA. A total of 260 residential dwellings are proposed. The development is anticipated to be completed in a single phase, with a buildout year of 2022. Relevant excerpts of the 1655 Carling Avenue TIA prepared by Parsons is included in **Appendix F**.

5.5 General Background Growth Rate

A review of the City's Strategic Long-Range Model has been conducted. Comparing snapshots of the 2011 and 2031 AM peak hour traffic volumes suggests that volumes on Carling Avenue within the study area will not grow significantly. The long-range snapshots are included in **Appendix G**.

Consistent with the Parsons TIA in support of the proposed development at 1655 Carling Avenue, traffic growth is assumed to be 0% per year until the buildout year 2022, and 1% per year between 2022 and the horizon year 2027. As stated in the 1655 Carling Avenue TIA, east-west traffic along Carling Avenue is forecasted to decrease up to 20% due to the implementation of the future curbside bus lanes shown in **Figure 3**. It is anticipated that by the buildout year 2024, the curbside bus lanes will be implemented, and therefore east-west traffic volumes are assumed to be reduced by 20%.

The figures listed below present the following conditions:

- Existing site-generated traffic volumes are shown in **Figure 4**;
- Proposed site-generated traffic volumes are shown in **Figure 5**;
- Net site-generated traffic volumes are shown in **Figure 6**;
- Other area development-generated traffic volumes are shown in **Figure 7**;
- 2024 background traffic volumes are shown in **Figure 8**;
- 2029 background traffic volumes are shown in **Figure 9**;
- 2024 total traffic volumes are shown in **Figure 10**;
- 2029 total traffic volumes are shown in **Figure 11**.

Figure 4: Existing Site-Generated Traffic Volumes

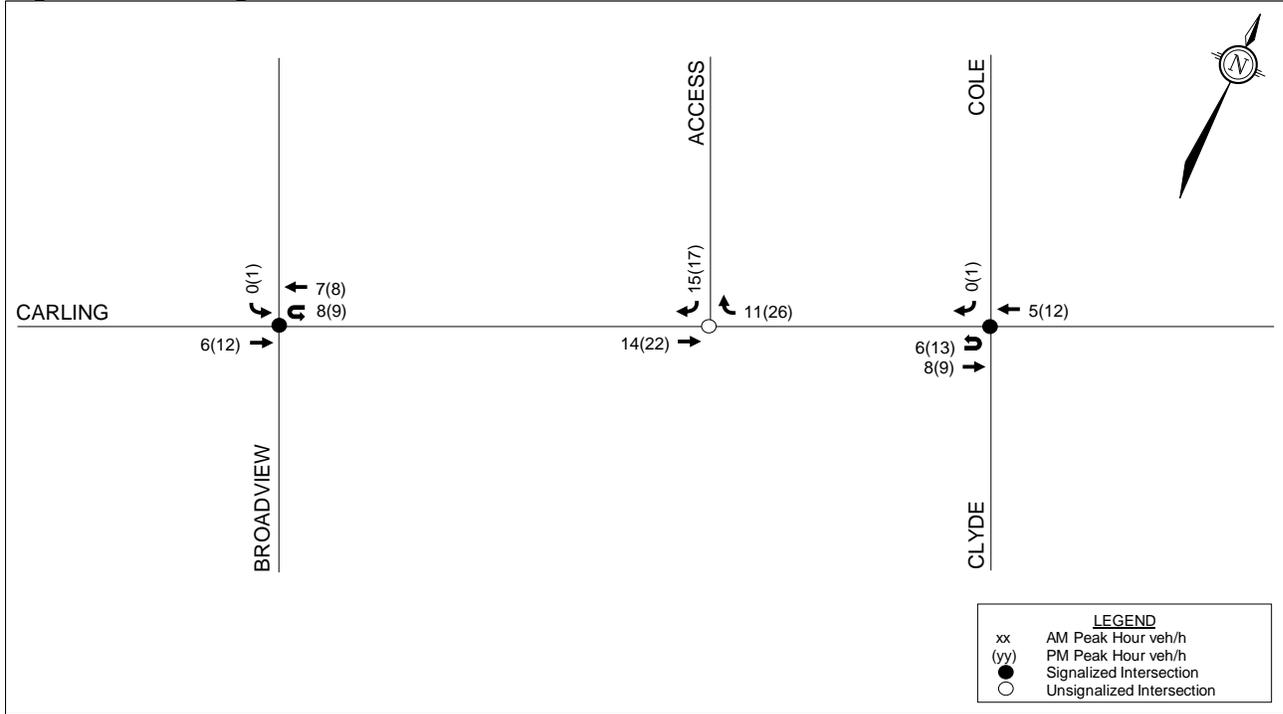


Figure 5: Proposed Site-Generated Traffic Volumes

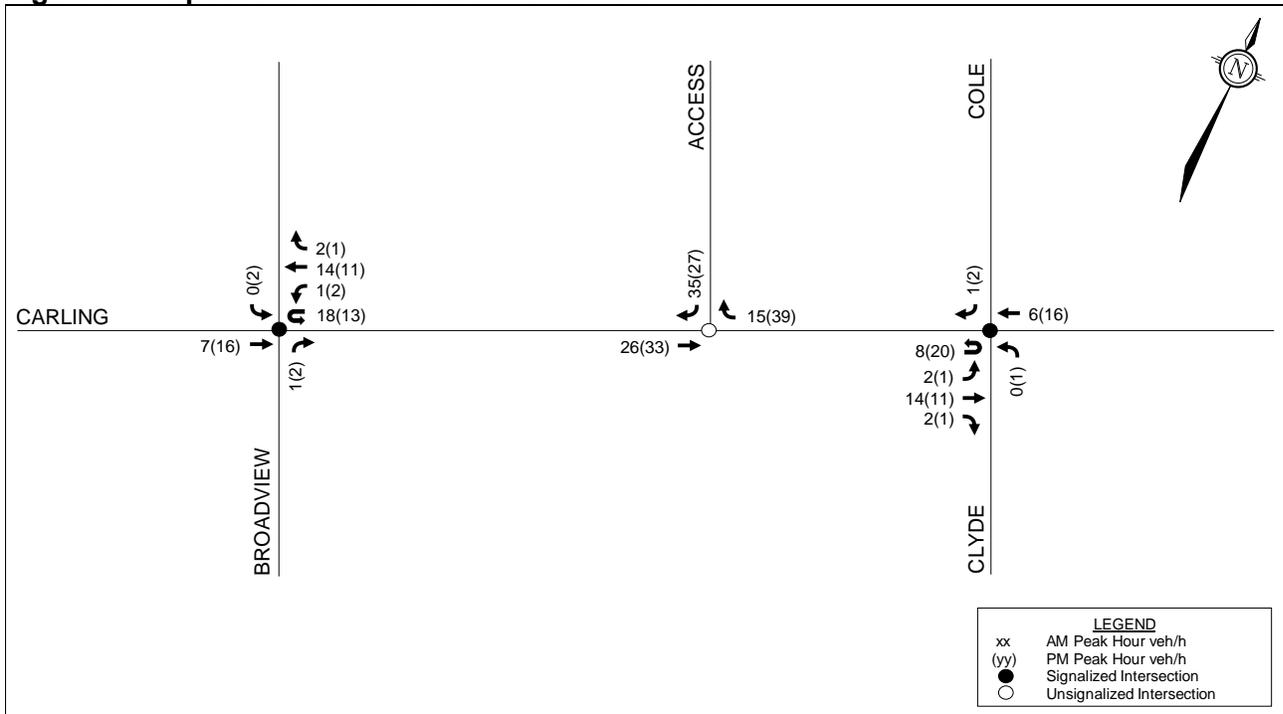


Figure 6: Net Site-Generated Traffic Volumes

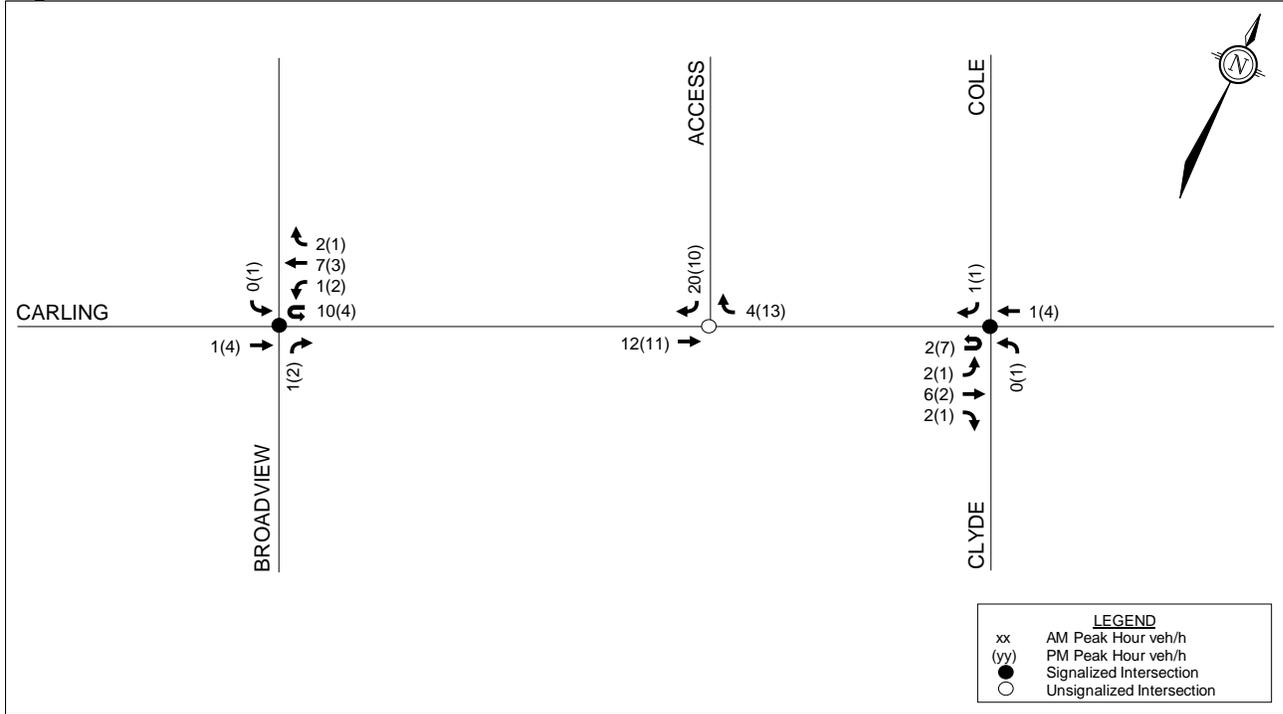


Figure 7: Other Area Development-Generated Traffic Volumes

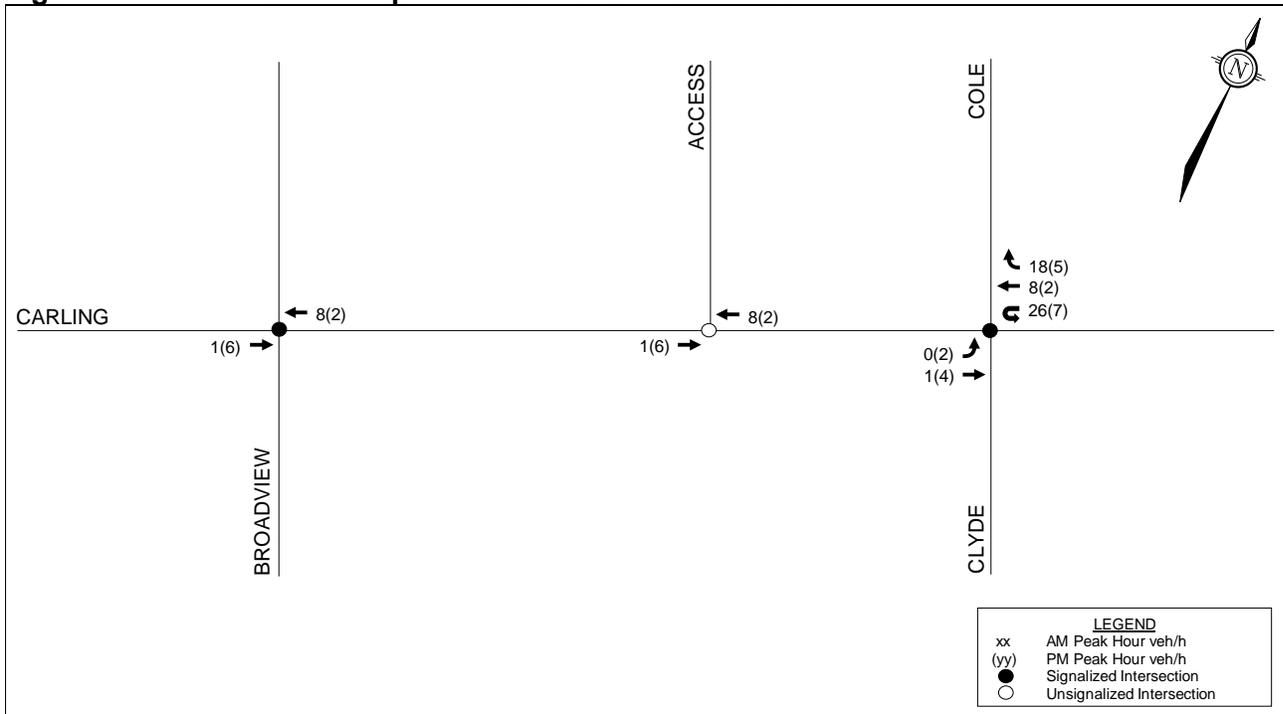


Figure 8: 2024 Background Traffic Volumes

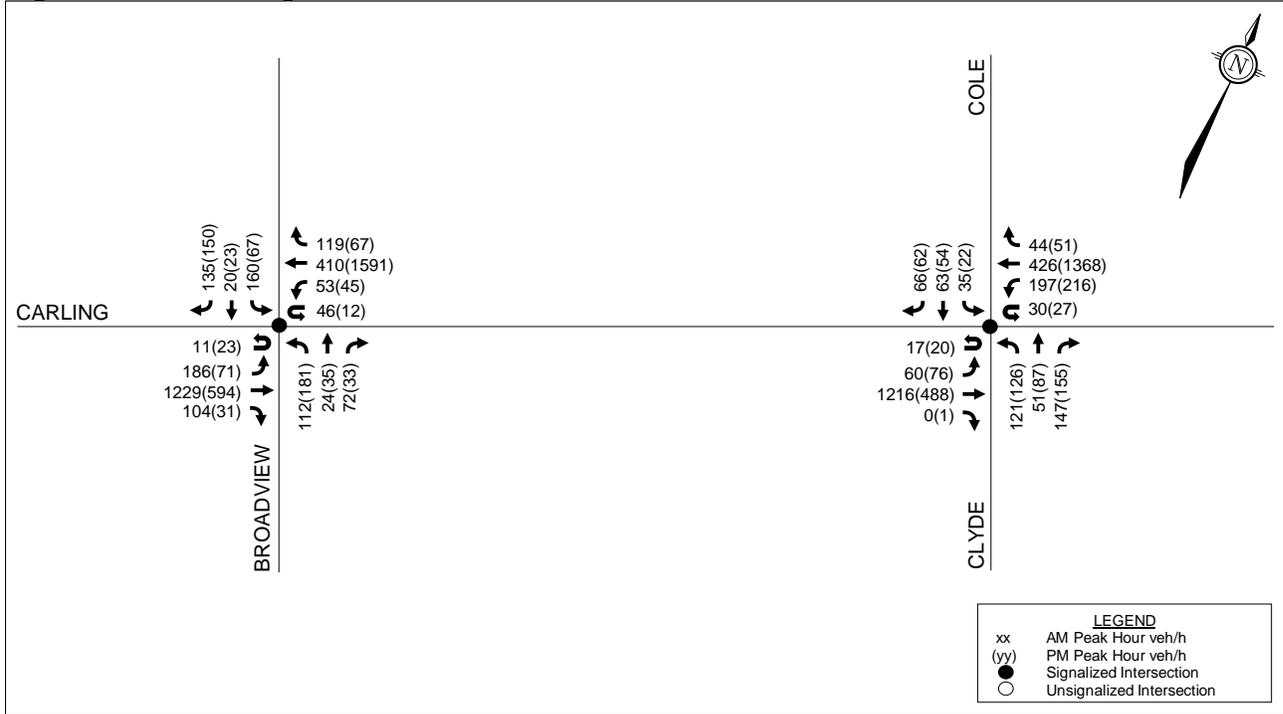


Figure 9: 2029 Background Traffic Volumes

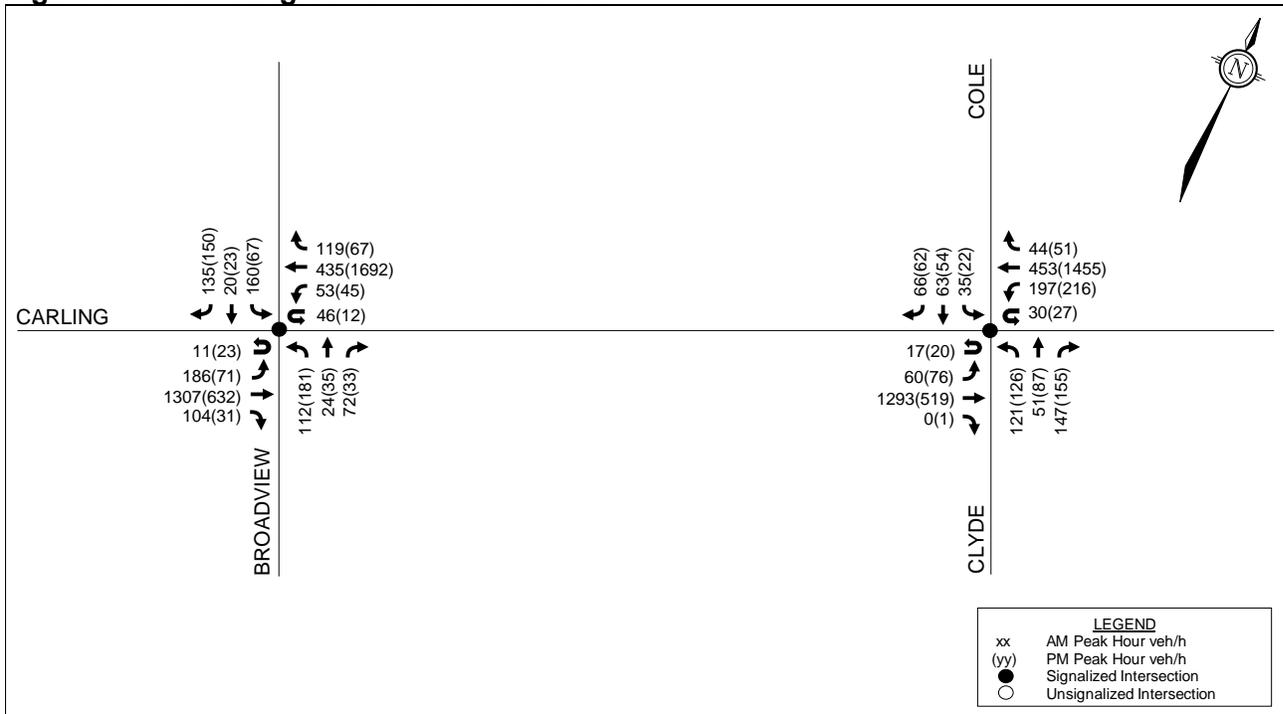


Figure 10: 2024 Total Traffic Volumes

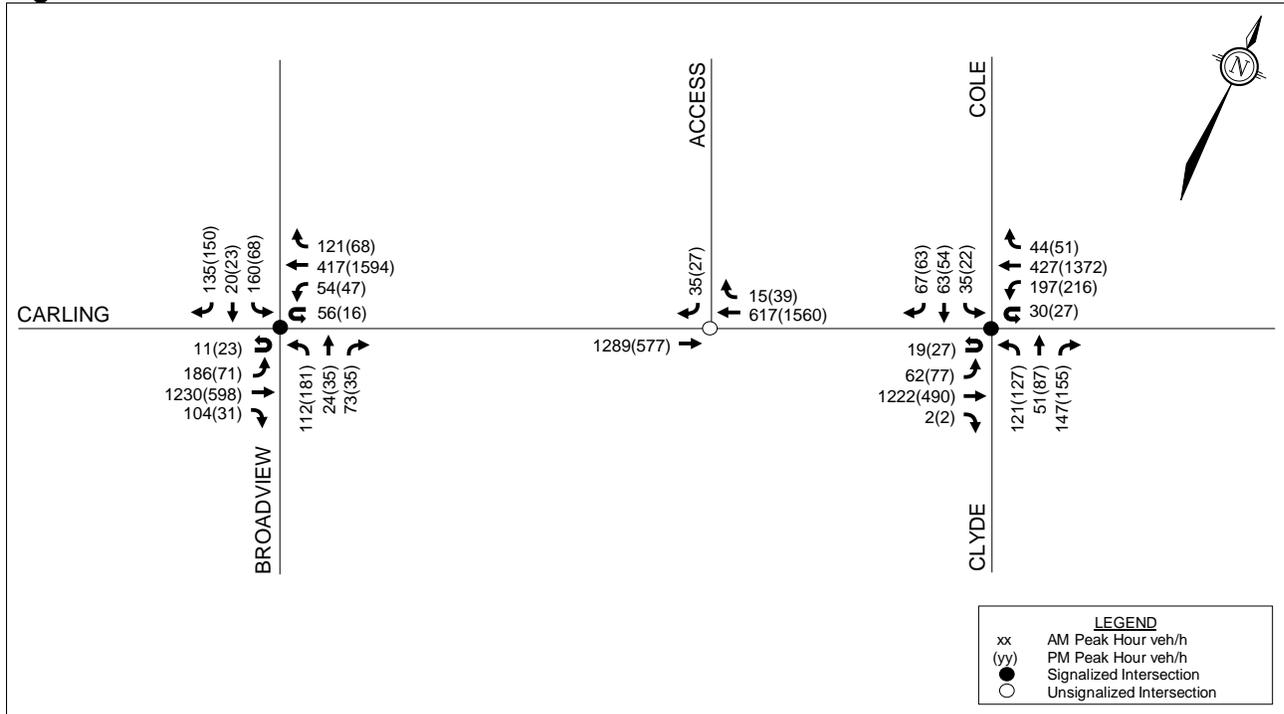
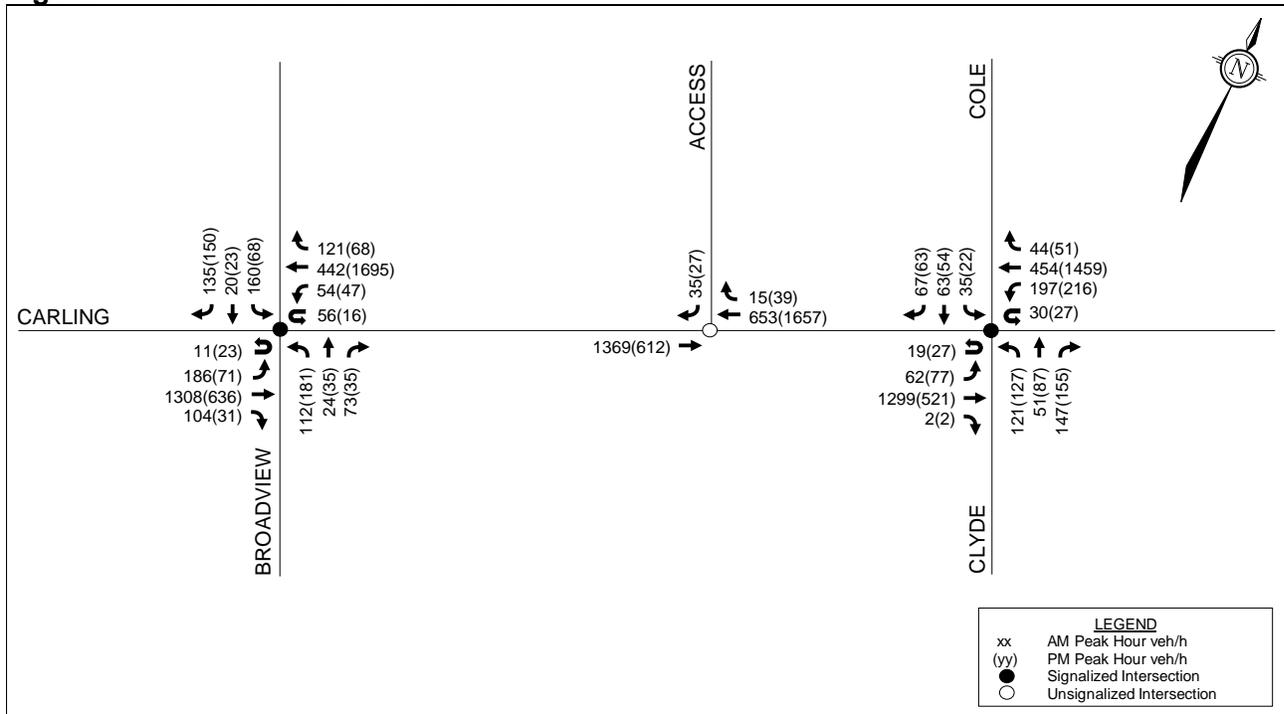


Figure 11: 2029 Total Traffic Volumes



6.0 ANALYSIS

6.1 Development Design

6.1.1 Design for Sustainable Modes

Pedestrian facilities will be provided between the retirement home and residential high-rise entrances, the drop-off/pick-up and parking areas, as well as connections to the sidewalk along Carling Avenue. Sidewalks will be depressed and continuous across the right-in/right-out access, in accordance with City standards.

Bicycle parking will be provided adjacent to both proposed buildings, as well as on the first level of both underground garages. Fifteen bicycle parking spaces will be provided outside each building near the main entrances, with the remainder in secure areas in the underground garage. The number of bicycle parking spaces is reviewed further in Section 6.2.

The nearest bus stops are noted in Section 4.1.5. Measured from the retirement home entrance, the walking distance is approximately 220m to stop #0350 (for route 50), approximately 280m to stop #4908 (for routes 50 and 85), and approximately 110m to stop #7479 (for route 85). Walking distances from the residential high-rise entrance to these stops are marginally shorter.

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 H**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

6.1.2 Circulation and Access

Garbage rooms for both proposed buildings are located in their respective underground parking garages on the first level. Collection of garbage will take place adjacent to these rooms.

A loading space is provided at the northeast corner of the retirement home facility. Loading and delivery vehicles are able to reverse into the space by utilizing the loop adjacent to the loading space.

Pick-ups and drop-offs for residents of the proposed buildings will be facilitated at lay-bys adjacent to the main entrances. The lay-bys will begin approximately 20m north of the property line.

The fire route for the proposed development is curbside along Carling Avenue.

6.2 Parking

The subject site is located in Area B on Schedule 1 and Area Y on Schedule 1A of the City of Ottawa's *Zoning By-Law (ZBL)*. Minimum vehicular and bicycle parking rates for the proposed development are identified in the ZBL, and are summarized in **Table 6**.

Table 6: Parking Requirements Per Zoning By-Law

Land Use	Rate	Units/ GFA	Required	Provided
<i>Vehicle Parking</i>				
Retirement Home	0.25 per dwelling unit plus 1 per 100 m ² for medical/health/personal services	160 units 90 m ²	40 1	66
Dwelling, High-Rise	0.5 per dwelling unit for residents plus 0.1 per dwelling unit for visitors, after the first 12	194 units	97 18	187
<i>Bicycle Parking</i>				
Retirement Home	0.25 per dwelling unit	160 units	40	40
Dwelling, High-Rise	0.50 per dwelling unit	194 units	97	97

Based on the previous table, both the vehicular and bicycle parking provided for the proposed redevelopment will meet the minimum requirements identified in the ZBL.

The minimum number of loading spaces for the proposed development are identified in the ZBL, based on the land use and gross floor area. The ZBL identifies no minimum requirement for ‘all other non-residential uses’ with less than 1,000 m² GFA, and the gross floor area of the medical, health or personal services mentioned in the previous table is approximately 90 m². The proposed development provides a loading space adjacent to the northeast corner of the retirement home building.

The City’s *Accessibility Design Standards* outline minimum requirements for the number of accessible parking spaces that must be provided. Based on the number of provided spaces, the standards identify the following requirements for each building:

- Retirement Home (66 spaces total): minimum of three accessible spaces;
- Dwelling, High-Rise (187 spaces total): minimum of seven accessible spaces.

The minimum accessible parking space requirements will be met for both proposed buildings. Accessible spaces must consist of an equal number of ‘Type A’ spaces and ‘Type B’ spaces, with an additional Type B space when the minimum requirement is an odd number of accessible spaces. Type A spaces have a minimum width of 3.4m, and accommodate wider vehicles such as vans that may be equipped with transfer ramps or other mobility aids. Type B spaces have a standard parking space width of 2.4m. All accessible parking spaces must be adjacent to a 1.5m-wide access aisle. All proposed accessible parking spaces will meet these requirements.

Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. As the high-rise residential building requires greater than 50 bicycle parking spaces, and the majority of bicycle parking spaces will be provided underground, this requirement will be met.

6.3 Boundary Streets

This section provides a review of the boundary streets using complete streets principles. The *Multi-Modal Level of Service* (MMLOS) guidelines produced by IBI Group in October 2015 were used to evaluate the levels of service for Carling Avenue for each mode of transportation. Schedule B of the City of Ottawa’s Official Plan identifies Carling Avenue as an Arterial Main Street within the entire study area. For the study area, the boundary streets review evaluates the MMLOS for Carling Avenue based on existing conditions.

6.3.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of Carling Avenue. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for Arterial Main Streets. 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
Carling Avenue (north side)					
1.8m	0m	> 3000 vpd	No	70 km/h	F
Carling Avenue (south side)					
1.8m	0m	> 3000 vpd	No	70 km/h	F

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

6.3.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of Carling Avenue. Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for Spine Cycling Routes on Arterial Main Streets. The results of the segment BLOS analysis are summarized in **Table 8**.

Table 8: Segment BLOS Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Posted Speed	BLOS
Carling Avenue, eastbound (Broadview Avenue to Cole Avenue/Clyde Avenue)					
Arterial	Spine Route	Mixed Traffic	3	60 km/h	F
Carling Avenue, westbound (Cole Avenue/Clyde Avenue to Broadview Avenue)					
Arterial	Spine Route	Mixed Traffic	3	60 km/h	F

6.3.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of Carling Avenue. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for Transit Priority Corridors with Isolated Measures. Carling Avenue has been assessed using this target for the existing condition, as buses currently operate in mixed traffic. The results of the segment TLOS analysis are summarized in **Table 9**.

Table 9: Segment TLOS Analysis

Facility Type	Exposure to Congestion Delay, Friction and Incidents			TLOS
	Congestion	Friction	Incident Potential	
Carling Avenue, eastbound (Broadview Avenue to Cole Avenue/Clyde Avenue)				
Mixed Traffic – Limited Parking/Driveway Friction	Yes	Low	Medium	D
Carling Avenue, westbound (Cole Avenue/Clyde Avenue to Broadview Avenue)				
Mixed Traffic – Moderate Parking/Driveway Friction	Yes	Medium	Medium	E

6.3.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of Carling Avenue. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for truck routes along an Arterial Main Street. 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
Carling Avenue, eastbound (Broadview Avenue to Cole Avenue/Clyde Avenue)		
≤ 3.3m	3	C
Carling Avenue, westbound (Cole Avenue/Clyde Avenue to Broadview Avenue)		
≤ 3.3m	3	C

6.3.5 Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggests a target Auto LOS D for Arterial Main Streets. The typical lane capacity along the study area roadways are based on the City’s guidelines for the TRANS Long-Range Transportation Model. The lane capacity along the boundary streets has been estimated based on roadway classification and general characteristics (i.e. suburban with limited access, urban with on-street parking, etc.). The results of the Auto LOS analysis are summarized in **Table 11**.

Table 11: Auto LOS Segment Analysis

Direction	Directional Capacity	Traffic Volumes		V/C Ratio and LOS			
		AM Peak	PM Peak	AM Peak		PM Peak	
				V/C	LOS	V/C	LOS
Carling Avenue (Broadview Avenue to Cole Avenue/Clyde Avenue)							
Eastbound	3,000 vph	1,775	829	0.59	A	0.28	A
Westbound	3,000 vph	714	2,062	0.24	A	0.69	B

6.3.6 Segment MMLOS Summary

Results of the segment MMLOS analysis indicate that Carling Avenue does not meet the target PLOS C, BLOS C, or TLOS D, but does meet the target TkLOS D and Auto LOS D. The current ROW along Carling Avenue is 30m within the study area, with a ROW protection of 44.5m. The land required for a future road widening is anticipated to be taken equally from both sides of the centerline, which equates to 7.25m on both the north and south sides. The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous

transit lanes in its Affordable Network. While these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services as well, as discussed further below.

The pedestrian level of service of Carling Avenue is currently failing. This is attributable to two main features: an operating speed of 70 km/h and average daily curb lane traffic volumes far greater than 3000 vehicles/day. Without a reduction of the operating speed to 60 km/h, the best PLOS possible for this segment is a PLOS D, which can be achieved by implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m. Reducing the operating speed to 60 km/h would further improve the segment to the target PLOS C.

The bicycle level of service of Carling Avenue is currently failing. This is attributable to the posted speed limit of 60 km/h. The *Ontario Traffic Manual – Book 18* describes the desirable cycling facility for a roadway, given the roadway's average annual daily traffic (AADT) and operating speed. For roadways with an AADT of over 15,000 vehicles per day and an operating speed of 50 km/h or higher, the *Ontario Traffic Manual* states that 'a separated facility or an alternate road' should be considered. The implementation of a cycle track or other physically separated bikeway would improve the BLOS of this segment to a BLOS A. In the absence of any planned facilities to the east and west of the site, there is no benefit in implementing a separated facility across the site's frontage.

As shown in **Figure 3**, the City has identified transit improvements to Carling Avenue in the *2013 Transportation Master Plan* (TMP), including dedicated bus lanes on Carling Avenue. This measure will improve the TLOS beyond the target TLOS D.

6.4 Access Design

The existing depressed curb accesses to the subject site will be removed as part of the proposed redevelopment, and full-height curb and sidewalks will be reinstated as per City standards. A single two-way driveway is proposed approximately at the centre of the subject site's frontage to Carling Avenue.

Section 25 (c) of the City's *Private Approach By-Law* 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)(ii) of the ZBL identifies that, for a driveway providing access to a parking lot or garage, a minimum width of 6.7m is required for a double traffic lane. Section 107 (1)(a)(iii) identifies that, in the case of a parking garage for apartment dwellings, a maximum width of 6.7m is required when there are 20 or more parking spaces. The proposed driveway is approximately 6.7m in width, and the internal drive aisles maintain a 6.7m width minimum, thereby meeting these requirements.

Section 25 (m)(ii) of the *Private Approach By-Law* identifies a requirement to provide a minimum distance of 45m between the private approach and the nearest intersecting street line, for developments which are within 46m of an arterial roadway, and have 200 to 299 parking spaces. The proposed driveway is located approximately 100m west of Cole Avenue and 265m east of Broadview Avenue (both measured from nearest edge to ROW), thereby meeting this requirement.

Section 25 (p) of the *Private Approach By-Law* identifies a requirement to provide a minimum spacing of 3m between the nearest edge of the private approach and the property line as measured at the street line. The proposed driveway is approximately 32m from the eastern property line and 35m from the western property line, thereby meeting this requirement.

6.5 Transportation Demand Management

The subject site is located within a Design Priority Area (DPA), as defined by the City of Ottawa's Official Plan. A review of the City of Ottawa's *TDM Measures Checklist* has been conducted with the property manager, and is provided in **Appendix H**.

The following measures will be implemented upon buildout of the proposed retirement residences:

- Unbundle parking cost from purchase price (condominiums);
- Unbundle parking cost from monthly rent (multi-family).

6.6 Transit

Based on the trip generation presented in **Table 5**, the proposed redevelopment is projected to generate an additional 11 transit trips in both the AM and PM peak hours. All transit trips generated by the subject site are anticipated to board and alight at stops #0350, #4908, and #7479. Based on these volumes, no capacity problems are anticipated on OC Transpo routes 50 and 85.

7.0 CONCLUSIONS AND RECOMMENDATIONS

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

Forecasting

- The net increase in trips generated by the proposed redevelopment is approximately 55 person trips in the AM and PM peak hours, which includes a increase of approximately 24 vehicle trips in the AM peak hour and 23 vehicle trips in the PM peak hour.

Development Design and Parking

- Pedestrian facilities will be provided between the proposed building entrances and the drop-off/pick-up and parking areas, as well as a connection to the sidewalk along Carling Avenue. Sidewalks will be depressed and continuous across the right-in/right-out access, in accordance with City standards.
- Fifteen surface bicycle parking spaces will be provided for each proposed building, with the remainder in secure areas on the first level of the underground garage.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Garbage collection will occur within the underground garage. A loading space is proposed at the northeast corner of the retirement home facility.
- The fire route for the proposed development is curbside along Carling Avenue.
- The minimum vehicle and bicycle parking requirements as outlined in the ZBL will be met by the proposed parking allocated for each use. A total of 66 vehicle and 40 bicycle parking spaces will be provided for the retirement residences. A total of 187 vehicle and 97 bicycle parking spaces will be provided for the high-rise apartments.

- The minimum accessible parking space requirements will be met, with three accessible spaces proposed for the retirement residences and seven accessible spaces proposed for the high-rise apartments.

Boundary Streets

- Between Broadview Avenue and Cole Avenue/Clyde Avenue, Carling Avenue does not meet the target PLOS, BLOS, or TLOS. Carling Avenue does meet the target TkLOS and Auto LOS.
- The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous transit lanes in its Affordable Network. While these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services as well, as discussed further below.
- Per Exhibit 4 of the MMLOS guidelines, the PLOS of Carling Avenue can be improved to PLOS D by implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m.
- Per Exhibit 11 of the MMLOS guidelines, the BLOS of Carling Avenue can be improved to a BLOS A by implementing a cycle track or other physically separated bikeway. The *Ontario Traffic Manual – Book 18* identifies separated bicycle facilities as most appropriate for Carling Avenue, given the high operating speed and daily traffic volumes. In the absence of any planned facilities to the east and west of the site, there is no benefit in implementing a separated facility across the site's frontage.
- The City has identified transit improvements to Carling Avenue, including dedicated bus lanes on Carling Avenue. This measure will improve the TLOS beyond the target TLOS D.

Access Design

- The proposed redevelopment will be served by a right-in/right-out driveway at approximately the centre of the subject site's frontage to Carling Avenue, measuring 6.7m in width at the property line.
- Section 25 (c) of the *Private Approach By-Law* identifies a maximum width requirement of 9m for two-way accesses. This requirement is met by the proposed driveway.
- Section 107 (1)(a)(ii) of the ZBL identifies a minimum width requirement of 6.7m for a double traffic lane leading to a parking lot or garage. Section 107 (1)(a)(iii) of the ZBL identifies a maximum width requirement of 6.7m for internal drive aisles serving a parking garage for apartment dwellings. These requirements are met.
- Section 25 (m)(ii) of the *Private Approach By-Law* identifies a minimum distance requirement of 45m between the private approach and the nearest intersecting street line. This requirement is met by the proposed driveway.
- Section 25 (p) of the *Private Approach By-Law* identifies a minimum distance requirement of 3m between the nearest edge of the private approach and the property line, as measured at the street line. This requirement is met by the proposed driveway.

Transportation Demand Management

- The following measures will be implemented upon buildout of the proposed retirement residences:
 - Unbundle parking cost from purchase price (condominiums);
 - Unbundle parking cost from monthly rent (multi-family).

Transit

- The proposed redevelopment is projected to generate an additional 11 transit trips in both the AM and PM peak hours. No capacity problems are anticipated on OC Transpo routes 50 and 85.
- Based on the foregoing, the proposed redevelopment is recommended from a transportation perspective.

NOVATECH

Prepared by:



Joshua Audia, B.Sc.
E.I.T.,
Transportation/Traffic

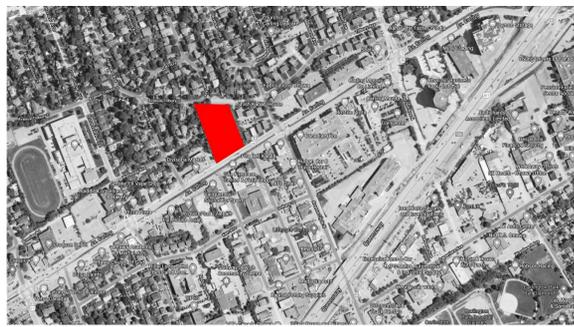
Reviewed by:



Greg MacDonald, P.Eng.
Director,
Land Development &
Public Sector Infrastructure

APPENDIX A

Site Plan



KEY PLAN

PROVISION	REQUIRED	PROVIDED
Min Lot Width	no minimum	+/- 77.751 m
Min Lot Area	no minimum	+/- 8 928 m ²
Max Building Height	20 to 30 m	+/- 72.51 m
Min Front Yard Setback	3 m	7.805 m
Min Rear Yard Setback	3 m	14.355 m
Min Interior Side Yard Setback	no minimum	2.814 m / 4.208 m

AREA OF SITE:	+/- 8 928 sq.m.
SITE COVERAGE:	+/- 1 827 m ² (Retirement Home) +/- 1 032 m ² (Rental) Total = +/- 2 859 m ² = 32.0 %
GROUND PARKING AREA:	+/- 1 794 m ² = 20.1 %
LANDSCAPED AREA (EXCLUDING PARKING):	+/- 4 275 m ² = 47.9 %

- FOR EXISTING SITE CONDITIONS, SEE SURVEY PLAN BY ANNIS, O'SULLIVAN, VOLLEBEK LTD., SUBMITTED SEPARATELY.
- FOR NEW GRADES AND SITE SERVICES, SEE CIVIL ENGINEERING PLAN BY NOVATECH ENGINEERING CONSULTANTS, SUBMITTED SEPARATELY.
- FOR PROPOSED VEGETATION AND LANDSCAPE INFORMATION, SEE LANDSCAPE ARCHITECTURE PLAN BY JAMES B. LENNOX & ASSOCIATES, SUBMITTED SEPARATELY.

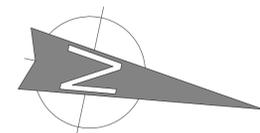
RETIREMENT HOME	
PROPOSED GROSS FLOOR AREA:	+/- 8 217 m ²
BASEMENT G.F.A.:	+/- 50 m ²
GROUND FLOOR G.F.A.:	+/- 36 m ²
GROUP C RET. HOME G.F.A. (2nd to 9th floor):	+/- 8 132 m ²
PRIVATE AMENITY AREA (G.F.A.):	+/- 383 M ²
COMMUNAL AMENITY AREA:	+/- 2 241 M ² ** (915m ² INSIDE / 1 326m ² OUTSIDE)
MED. HEALTH OR PERSONEL SERVICE (G.F.A.):	+/- 90 m ²
NUMBER OF FLOORS AND BUILDING HEIGHT:	9 FLOORS + MECH. / +/- 33.40m
DWELLING UNITS:	108
PARKING STALLS:	66 (47 INSIDE / 19 OUTSIDE)
PROVIDED BICYCLE STALLS:	40 (25 INSIDE / 15 OUTSIDE)

** EXCLUDING ROOF TERRACE AMENITIES

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE:
160 UNITS = 24 UNITS HAVE TO BE BARRIER-FREE
THEY WILL BE DISTRIBUTED BETWEEN THE 8 DWELLING FLOORS

RENTAL	
PROPOSED GROSS FLOOR AREA:	+/- 13 538 m ²
BASEMENT G.F.A.:	0m ²
GROUND FLOOR G.F.A.:	+/- 284 m ²
RENTAL FLOORS G.F.A. (2nd to 22nd floor):	+/- 13 253 m ²
PRIVATE AMENITY AREA (G.F.A.):	+/- 865 M ²
COMMUNAL AMENITY AREA:	+/- 715 M ² (395m ² INSIDE / 320m ² OUTSIDE)
NUMBER OF FLOORS AND BUILDING HEIGHT:	22 FLOORS + MECH. / +/- 72.51m
DWELLING UNITS:	194
PARKING STALLS:	187 (187 INSIDE)
PROVIDED BICYCLE STALLS:	97 (82 INSIDE / 15 OUTSIDE)

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE:
194 UNITS = 29 UNITS HAVE TO BE BARRIER-FREE
THEY WILL BE DISTRIBUTED BETWEEN THE 22 FLOORS



0 1 2 5 10m
SNOW WILL BE HAULED OFF SITE

NOTES GÉNÉRALES / General Notes

- Ces documents d'architecture sont la propriété exclusive de NEUF architect(e)s et ne doivent être utilisés, reproduits ou copiés sans autorisation écrite préalable. / These architectural documents are the exclusive property of NEUF architect(e)s and cannot be used, copied or reproduced without written pre-authorization.
- Les dimensions apparaissant sur les documents doivent être vérifiées par l'entrepreneur avant le début des travaux. / All dimensions which appear on the documents must be verified by the contractor before starting the work.
- Veuillez aviser l'architecte de toute dimension erronée et/ou divergente entre ces documents et ceux des autres professionnels. / The architect must be notified of all errors, omissions and discrepancies between these documents and those of the other professionals.
- Les dimensions sur ces documents doivent être lues et non mesurées. / The dimensions on these documents must be read and not measured.

PLANIFICATEUR URBAIN Urban Planner
Fotenn
316 Cooper St, Suite 300, Ottawa ON K2P 2H7
T 613 730 5709 fotev.com

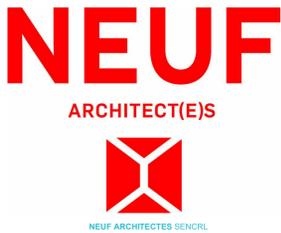
STRUCTURE Structural
Goodeve Structural Inc.
18-77, Auriga Drive, Ottawa ON K2E 7Z7
T 613 226 4558 goodevestructural.ca

ARCHITECTURE DE PAYSAGE Landscape Architect
James B. Lennox & Associates
5332, Carling Avenue, Ottawa ON K2M 5A6
T 613 722 5168 jbla.ca

CIVIL Civil
Novatech Eng. Consultants Ltd.
240, Michael Cowland Drive, Suite 200, Ottawa ON K2M 1P6
T 613 234 9653 novatech-eng.com

ARCHITECTES Architect
NEUF architect(e)s SENCLR
630, boul. René-Lévesque O. 32e étage, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU / Seal



OUVRAGE Project
CARLING - RENTAL / RETIREMENT HOME
EMPLACEMENT Location NO PROJET No
OTTAWA 12322/12372

NO	REVISION	DATE (aa-mm-jj)
A	FOR INFORMATION	2020-02-21
B	FOR INFORMATION	2020-02-27
C	FOR INFORMATION	2020-03-03
D	FOR INFORMATION	2020-04-01

Preliminary
DO NOT USE FOR
CONSTRUCTION

DESSINÉ PAR Drawn by PV, MT VÉRIFIÉ PAR Checked LH
DATE (aa.mm.jj) JAN 2020 ECHELLE Scale 1 : 200
TITRE DU DESSIN Drawing Title

SITE PLAN AT GROUND FLOOR LEVEL

REVISION Revision NO. DESSIN Dwg Number
D A203

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	1705 Carling Avenue
Description of Location	Midblock between Highland Avenue and Cole Avenue, on the north side of Carling Avenue
Land Use Classification	Residential care facility and apartments
Development Size (units)	Residential care facility: 160 units High-rise Apartments: 194 units
Development Size (m ²)	-
Number of Accesses and Locations	One right-in/right-out access to Carling Avenue
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?	✓	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	✓	

**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?		✓
Are there any horizontal/vertical curvatures on a boundary street limiting 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)?	✓	
Is the proposed driveway within auxiliary lanes of an intersection?		✓
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		✓
Does the development include a drive-thru facility?		✓

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?		✓
Does the development satisfy the Location Trigger?	✓	
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

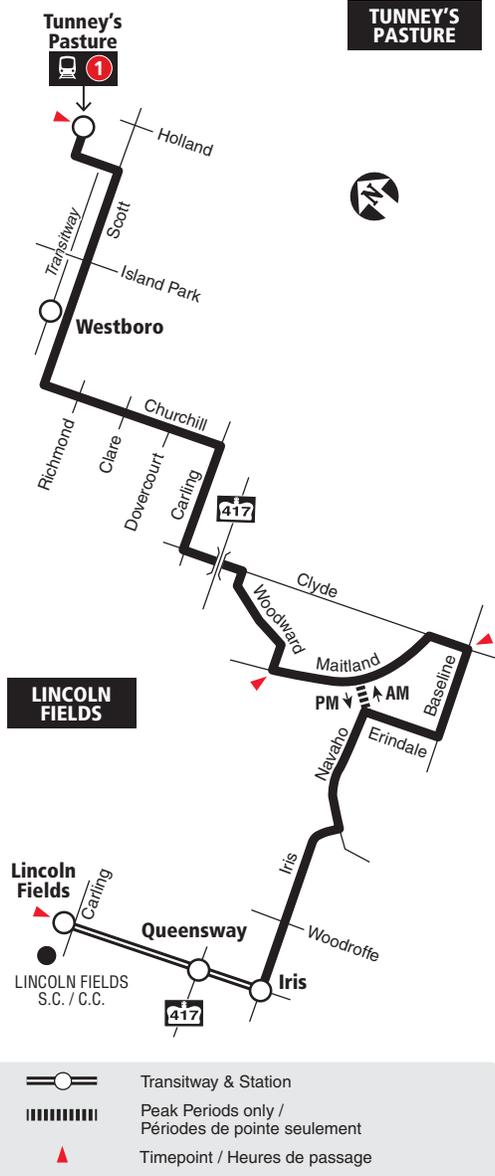


50

LINCOLN FIELDS TUNNEY'S PASTURE

Local

Monday to Saturday / Lundi au samedi
No service Sat. eve. or all day Sunday / Aucun service le soir le sam. ou toute la journée dimanche



2019.06

Schedule / Horaire613-560-1000
Text / Texto560560
plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-842-3600**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective April 24, 2017
En vigueur 24 avril 2017



85

GATINEAU BAYSHORE

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



2019.07

Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture de la Ligne 1 de l'O-Train

Lost and Found / Objets perdus..... 613-563-4011
 Security / Sécurité 613-741-2478

OC Transpo INFO 613-741-4390
 octranspo.com



APPENDIX D

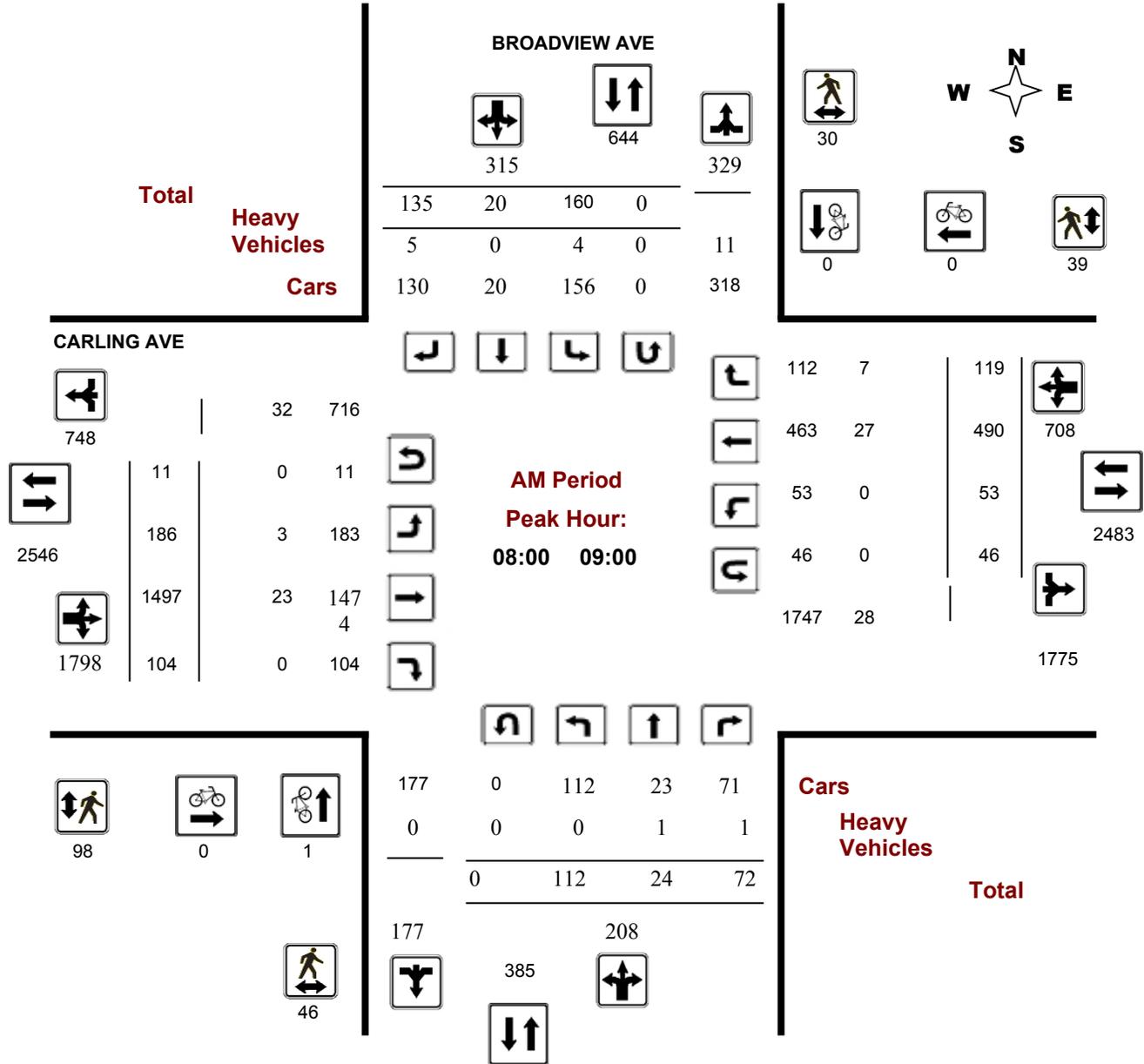
Traffic Count Data

Survey Date: Thursday, April 20, 2017

Start Time: 07:00

WO No: 36953

Device: Miovision

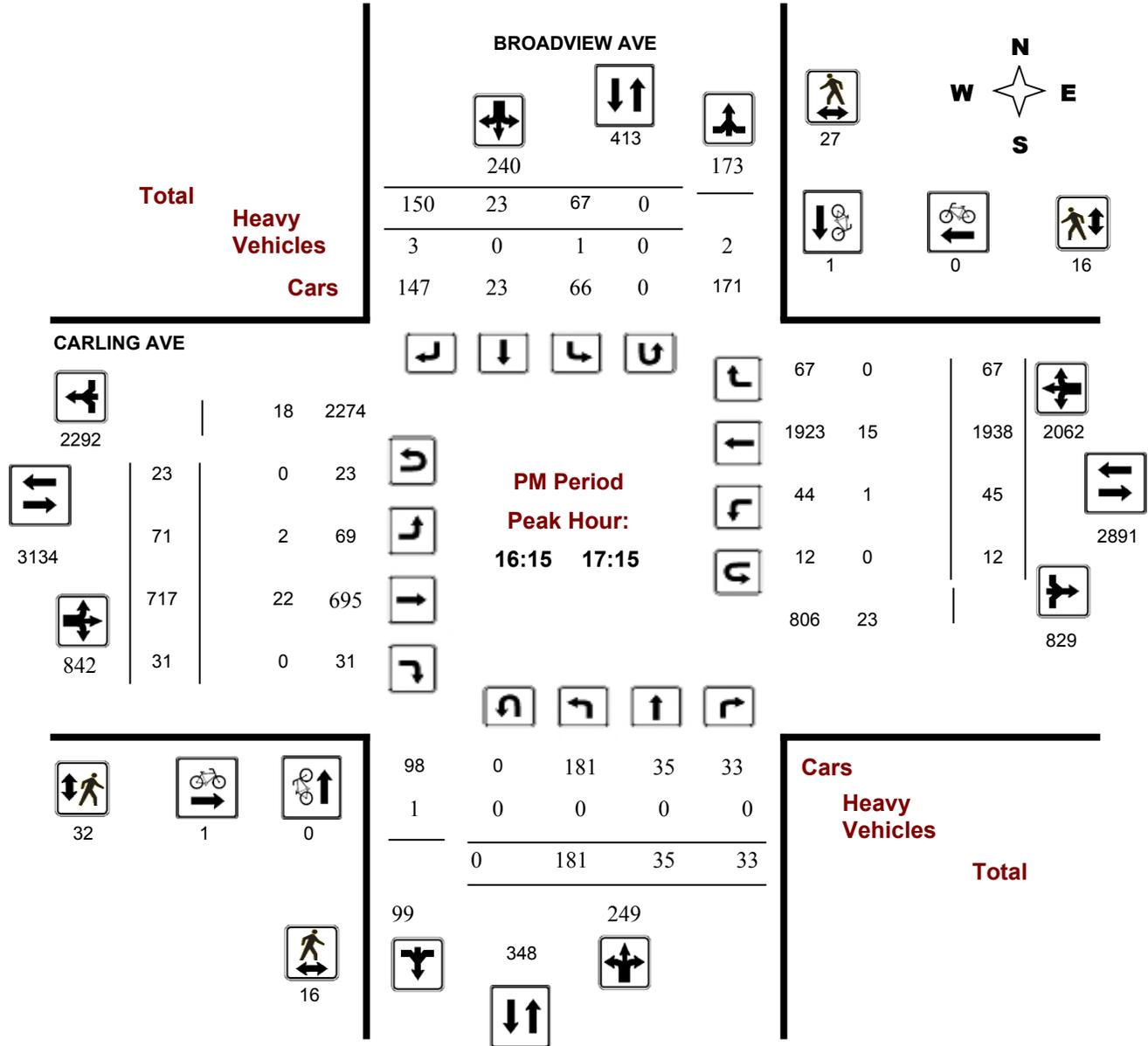


Survey Date: Thursday, April 20, 2017

Start Time: 07:00

WO No: 36953

Device: Miovision



Turning Movement Count - Full Study Summary Report

CARLING AVE @ BROADVIEW AVE

Survey Date: Thursday, April 20, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 146 Westbound: 284

AADT Factor

.90

Full Study

Period	BROADVIEW AVE								CARLING AVE								STR TOT	Grand Total	
	Northbound				Southbound				Eastbound				Westbound						
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT			
07:00 08:00	38	20	32	90	57	14	69	140	230	140	1460	46	1646	17	378	66	461	2107	2337
08:00 09:00	112	24	72	208	160	20	135	315	523	186	1497	104	1787	53	490	119	662	2449	2972
09:00 10:00	67	24	46	137	102	22	121	245	382	152	998	51	1201	39	628	77	744	1945	2327
11:30 12:30	106	17	43	166	86	10	151	247	413	112	749	64	925	32	720	84	836	1761	2174
12:30 13:30	135	19	32	186	84	10	149	243	429	135	832	56	1023	35	778	87	900	1923	2352
15:00 16:00	158	15	38	211	128	31	166	325	536	114	686	69	869	56	1377	83	1516	2385	2921
16:00 17:00	184	29	43	256	80	22	170	272	528	74	721	40	835	31	1845	67	1943	2778	3306
17:00 18:00	160	22	34	216	67	21	126	214	430	82	717	38	837	67	1646	75	1788	2625	3055
Sub Total	960	170	340	1470	764	150	1087	2001	3471	995	7660	468	9123	330	7862	658	8850	17973	21444
U Turns				0				0	0				146				284	430	430
Total	960	170	340	1470	764	150	1087	2001	3471	995	7660	468	9269	330	7862	658	9134	18403	21874
EQ 12Hr	1334	236	473	2043	1062	208	1511	2781	4824	1383	10647	651	12884	459	10928	915	12696	25580	30404
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	1201	213	425	1839	956	188	1360	2503	4342	1245	9583	585	11596	413	9835	823	11427	23023	27365
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													.90						
AVG 24Hr	1573	279	557	2409	1252	246	1781	3279	5688	1631	12553	767	15190	541	12884	1078	14969	30159	35847
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													1.31						

Comments:

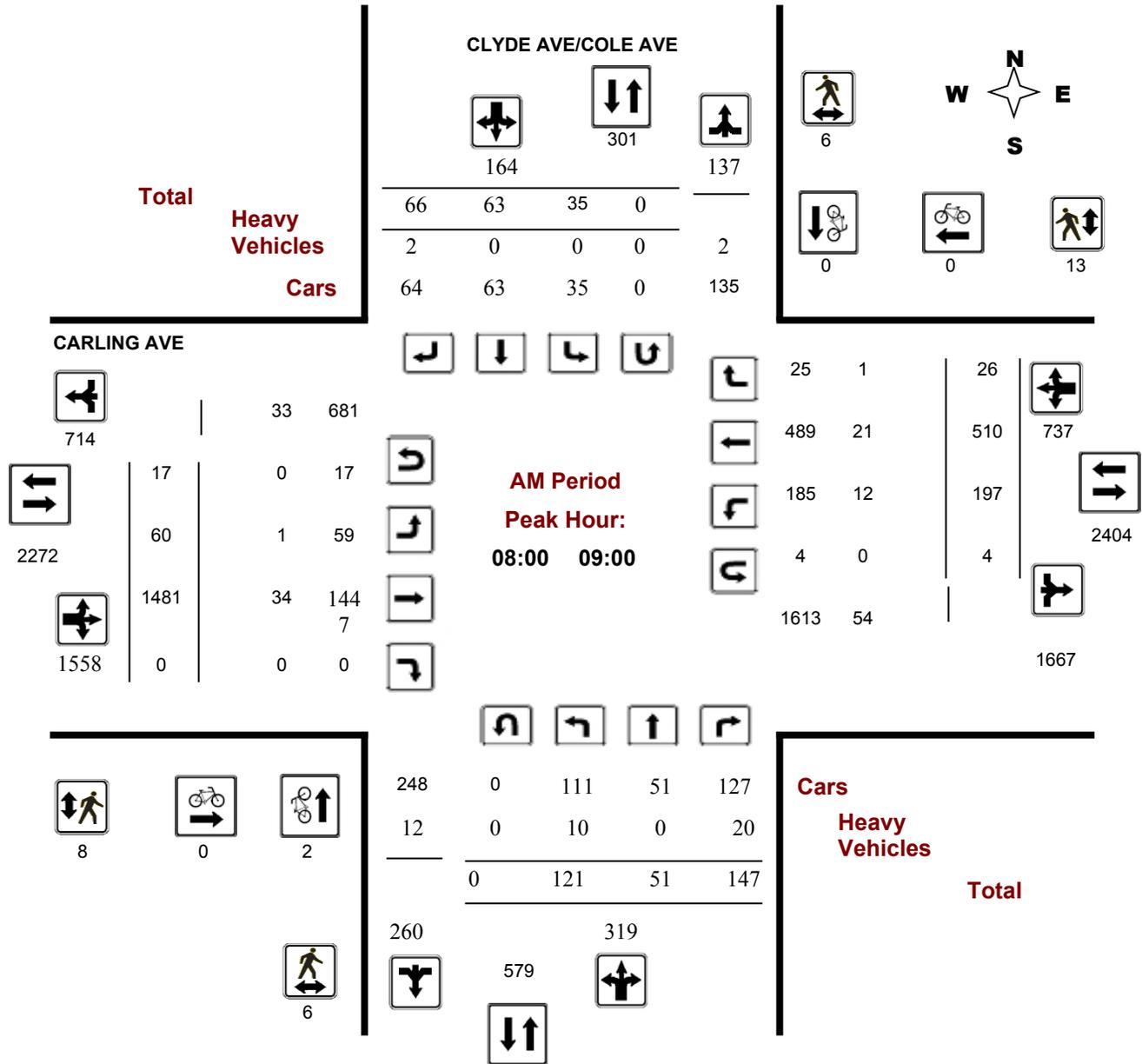
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Survey Date: Wednesday, January 27, 2016

Start Time: 07:00

WO No: 35669

Device: Miovision



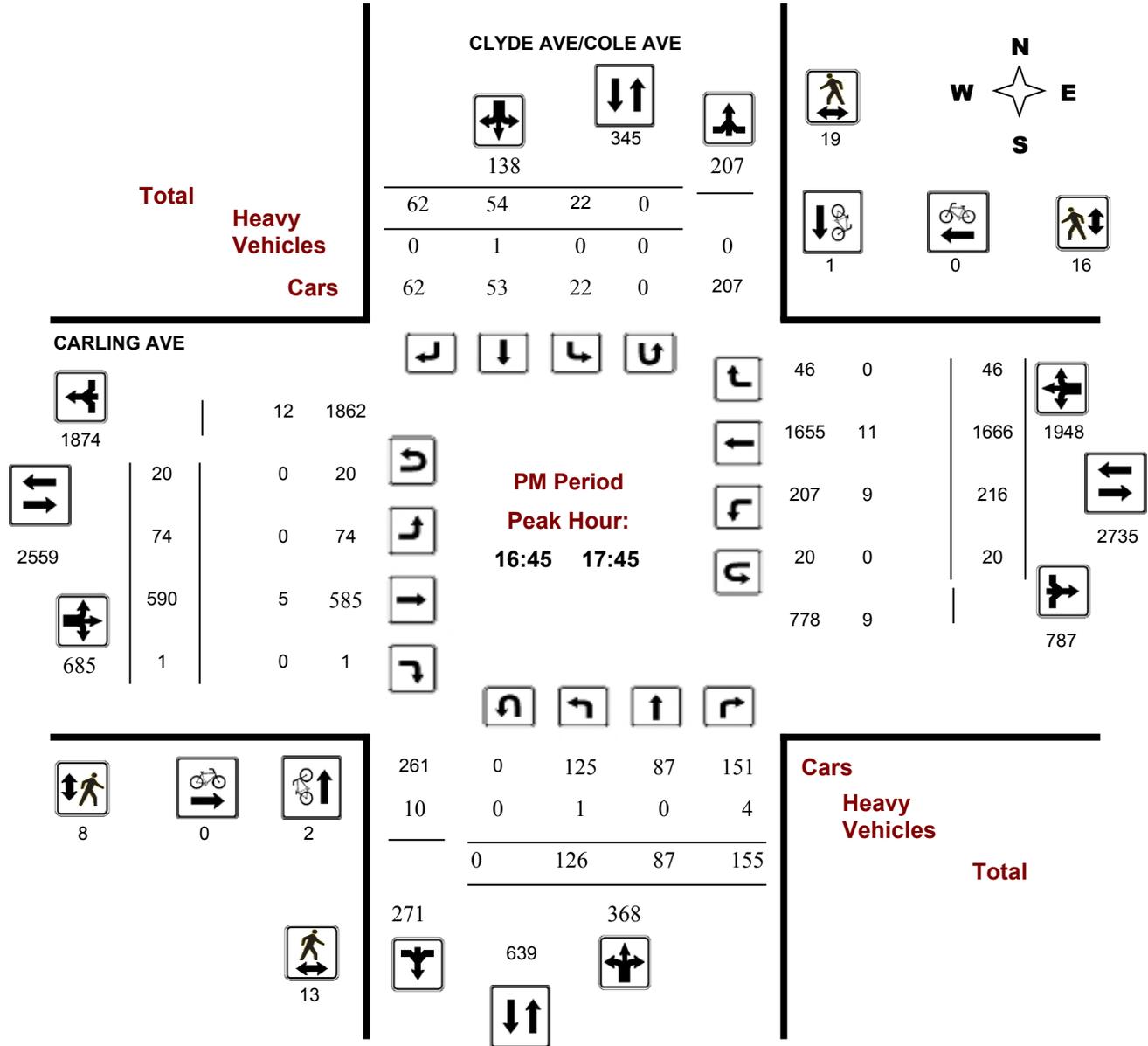
Comments

Survey Date: Wednesday, January 27, 2016

Start Time: 07:00

WO No: 35669

Device: Miovision



APPENDIX E

Collision Records



City Operations - Transportation Services

Collision Details Report - Public Version

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

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2014-Jan-28, Tue, 17:15	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Pick-up truck	Other motor vehicle	
2014-Feb-04, Tue, 17:53	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Feb-27, Thu, 17:21	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Passenger van	Other motor vehicle	
2014-Apr-06, Sun, 16:09	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	
2014-May-13, Tue, 13:00	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Ambulance	Other motor vehicle	
2014-Mar-19, Wed, 14:57	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	

					East	Turning left	Pick-up truck	Other motor vehicle
2014-Jun-09, Mon,10:56	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Sep-26, Fri,08:25	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Changing lanes	Pick-up truck	Other motor vehicle
2014-Nov-12, Wed,17:07	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jan-26, Mon,09:06	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Pick-up truck	Other motor vehicle
2015-Jan-23, Fri,11:10	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Dec-19, Fri,16:32	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Unknown	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

2015-May-11, Mon,11:30	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2015-Apr-23, Thu,11:44	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle

2015-Apr-28, Tue,09:15	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle

2015-Apr-28, Tue,16:48	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

2015-Feb-01, Sun,14:38	Clear	Angle	P.D. only	Dry	East	Going ahead	Passenger van	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle

2014-Jul-22, Tue,09:17	Clear	Rear end	P.D. only	Dry	East	Going ahead	Truck - closed	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle

2015-Aug-20, Thu,13:25	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle

2015-Jul-22, Wed,18:12	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Nov-23, Mon,15:08	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Feb-25, Thu,11:30	Clear	Turning movement	P.D. only	Slush	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Mar-03, Thu,06:14	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Oct-11, Tue,12:10	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Passenger van	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Dec-31, Thu,19:15	Snow	Turning movement	P.D. only	Slush	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Dec-14, Mon,14:03	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2016-Mar-02, Wed,13:43	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jan-27, Wed,16:15	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2016-Jul-28, Thu,13:36	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Passenger van	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Jan-03, Tue,07:27	Snow	Turning movement	P.D. only	Slush	West	Turning left	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-21, Tue,11:37	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Feb-21, Tue,08:11	Clear	Sideswipe	P.D. only	Dry	South	Overtaking	Unknown	Other motor vehicle	
					South	Stopped	Bus (other)	Other motor vehicle	
2016-Dec-14, Wed,15:32	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Pedestrian	1

2017-May-24, Wed,10:40	Clear	SMV other	Non-fatal injury	Dry	South	Unknown	Unknown	Pedestrian	1
2017-Jun-16, Fri,13:27	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jul-07, Fri,18:24	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Pick-up truck	Skidding/sliding	
					West	Going ahead	Bicycle	Other motor vehicle	
2017-Nov-01, Wed,18:09	Rain	Rear end	Non-fatal injury	Wet	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-06, Sat,16:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-19, Tue,08:35	Snow	Turning movement	P.D. only	Loose snow	East	Turning left	Unknown	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
2017-Dec-31, Sun,17:48	Clear	Rear end	P.D. only	Ice	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-25, Thu,16:30	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

2018-Mar-09, Fri,15:40	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Changing lanes	Automobile, station wagon	Other motor vehicle
2018-Mar-25, Sun,14:04	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Mar-07, Wed,11:43	Snow	Turning movement	P.D. only	Wet	West	Slowing or stopping	Truck - closed	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2018-May-28, Mon,09:07	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Passenger van	Cyclist
					North	Going ahead	Bicycle	Other motor vehicle
2018-May-10, Thu,17:10	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jun-26, Tue,08:25	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-25, Tue,14:52	Rain	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2018-Sep-06, Thu,10:43	Clear	SMV other	Non-reportable	Dry	South	Turning right	Truck - open	Pole (sign, parking meter)
2018-Aug-02, Thu,12:28	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Aug-09, Thu,11:15	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Truck - dump	Other motor vehicle
2018-Nov-12, Mon,06:45	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal

Total Collisions: 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-29, Wed,15:37	Clear	Turning movement	P.D. only	Slush	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Delivery van	Other motor vehicle	
2014-Mar-12, Wed,17:04	Drifting Snow	Turning movement	P.D. only	Packed snow	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Apr-16, Wed,10:05	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Delivery van	Other motor vehicle	

					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Mar-25, Tue, 15:40	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jan-30, Thu, 13:05	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2014-Jul-19, Sat, 12:01	Clear	Turning movement	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Dec-05, Fri, 14:15	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Passenger van	Other motor vehicle	
2014-Nov-14, Fri, 16:14	Snow	Turning movement	P.D. only	Wet	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Nov-06, Thu, 11:59	Clear	Sideswipe	P.D. only	Dry	East	Turning left	Truck - dump	Other motor vehicle	
					East	Stopped	Truck - dump	Other motor vehicle	
2015-Feb-10, Tue, 17:34	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Making "U" turn	Pick-up truck	Other motor vehicle	

2014-Sep-25, Thu,12:15	Clear	Sideswipe	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2014-Oct-29, Wed,15:31	Clear	Turning movement	P.D. only	Dry	West	Turning left	Unknown	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Dec-11, Thu,03:15	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Curb
2014-Sep-04, Thu,08:20	Clear	Angle	P.D. only	Dry	East	Making "U" turn	Passenger van	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2014-Nov-27, Thu,11:34	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jan-05, Mon,17:51	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Passenger van	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Feb-19, Thu,16:10	Snow	Rear end	P.D. only	Loose snow	West	Going ahead	Unknown	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Mar-27, Fri,08:15	Snow	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Sep-15, Tue,14:46	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Feb-12, Fri,09:41	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Aug-02, Tue,10:00	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Aug-05, Wed,18:30	Clear	Turning movement	P.D. only	Dry	South	Turning left	Passenger van	Other motor vehicle
					North	Going ahead	Passenger van	Other motor vehicle
2015-Jul-23, Thu,19:14	Clear	Turning movement	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Dec-08, Tue,09:09	Clear	Turning movement	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Other motor vehicle

					West	Going ahead	Municipal transit bus	Other motor vehicle	
2016-Oct-08, Sat,15:20	Clear	SMV other	P.D. only	Dry	East	Turning right	Truck and trailer	Pole (utility, power)	
2017-Jun-28, Wed,17:55	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Nov-28, Mon,08:41	Clear	SMV other	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Pedestrian	1
2017-May-18, Thu,08:36	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Jun-27, Tue,14:30	Clear	Turning movement	P.D. only	Dry	West	Turning left	Unknown	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jul-07, Fri,15:43	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Motorcycle	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-30, Thu,14:31	Clear	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Pick-up truck	Other motor vehicle	

2017-Jul-26, Wed,08:34	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jul-20, Thu,15:48	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Passenger van	Other motor vehicle
					South	Turning left	Municipal transit bus	Other motor vehicle
2017-Oct-14, Sat,13:15	Clear	Turning movement	P.D. only	Dry	North	Turning right	Delivery van	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2017-Sep-22, Fri,15:43	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Truck - dump	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Oct-26, Thu,16:59	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Sep-21, Thu,16:00	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jan-13, Sat,10:12	Drifting Snow	Sideswipe	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding
					West	Turning left	Automobile, station wagon	Other motor vehicle

2018-Jan-09, Tue,21:41	Clear	Sideswipe	P.D. only	Slush	South	Unknown	Unknown	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jan-10, Wed,21:16	Clear	Turning movement	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2018-Feb-09, Fri,12:58	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Truck - dump	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2018-Feb-06, Tue,18:13	Clear	Turning movement	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Pick-up truck	Other motor vehicle
2018-Feb-01, Thu,07:07	Snow	Sideswipe	P.D. only	Loose snow	West	Turning left	School bus	Other motor vehicle
					West	Changing lanes	Pick-up truck	Other motor vehicle
2018-May-31, Thu,08:11	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-May-18, Fri,11:37	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Truck - closed	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2018-May-12, Sat,14:30	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-29, Fri,15:48	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Oct-19, Fri,09:19	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-23, Fri,13:08	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2018-Oct-24, Wed,12:43	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-13, Mon,16:20	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-11, Sat,12:51	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-27, Sat,22:36	Snow	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	

					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Aug-17, Fri,10:38	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Truck - closed	Other motor vehicle
2018-Nov-16, Fri,07:23	Snow	Angle	Non-fatal injury	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle

Location: CARLING AVE EB btwn BROADVIEW AVE & BOYD AVE

Traffic Control: No control

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Mar-31, Fri,09:00	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Delivery van	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Sep-19, Tue,07:46	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Cyclist	
					East	Going ahead	Bicycle	Other motor vehicle	
2017-Sep-30, Sat,08:41	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

2018-Feb-11, Sun,22:01 Freezing Rain SMV other Non-fatal injury Slush East Going ahead Automobile, station wagon Pole (sign, parking meter)

Location: CARLING AVE WB btwn BROADVIEW AVE & HIGHLAND AVE

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Nov-11, Fri,16:15	Clear	Sideswipe	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE WB btwn HIGHLAND AVE & COLE AVE

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
2015-Mar-12, Thu,17:10	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Ran off road	
2014-Dec-17, Wed,16:45	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Passenger van	Other motor vehicle	

APPENDIX F

Other Area Developments

Strategy Report

Parsons has been retained by Surface Developments to prepare a TIA in support of a Zoning By-Law Amendment Application (ZBLA) for a proposed residential building development in Ward 15: Kitchissippi. The following report represents Step 4 – Strategy, of the TIA process.

1. SCREENING FORM

The Screening Form was submitted to the City of Ottawa for review and verification of the need to complete a Transportation Impact Assessment (TIA). The Trip Generation, Location and Safety triggers of the Screening Form were all met based on the checklist provided by the TIA Guidelines. As such, a TIA Report was deemed required. The Screening Form and responses to City comments are provided in **Appendix A**.

2. SCOPING REPORT

2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

The proposed development is located at 1655 Carling Ave and will consist of a total of 260 residential units within a 22-storey building. The site is currently occupied by an unpaved parking lot with an estimated maximum occupancy of 80 vehicles, which is being used by Carling Motors (1622 Carling Ave) and the Canadian Blood Services (1575 Carling Ave). The proposed residential development will be constructed in a single phase, with an anticipated full-buildout date of 2022. **Figure 1** below provides the local context of the development site, while **Figure 2** provides the current concept plan. The site is currently zoned as an Arterial Mainstreet (AM) zone.

Figure 1: Local Context



As shown in **Table 8**, the planned residential building development is expected to result in a net increase of approximately 55 veh/h within the study area, during both morning and afternoon peak hour periods.

3.1.2. TRIP DISTRIBUTION AND ASSIGNMENT

Based on the 2011 OD Survey (Ottawa West district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 20% to/from the north;
- 10% to/from the south;
- 65% to/from the east; and,
- 5% to/from the west.

The expected site-generated auto trips in **Table 5** were then assigned to the surrounding road network as shown in **Figure 7** below. Furthermore, traffic volumes generated by the existing parking lot (see **Table 7**) are shown in **Figure 8** and the net difference in traffic (see **Table 8**) is illustrated in **Figure 9**. With regards to inbound traffic, vehicles were assumed to approach as follows:

- 65% from east Carling Ave
- 20% from north Churchill Ave N, and
- 15% from west Carling Ave (2/3 of which complete the U-turn at Carling/Churchill and 1/3 use Tillbury Ave),

Outbound vehicles were assumed to leave the site as follows:

- 15% to west Carling Ave
- 20% to north Churchill Ave N through Tillbury Ave and
- 65% to east Carling Ave (3/4 of which complete the U-turn at Carling/Clyde/Cole and 1/4 use Tillbury Ave).

Figure 7: Planned Residential Development Site-Generated Traffic

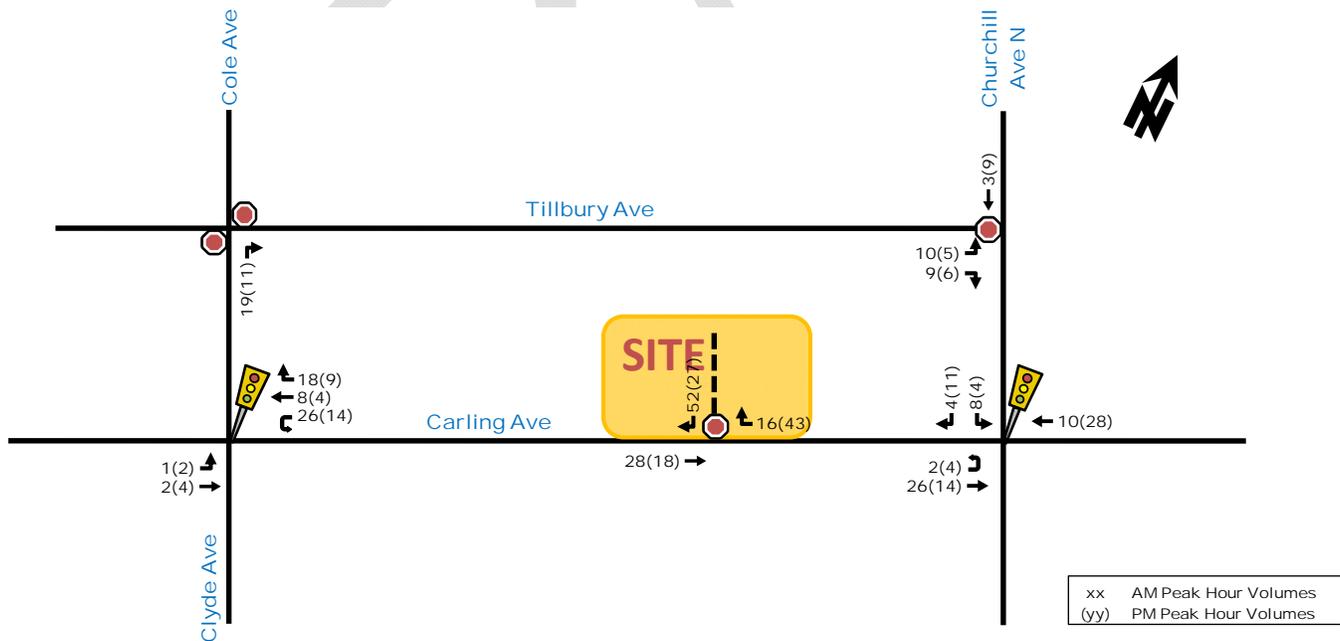


Figure 8: Existing Parking Lot Traffic Volumes

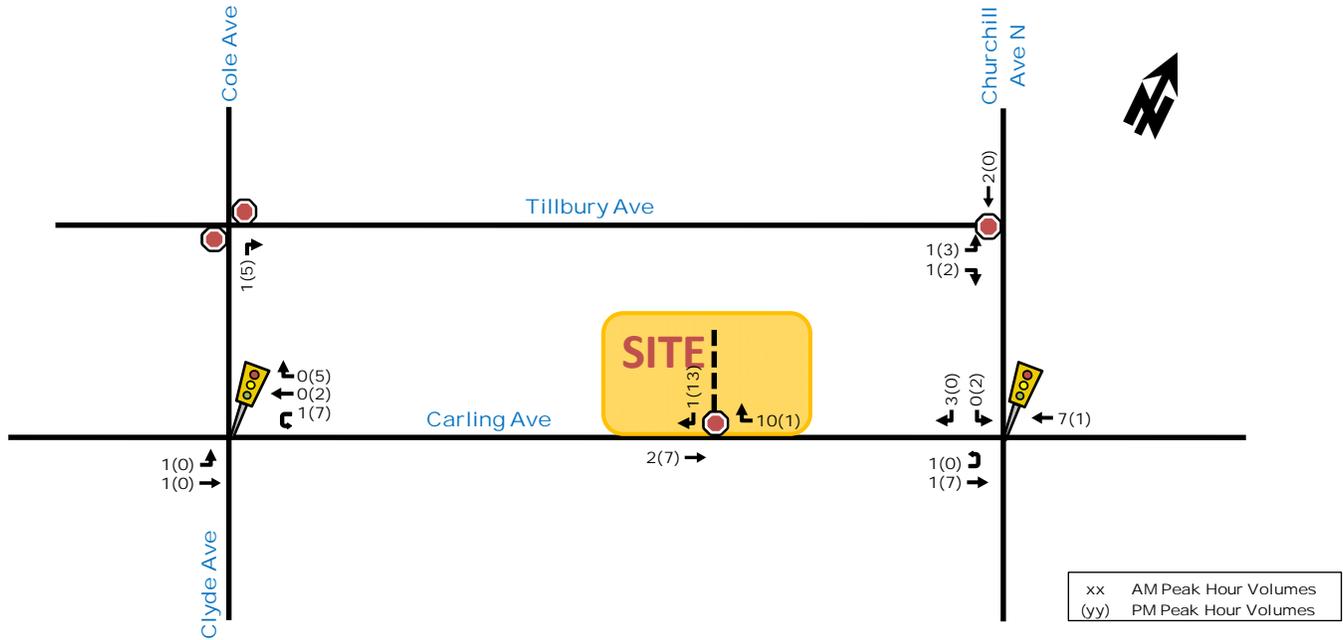
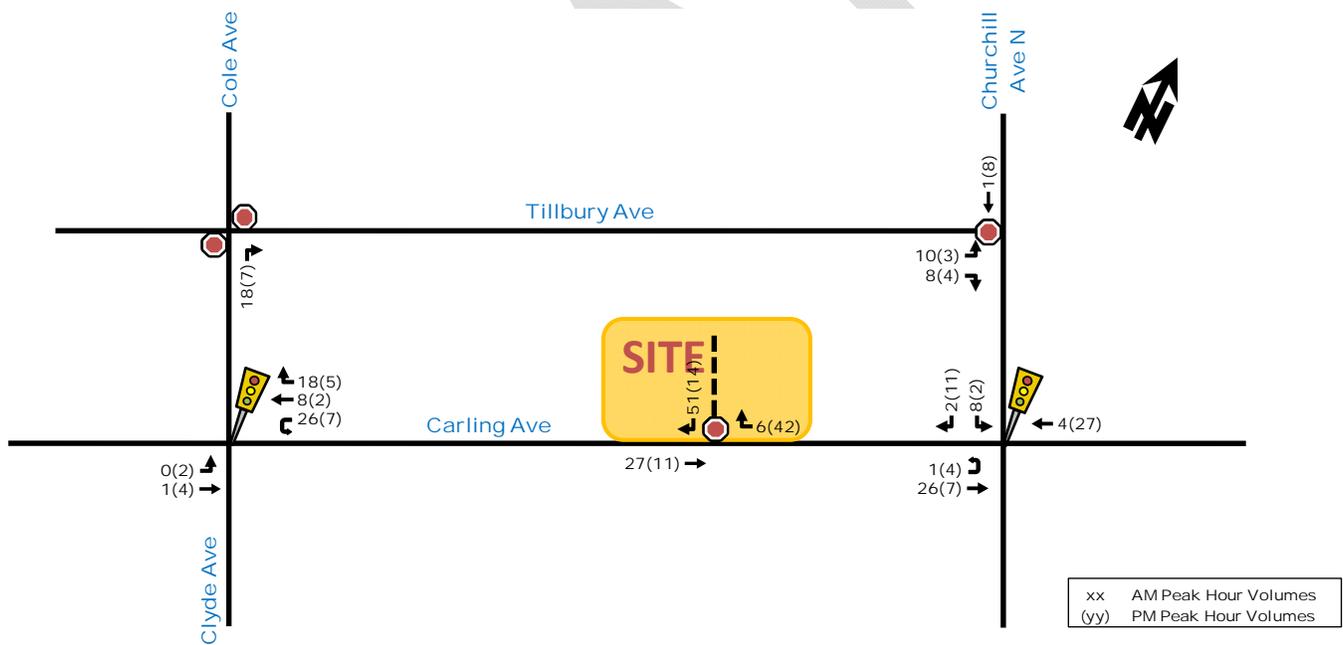


Figure 9: Net Traffic Difference



3.2. BACKGROUND NETWORK TRAFFIC

3.2.1. TRANSPORTATION NETWORK PLANS

Refer to **Section 2.1.3: Planned Study Area Transportation Network Changes**. A functional design project initiated by the City of Ottawa is currently underway to provide transit priority measures along Carling Ave, from Lincoln Fields to Bronson Ave. Between Lincoln Fields and Sherwood Dr, the plan is to provide a single designated bus lane for transit by reducing the three general purpose lanes to two general purpose lanes along both sides of Carling Ave. This plan is anticipated to

be implemented by 2020. **Figure 10** below shows the functional plan at the frontage of the site, where red lines represent the designated transit bus lanes.

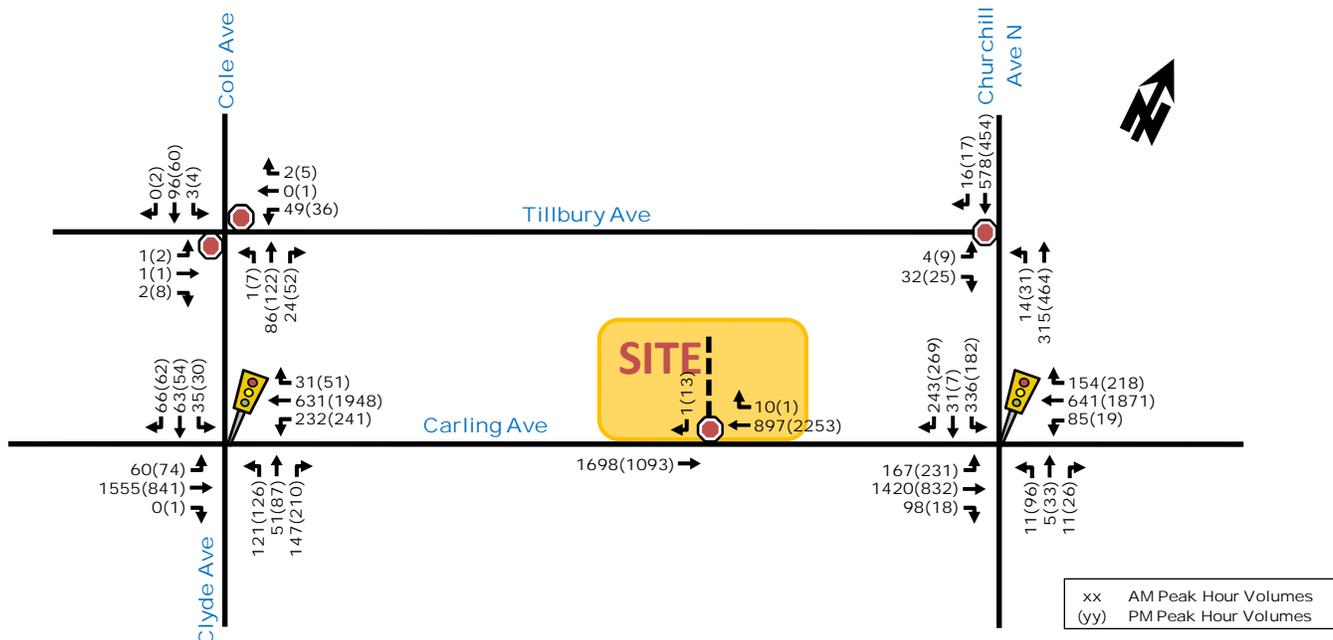
Figure 10: Carling Ave Transit Priority Measure



3.2.2. BACKGROUND GROWTH

The introduction of designated transit bus lanes along Carling Ave is expected to help reduce future background traffic through increasing the reliability and performance of transit services. Furthermore, since the area is well developed and there are no major other area developments planned near the subject site, traffic along Carling Ave is not anticipated to increase significantly in the next few years. As such, traffic growth is assumed to be 0% per year for the future horizon year 2022 and 1% per year thereafter for future horizon year 2027. Traffic volumes anticipated for the future background horizon year 2027 is illustrated in **Figure 11**.

Figure 11: Future Background 2027 Traffic Volumes



3.2.3. OTHER DEVELOPMENTS

Description of other area developments taking place within the study area was provided in **Section 2.1.3 - Other Area Developments**. For the purposes of this report, there are no additional traffic volumes associated with adjacent area developments that will be included in the analysis.

3.3. DEMAND RATIONALIZATION

Given that the number of lanes along Carling Ave is anticipated to be reduced to two general-purpose lanes in each direction, capacity of the study area intersections in future horizon years will be significantly lower than the capacity of Carling Ave in existing conditions. However, based on the *Carling Avenue Transit Priority Measures and Functional Design Report (WSP, June 2017)*, east-west traffic along Carling Ave is forecasted to decrease by up to 20% due to the implementation of the continuous dedicated bus lanes. The resulting anticipated traffic volumes for future background horizon years 2022 and 2027 are illustrated in **Figure 12** and **Figure 13**. Note that, as per **Section 3.2.2**, a 1% per year background growth rate was applied to traffic volumes between horizon year 2022 and 2027.

Figure 12: Future Background 2022 Traffic Volumes, with 20% East-West Reduction

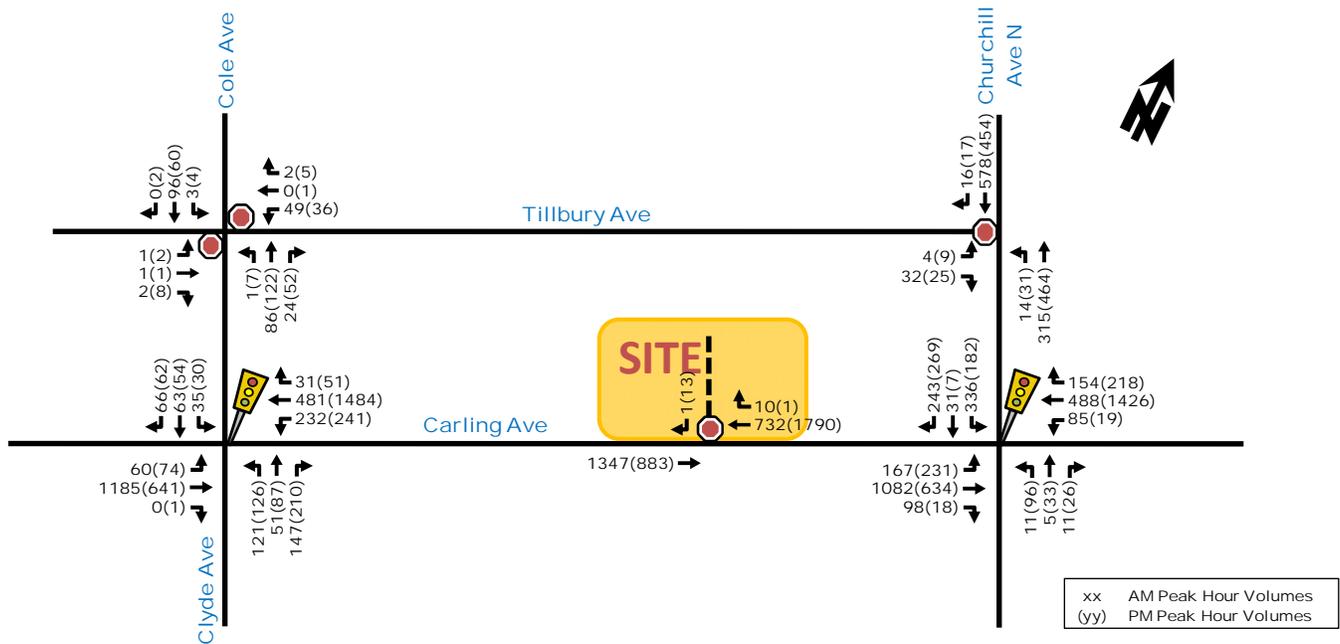
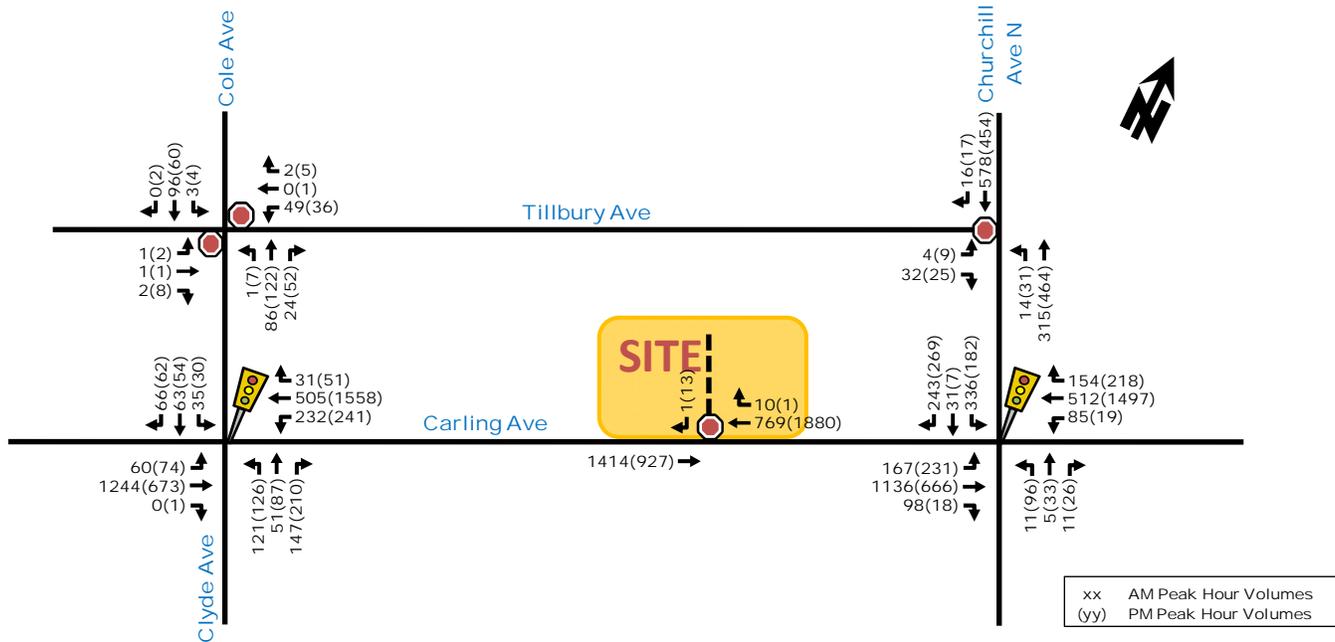


Figure 13: Future Background 2027 Traffic Volumes, with 20% East-West Reduction



4. ANALYSIS

4.1. DEVELOPMENT DESIGN

Exempt – see **Section 2.3**. Note that surface parking spaces are proposed to be located on the north end of the site, while access to the underground parking is proposed on the northeast end of the site. Indoor and outdoor bicycle parking will be provided, based on the parking provisions. Pedestrian sidewalk facilities will be provided throughout the site and bus stops are located near the site (see **Section 2.1.2**).

4.2. PARKING

Exempt – see **Section 2.3**. Based on the concept plan, a total of 284 (243 underground and 24 surface) parking spaces are proposed for the development. A total of 138 bicycle parking spaces are proposed as well.

4.3. BOUNDARY STREET DESIGN

Exempt – see **Section 2.3**. This element will be explored in detail in the future Site Plan Application.

4.4. ACCESS INTERSECTION DESIGN

Exempt – see **Section 2.3**. As mentioned previously, the access is located on the west end of the site and can be used to access the surface and underground parking entrance at the back end of the building. STOP control is determined to be sufficient for vehicles exiting the development site.

4.5. TRANSPORTATION DEMAND MANAGEMENT

The TDM checklist is attached in **Appendix F**.

APPENDIX G

Strategic Long-Range Model

TRANS Regional Model

Version 2.13 - Assigned December 11, 2019

AM Peak Hour Total Traffic Volume

Carling Ave

2011 Model - Base Scenario

No Modifications from Base Version

User Initials: MM

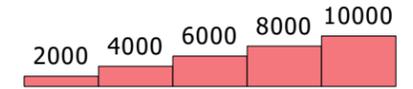
Plot Prepared: January 16, 2020

EMME Scenario: 21311

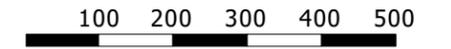


Legend

AM Peak Hour Total Traffic Volume



Distance (m)



The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As a general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

TRANS Regional Model

Version 2.11 - Assigned December 11, 2019

AM Peak Hour Total Traffic Volume

Carling Ave

2031 Model - Affordable Road & Transit Network

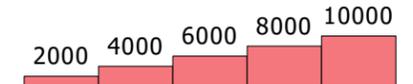
No Modifications from Base Version

User Initials: MM
Plot Prepared: January 16, 2020
EMME Scenario: 21131



Legend

AM Peak Hour Total Traffic Volume



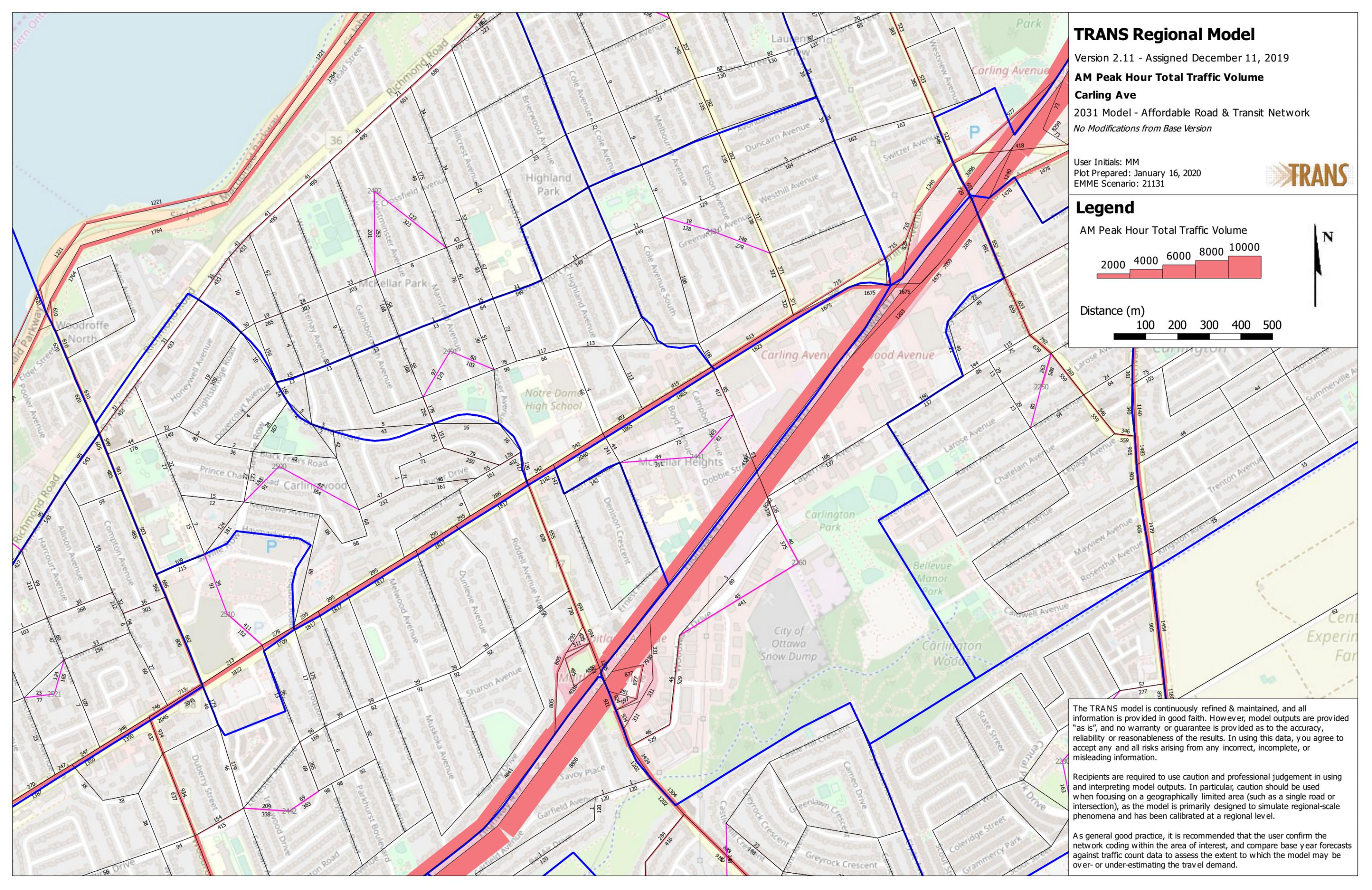
Distance (m)



The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As a general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.



APPENDIX H

TDM Checklists

TRANSPORTATION DEMAND MANAGEMENT

TDM-Supportive Development Design and Infrastructure Checklist

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

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

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

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

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
2. WALKING & CYCLING: END-OF-TRIP FACILITIES		
2.1 Bicycle parking		
REQUIRED	2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see <i>Official Plan policy 4.3.6</i>)	<input checked="" type="checkbox"/>
REQUIRED	2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
REQUIRED	2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	<input checked="" type="checkbox"/>
BETTER	2.1.5 Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	<input checked="" type="checkbox"/>
2.2 Secure bicycle parking		
REQUIRED	2.2.1 Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see <i>Zoning By-law Section 111</i>)	<input type="checkbox"/>
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	<input type="checkbox"/>
2.3 Shower & change facilities		
BASIC	2.3.1 Provide shower and change facilities for the use of active commuters	<input type="checkbox"/>
BETTER	2.3.2 In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	<input type="checkbox"/>
2.4 Bicycle repair station		
BETTER	2.4.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
3. TRANSIT		
3.1 Customer amenities		
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	<input type="checkbox"/>
BASIC	3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	<input type="checkbox"/>
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	<input type="checkbox"/>
4. RIDESHARING		
4.1 Pick-up & drop-off facilities		
BASIC	4.1.1 Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	<input checked="" type="checkbox"/>
4.2 Carpool parking		
BASIC	4.2.1 Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	<input type="checkbox"/>
BETTER	4.2.2 At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	<input type="checkbox"/>
5. CARSHARING & BIKESHARING		
5.1 Carshare parking spaces		
BETTER	5.1.1 Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (<i>see Zoning By-law Section 94</i>)	<input type="checkbox"/>
5.2 Bikeshare station location		
BETTER	5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
6. PARKING		
6.1 Number of parking spaces		
REQUIRED	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	<input checked="" type="checkbox"/>
BASIC	6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	<input type="checkbox"/>
BASIC	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (<i>see Zoning By-law Section 104</i>)	<input type="checkbox"/>
BETTER	6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (<i>see Zoning By-law Section 111</i>)	<input type="checkbox"/>
6.2 Separate long-term & short-term parking areas		
BETTER	6.2.1 Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	<input type="checkbox"/>
7. OTHER		
7.1 On-site amenities to minimize off-site trips		
BETTER	7.1.1 Provide on-site amenities to minimize mid-day or mid-commute errands	<input checked="" type="checkbox"/>

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

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

TDM-supportive design & infrastructure measures: <i>Residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
2. WALKING & CYCLING: END-OF-TRIP FACILITIES		
2.1 Bicycle parking		
REQUIRED	2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see <i>Official Plan policy 4.3.6</i>)	<input checked="" type="checkbox"/>
REQUIRED	2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
REQUIRED	2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	<input checked="" type="checkbox"/>
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 <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	<input type="checkbox"/>
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)	<input type="checkbox"/>
3. TRANSIT		
3.1 Customer amenities		
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	<input type="checkbox"/>
BASIC	3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	<input type="checkbox"/>
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Residential developments</i>		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	<input checked="" type="checkbox"/>
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 <i>Zoning By-law Section 94</i>)	<input type="checkbox"/>
5.2 Bikeshare station location		
BETTER	5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	<input type="checkbox"/>
6. PARKING		
6.1 Number of parking spaces		
REQUIRED	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	<input checked="" type="checkbox"/>
BASIC	6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	<input type="checkbox"/>
BASIC	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see <i>Zoning By-law Section 104</i>)	<input type="checkbox"/>
BETTER	6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see <i>Zoning By-law Section 111</i>)	<input type="checkbox"/>
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)	<input type="checkbox"/>

TRANSPORTATION DEMAND MANAGEMENT

TDM Measures Checklist

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend	
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
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
1. TDM PROGRAM MANAGEMENT		
1.1 Program coordinator		
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator <input type="checkbox"/>
1.2 Travel surveys		
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress <input type="checkbox"/>
2. WALKING AND CYCLING		
2.1 Information on walking/cycling routes & destinations		
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances <input type="checkbox"/>
2.2 Bicycle skills training		
<i>Commuter travel</i>		
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses <input type="checkbox"/>
2.3 Valet bike parking		
<i>Visitor travel</i>		
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games) <input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
3. TRANSIT		
3.1 Transit information		
BASIC	3.1.1 Display relevant transit schedules and route maps at entrances	<input type="checkbox"/>
BASIC	3.1.2 Provide online links to OC Transpo and STO information	<input type="checkbox"/>
BETTER	3.1.3 Provide real-time arrival information display at entrances	<input type="checkbox"/>
3.2 Transit fare incentives		
<i>Commuter travel</i>		
BETTER	3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	<input type="checkbox"/>
BETTER ★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	<input type="checkbox"/>
3.3 Enhanced public transit service		
<i>Commuter travel</i>		
BETTER	3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	<input type="checkbox"/>
3.4 Private transit service		
<i>Commuter travel</i>		
BETTER	3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	<input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
4. RIDESHARING		
4.1 Ridematching service		
<i>Commuter travel</i>		
BASIC	★ 4.1.1 Provide a dedicated ridematching portal at OttawaRideMatch.com	<input type="checkbox"/>
4.2 Carpool parking price incentives		
<i>Commuter travel</i>		
BETTER	4.2.1 Provide discounts on parking costs for registered carpools	<input type="checkbox"/>
4.3 Vanpool service		
<i>Commuter travel</i>		
BETTER	4.3.1 Provide a vanpooling service for long-distance commuters	<input type="checkbox"/>
5. CARSHARING & BIKESHARING		
5.1 Bikeshare stations & memberships		
BETTER	5.1.1 Contract with provider to install on-site bikeshare station for use by commuters and visitors	<input type="checkbox"/>
<i>Commuter travel</i>		
BETTER	5.1.2 Provide employees with bikeshare memberships for local business travel	<input type="checkbox"/>
5.2 Carshare vehicles & memberships		
<i>Commuter travel</i>		
BETTER	5.2.1 Contract with provider to install on-site carshare vehicles and promote their use by tenants	<input type="checkbox"/>
BETTER	5.2.2 Provide employees with carshare memberships for local business travel	<input type="checkbox"/>
6. PARKING		
6.1 Priced parking		
<i>Commuter travel</i>		
BASIC	★ 6.1.1 Charge for long-term parking (daily, weekly, monthly)	<input type="checkbox"/>
BASIC	6.1.2 Unbundle parking cost from lease rates at multi-tenant sites	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	6.1.3 Charge for short-term parking (hourly)	<input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
7. TDM MARKETING & COMMUNICATIONS		
7.1 Multimodal travel information		
<i>Commuter travel</i>		
BASIC ★	7.1.1 Provide a multimodal travel option information package to new/relocating employees and students	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER ★	7.1.2 Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	<input type="checkbox"/>
7.2 Personalized trip planning		
<i>Commuter travel</i>		
BETTER ★	7.2.1 Offer personalized trip planning to new/relocating employees	<input type="checkbox"/>
7.3 Promotions		
<i>Commuter travel</i>		
BETTER	7.3.1 Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	<input type="checkbox"/>
8. OTHER INCENTIVES & AMENITIES		
8.1 Emergency ride home		
<i>Commuter travel</i>		
BETTER ★	8.1.1 Provide emergency ride home service to non-driving commuters	<input type="checkbox"/>
8.2 Alternative work arrangements		
<i>Commuter travel</i>		
BASIC ★	8.2.1 Encourage flexible work hours	<input type="checkbox"/>
BETTER	8.2.2 Encourage compressed workweeks	<input type="checkbox"/>
BETTER ★	8.2.3 Encourage telework	<input type="checkbox"/>
8.3 Local business travel options		
<i>Commuter travel</i>		
BASIC ★	8.3.1 Provide local business travel options that minimize the need for employees to bring a personal car to work	<input type="checkbox"/>
8.4 Commuter incentives		
<i>Commuter travel</i>		
BETTER	8.4.1 Offer employees a taxable, mode-neutral commuting allowance	<input type="checkbox"/>
8.5 On-site amenities		
<i>Commuter travel</i>		
BETTER	8.5.1 Provide on-site amenities/services to minimize mid-day or mid-commute errands	<input type="checkbox"/>

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend	
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
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

TDM measures: <i>Residential developments</i>		Check if proposed & add descriptions
1. TDM PROGRAM MANAGEMENT		
1.1 Program coordinator		
BASIC	★ 1.1.1 Designate an internal coordinator, or contract with an external coordinator	<input type="checkbox"/>
1.2 Travel surveys		
BETTER	1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	<input type="checkbox"/>
2. WALKING AND CYCLING		
2.1 Information on walking/cycling routes & destinations		
BASIC	2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances (<i>multi-family, condominium</i>)	<input type="checkbox"/>
2.2 Bicycle skills training		
BETTER	2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses	<input type="checkbox"/>

TDM measures: <i>Residential developments</i>		Check if proposed & add descriptions
3. TRANSIT		
3.1 Transit information		
BASIC	3.1.1 Display relevant transit schedules and route maps at entrances (<i>multi-family, condominium</i>)	<input type="checkbox"/>
BETTER	3.1.2 Provide real-time arrival information display at entrances (<i>multi-family, condominium</i>)	<input type="checkbox"/>
3.2 Transit fare incentives		
BASIC ★	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	<input type="checkbox"/>
BETTER	3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	<input type="checkbox"/>
3.3 Enhanced public transit service		
BETTER ★	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels (<i>subdivision</i>)	<input type="checkbox"/>
3.4 Private transit service		
BETTER	3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	<input type="checkbox"/>
4. CARSHARING & BIKESHARING		
4.1 Bikeshare stations & memberships		
BETTER	4.1.1 Contract with provider to install on-site bikeshare station (<i>multi-family</i>)	<input type="checkbox"/>
BETTER	4.1.2 Provide residents with bikeshare memberships, either free or subsidized (<i>multi-family</i>)	<input type="checkbox"/>
4.2 Carshare vehicles & memberships		
BETTER	4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	<input type="checkbox"/>
BETTER	4.2.2 Provide residents with carshare memberships, either free or subsidized	<input type="checkbox"/>
5. PARKING		
5.1 Priced parking		
BASIC ★	5.1.1 Unbundle parking cost from purchase price (<i>condominium</i>)	<input checked="" type="checkbox"/>
BASIC ★	5.1.2 Unbundle parking cost from monthly rent (<i>multi-family</i>)	<input checked="" type="checkbox"/>

TDM measures: <i>Residential developments</i>		Check if proposed & add descriptions
6. TDM MARKETING & COMMUNICATIONS		
6.1 Multimodal travel information		
BASIC ★	6.1.1 Provide a multimodal travel option information package to new residents	<input type="checkbox"/>
6.2 Personalized trip planning		
BETTER ★	6.2.1 Offer personalized trip planning to new residents	<input type="checkbox"/>