Transportation Impact Assessment – Step 3 & 4: Forecasting & Analysis

1546 Scott Street

Prepared for Reid's Heritage Properties
by IBI Group

August 19, 2022

TIA Plan Reports - Certification

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 associate documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below:

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;

2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;

3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and

4. I am either a licensed[1] or registered[1] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering □ or transportation planning □.

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

Dated at Ottawa this 19th day of August, 2022.
(City)

Name: Ben Pascolo-Neveu, P.Eng.

Professional Title: Project Engineer

Ben Pascolo-Neveu

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

Office Contact Information (Please Print)
Address: 400-333 Preston Street
City / Postal Code: K1S 5N4
Telephone / Extension: 613-225-1311 ext. 64074
E-Mail Address: ben.pascolo-neveu@ibigroup.com

Stamp

Document Control Page

CLIENT:	Reid's Heritage Properties
PROJECT NAME:	1546 Scott Street
REPORT TITLE:	Transportation Impact Assessment
IBI REFERENCE:	132902
VERSION:	Draft Report
DIGITAL MASTER:	132902 1546 Scott Street, Ottawa - Internal Documents\6.0_ Technical\6.23_Traffic\03_Tech-Reports\TTR_1546_Scott_TIA_ MASTER_2021-07-23.docx
ORIGINATOR:	Ben Pascolo-Neveu
REVIEWER:	David Hook
AUTHORIZATION:	David Hook
CIRCULATION LIST:	Neeti Paudel – City of Ottawa Transportation Project Manager
HISTORY:	1.0 TIA Step 1 & 2 Submitted for City Review – August 6, 2021 2.0 TIA Step 3 & 4 Submitted for City Review – November 23, 2021 3.0 TIA Step 3 & 4 Resubmission per City Comments – August 19, 2022

Executive Summary

IBI Group (IBI) was retained by Reid's Heritage Properties to undertake a Transportation Impact Assessment (TIA) in support of a Zoning By-law Amendment and Site Plan Control application for a proposed 25-storey apartment building with ground floor commercial uses to be located at 1546 Scott Street, Ottawa. The site is bound by Scott Street to the north and is located mid-block between Holland Avenue and Parkdale Avenue. To the south, a shared right-of-way exists between 1600 Scott Street (Holland Cross complex) and the subject property, providing access to Hamilton Avenue North and Bullman Street. The proposed development consists of 230 dwelling units and an approximate 222 square metre commercial component. It is expected that the proposed development will be constructed and fully occupied in a single phase by 2024, therefore the horizon year for this study was taken as 2029.

Based on the trip generation exercise conducted as part of the Forecasting component, the proposed development is expected to generate up to 100 and 97 person-trips during the weekday morning and afternoon peak hours, respectively. The site-generated traffic impacts were determined through the application of an 85% non-auto mode share target which is considered appropriate given that the site is well within the Tunney's Pasture TOD zone, a major transit hub along the LRT Confederation Line. The resulting vehicular traffic generation for the proposed development was determined to be 13 and 14 two-way trips during the weekday morning and afternoon peak hours, respectively, which is considered to be negligible. These vehicle trips were divided amongst the two site access driveways, further reducing their impacts on the adjacent road network. As a conservative measure, existing site-generated trips from the retail outlet were not explicitly removed from the adjacent road network as part of this study. The significant non-auto mode share target will be achieved through an extensive suite of Transportation Demand Management (TDM) measures proposed for the subject development, as well as the planned opening of the LRT Stage 2 Western Extension in 2026 and the incremental re-construction of Scott Street as a Complete Street.

Given that site-generated traffic contributions will have no significant impact on the adjacent road network and that all three study area intersections have already been evaluated as part of recent transportation studies conducted for 1560 Scott Street and the Scott Street Corridor Study, it was not necessary to undertake any additional intersection capacity analysis for this study.

As indicated through the capacity analysis reviewed from these recent transportation studies, the three study area intersections were shown to operate at acceptable levels of service (i.e. LOS 'E' or better) during the weekday morning and afternoon peak hours throughout the timeframe of the study with the exception of the Scott & Parkdale intersection which is expected to experience capacity issues during the weekday afternoon peak hour. It is important to recognize that these constraints will not be exacerbated by the minimal site-generated traffic impacts and will be mitigated through the planned implementation of a 'protected intersection' reconfiguration (by others).

It is acknowledged that the proposed development will contribute a significant amount of pedestrian crossing demand at the Scott & Holland intersection, however based on historical data collected by the City of Ottawa, there is already high pedestrian demand on all four approaches at this intersection, likely triggering a pedestrian phase on every cycle. As such, any additional site-generated pedestrian activity will have no impact on the signal timing or overall intersection capacity.

The MMLOS results indicated existing deficiencies documented in other transportation studies conducted within the study area. These deficiencies primarily pertain to user comfort and highlight potential issues that could be considered for improvement by the City but are not required to safely accommodate the proposed development. The planned conversion of both Scott & Holland and Scott & Parkdale to 'protected intersections' is expected to significantly improve the environment for active transportation users within the timeframe of this study and encourage travel to and from the site by sustainable modes.

As the impact of the proposed development to the adjacent intersections is expected to be insignificant, no off-site modifications will be required, therefore the TIA does not include an RMA component.

Similarly, due to the negligible increases in site-generated traffic expected on the adjacent road network as a result of the proposed development, a Post-Development Monitoring Plan is not required as part of this TIA.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network.

Table of Contents

1 Introduction 1

2 TIA Screening 2

3 Scope of Study 2

3.1 Description of Proposed Development 2

3.1.1 Site Location 2

3.1.2 Land Use Details 2

3.1.3 Development Phasing & Date of Occupancy 3

3.2 Existing Conditions 6

3.2.1 Road Network 6

3.2.2 Intersections 6

3.2.3 Existing Transit Service 9

3.2.4 Existing Pedestrian & Cycling Facilities 10

3.2.5 Existing Traffic Volumes 11

3.2.6 Traffic Management Measures 11

3.2.7 Collision History 13

3.3 Planned Conditions 13

3.3.1 Future Road Network 13

3.3.2 Future Cycling and Pedestrian Facilities 14

3.3.3 Future Transit Facilities and Services 16

3.3.4 Future Adjacent Developments 17

3.3.5 Network Concept Screenline 19

3.4 Study Area 19

3.5 Time Periods 19

3.6 Study Horizon Year 20

3.7 Exemptions Review 20

4 Forecasting 21

4.1 Development-Generated Traffic 21

4.1.1 Trip Generation Methodology 21

Table of Contents (continued)

4.1.2 Base Trip Generation 22
4.1.3 Trip Reduction Factors 24
4.1.4 Trip Distribution & Assignment 25
4.2 Background Network Traffic 27
4.2.1 Changes to the Background Transportation Network 27
4.2.2 General Background Growth Rates 27
4.2.3 Other Area Development 27
4.3 Demand Rationalization 27
4.3.1 Description of Capacity Issues 27
4.3.2 Adjustment to Development-Generated Demands 28
4.3.3 Adjustment to Background Network Demands 28
4.4 Traffic Volume Summary 28
4.4.1 Future Background & Total Traffic Volumes 28

5 Analysis 29
5.1 Development Design 29
5.1.1 Design for Sustainable Modes 29
5.1.2 Circulation and Access 29
5.1.3 New Street Networks 30
5.2 Parking 30
5.2.1 Parking Supply 30
5.2.2 Spillover Parking 30
5.3 Boundary Streets 31
5.3.1 Complete Streets 31
5.3.2 Road Safety 31
5.4 Access Intersections 32
5.4.1 Location and Design of Access 32
5.4.2 Access Intersection Control 33
5.4.3 Access Intersection Design 33
5.5 Transportation Demand Management (TDM) 34

Table of Contents (continued)

5.5.1 Context for TDM 34
5.5.2 Need and Opportunity 34
5.5.3 TDM Program 34
5.6 Neighbourhood Traffic Management 35
5.7 Transit 35
5.7.1 Route Capacity 35
5.7.2 Transit Priority 35
5.8 Review of Network Concept 35
5.9 Intersection Design 35
5.9.1 Traffic Signal Warrants 35
5.9.2 Roundabout Analysis 36
5.9.3 Intersection Capacity Analysis 36
5.9.4 Multi-Modal Level of Service 37
5.10.1 Queue Length Analyses 39

6 Conclusions 41

List of Exhibits

Exhibit 1 – Site Location 4
Exhibit 2 – Proposed Development 5
Exhibit 3 – Existing Lane Configurations & Intersection Control 8
Exhibit 4 – Existing (2021) Traffic 12
Exhibit 5 – Adjacent Developments 18
Exhibit 6 – Site-Generated Traffic Volumes 26

Table of Contents (continued)

List of Figures

Figure 1 – City-wide Transit Network w.r.t. O-Train Line 1 10
Figure 2 – Future Cycling Facilities within the Context Area 14
Figure 3 – Scott Street CDP – Proposed Pedestrian Network 15
Figure 4 – Scott & Holland 'Protected Intersection' Design 16
Figure 5 – Stage 2-LRT Rapid Transit Network 16
Figure 6 – Ottawa West TAZ 21

List of Tables

Table 1 – Land Use Statistics 3
Table 2 – Reported Collisions within the Vicinity of Proposed Development 13
Table 3 – Future Adjacent Developments 17
Table 4 – Exemptions Review 20
Table 5 – Peak Period Person-Trip Generation 22
Table 6 – Existing Mode Share & Proposed Mode Share Targets 23
Table 7 – Person-Trips by Mode (Peak Period) 23
Table 8 – Person-Trips by Mode (Peak Hour) 24
Table 9 – Roadway Segment Collisions by Type 32
Table 10 – Intersection Capacity Analysis Extractions 36
Table 11 – Intersection MMLOS – Existing Configuration 37
Table 12 – Queue Length Analyses for Signalized Study Area Intersections 39

Table of Contents (continued)

List of Appendices

Appendix A – City Circulation Comments
Appendix B – TIA Screening Form
Appendix C – OC Transpo Maps
Appendix D – Traffic Data
Appendix E – Collision Data
Appendix F – Trip & Parking Generation Data
Appendix G – TDM Checklists
Appendix H – Swept Path Analyses
Appendix I – Intersection Capacity Analyses
Appendix J – MMLOS Analyses

1 Introduction

IBI Group (IBI) was retained by Reid's Heritage Properties to undertake a Transportation Impact Assessment (TIA) in support of combined Zoning By-law Amendment (ZBLA) and Site Plan Control (SPC) application for a proposed 25-storey apartment building to be located at 1546 Scott Street, Ottawa.

In accordance with the City of Ottawa's Transportation Impact Assessment Guidelines, published in June 2017, the following report is divided into four major components:

- **Screening** – Prior to the commencement of a TIA, an initial assessment of the proposed development is undertaken to establish the need for a comprehensive review of the site based on three triggers: Trip Generation, Location and Safety.
- **Scoping** – This component of the TIA report describes both the existing and planned conditions in the vicinity of the development and defines study parameters such as the study area, analysis periods and analysis years of the development. It also provides an opportunity to identify any scope exemptions that would eliminate elements of scope described in the TIA Guidelines that are not relevant to the development proposal, based on consultation with City staff.
- **Forecasting** – The Forecasting component of the TIA is intended to review both the development-generated travel demand and the background network travel demand and provides an opportunity to rationalize this demand to ensure projections are within the capacity constraints of the transportation network.
- **Analysis** – This component documents the results of any analyses undertaken to ensure that the transportation related features of the proposed development are in conformance with prescribed technical standards and that its impacts on the transportation network are both sustainable and effectively managed. It also identifies a development strategy to ensure that what is being proposed is aligned with the City of Ottawa's city-building objectives, targets and policies.

Throughout the development of a TIA report, each of the four study components above are typically submitted in draft form to the City of Ottawa and undergo a review by a designated Transportation Project Manager (TPM). Any comments received are addressed to the satisfaction of the City's TPM before proceeding with subsequent components of the study. For this TIA, however, it was agreed to by the City's TPM that a joint Forecasting and Analysis submission would suffice for this reduced scope study. All technical comments and responses throughout this process are included in **Appendix A**.

Dependent on the findings of this report, the complete submission of this Transportation Impact Assessment may also require Functional Design Drawings of recommended roadway improvements to support a Roadway Modification Application (RMA). The submission may also require a post-development Monitoring Plan to track performance of the planned TIA Strategy. The need for these two elements will be confirmed through the analysis undertaken for this report.

2 TIA Screening

An initial screening was completed to confirm the need for a Transportation Impact Assessment by reviewing the following three triggers:

- **Trip Generation**: Based on the proposed number of apartment dwelling units, the minimum development size threshold has been exceeded and therefore the Trip Generation trigger is satisfied.
- **Location**: The proposed development is located within a Design Priority Area (DPA) and Transit-Oriented Development (TOD) zone. Further, the development proposes a driveway on a Spine bicycle route. As such, the Location trigger is satisfied.
- **Safety**: Boundary street conditions were reviewed to determine if there is an elevated potential for safety concerns adjacent the site. As the subject development proposed a site access driveway within 150m of a signalized intersection, within the auxiliary lanes of an intersection and on boundary streets with sightline constraints, the Safety Trigger is satisfied.

As the proposed development meets the Trip Generation and Safety triggers, the need to undertake a Transportation Impact Assessment is confirmed.

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

3 Scope of Study

3.1 Description of Proposed Development

3.1.1 Site Location

The subject property is located near the northern boundary of Ottawa's Hintonburg neighbourhood and is approximately 2,500 square metres in size. The site is bound by Scott Street to the north and is located mid-block between Holland Avenue and Parkdale Avenue. To the south, a shared right-of-way exists between 1600 Scott Street (Holland Cross complex) and the subject property to provide access to Hamilton Avenue North and Bullman Street.

The subject site is located within four planning areas:

- Tunney's Pasture Mixed-Use Design Priority Area (DPA)
- Scott Street Secondary Plan/Scott Street Community Design Plan (CDP)
- Tunney's Pasture Transit-Oriented Development (TOD) Zone
- Scott Street Corridor Study

The site location and its surrounding context is illustrated in **Exhibit 1**.

3.1.2 Land Use Details

The subject site is zoned Mixed-Use Centre, according to GeoOttawa and is located within a Mature Neighbourhood Overlay.

The site is presently occupied by a retail outlet and will be demolished to accommodate the proposed development which consists of a 25-storey high-rise residential building with ground-floor retail and a four-level underground parking garage. **Table 1** below summarizes the proposed land uses included in this development.

Table 1 – Land Use Statistics

LAND USE	SIZE
High-Rise Apartments	230 dwelling units
Shopping Centre	~ 222 m^2

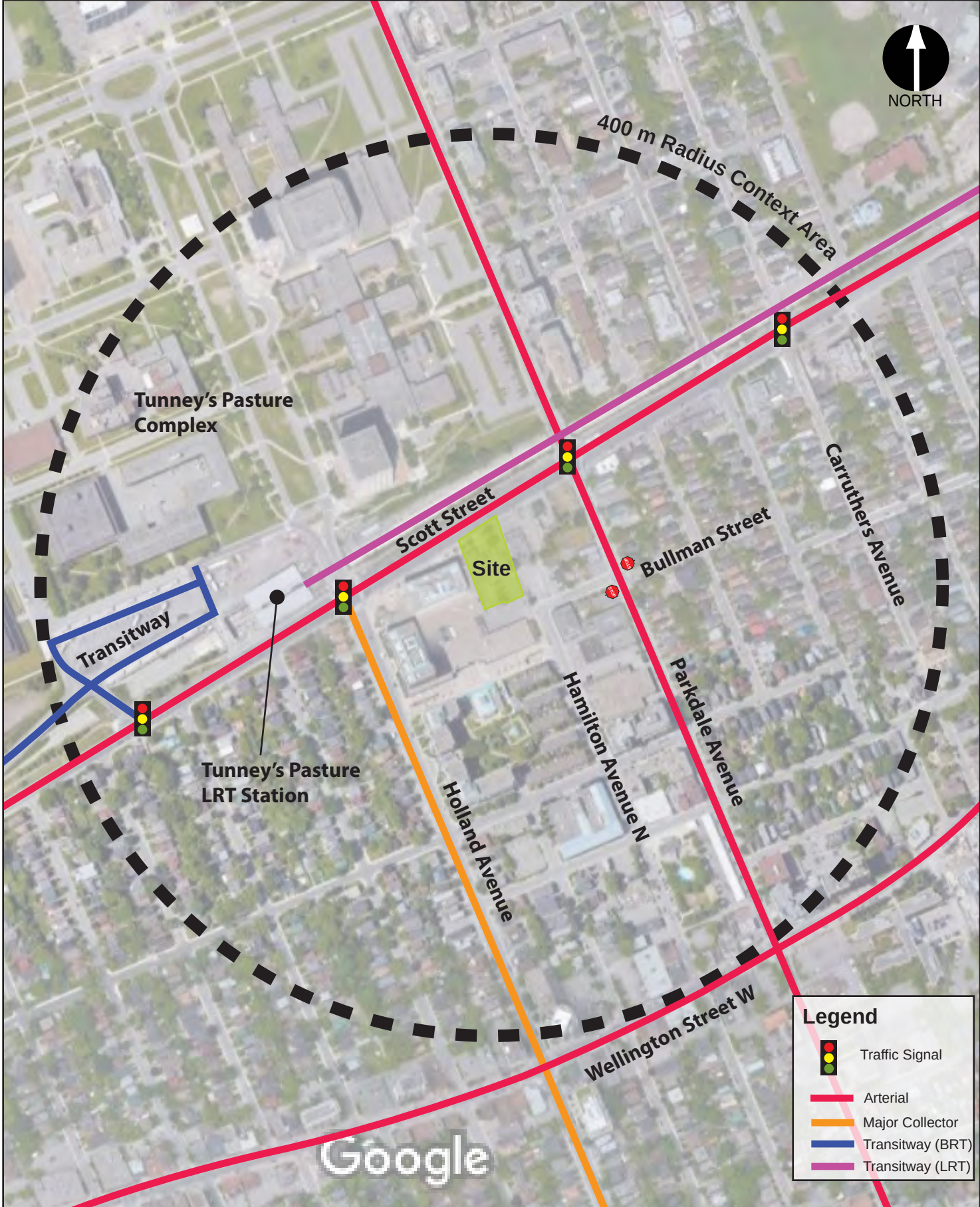
The site will be accessed via two full-movement site access driveways: one access on Scott Street and a second vehicular connection via a shared right-of-way on Hamilton Avenue North/Bullman Street. The underground parking garage entrance will be accessible through internal drive aisle connections with either driveway.

In terms of parking, a total of 149 vehicle stalls are proposed on-site, including 144 spaces within the four-level underground parking garage and 5 additional stalls at-grade.

The configuration of the proposed development is illustrated in **Exhibit 2**.

3.1.3 Development Phasing & Date of Occupancy

It is expected that the proposed development will be constructed and fully occupied in a single phase by 2024.



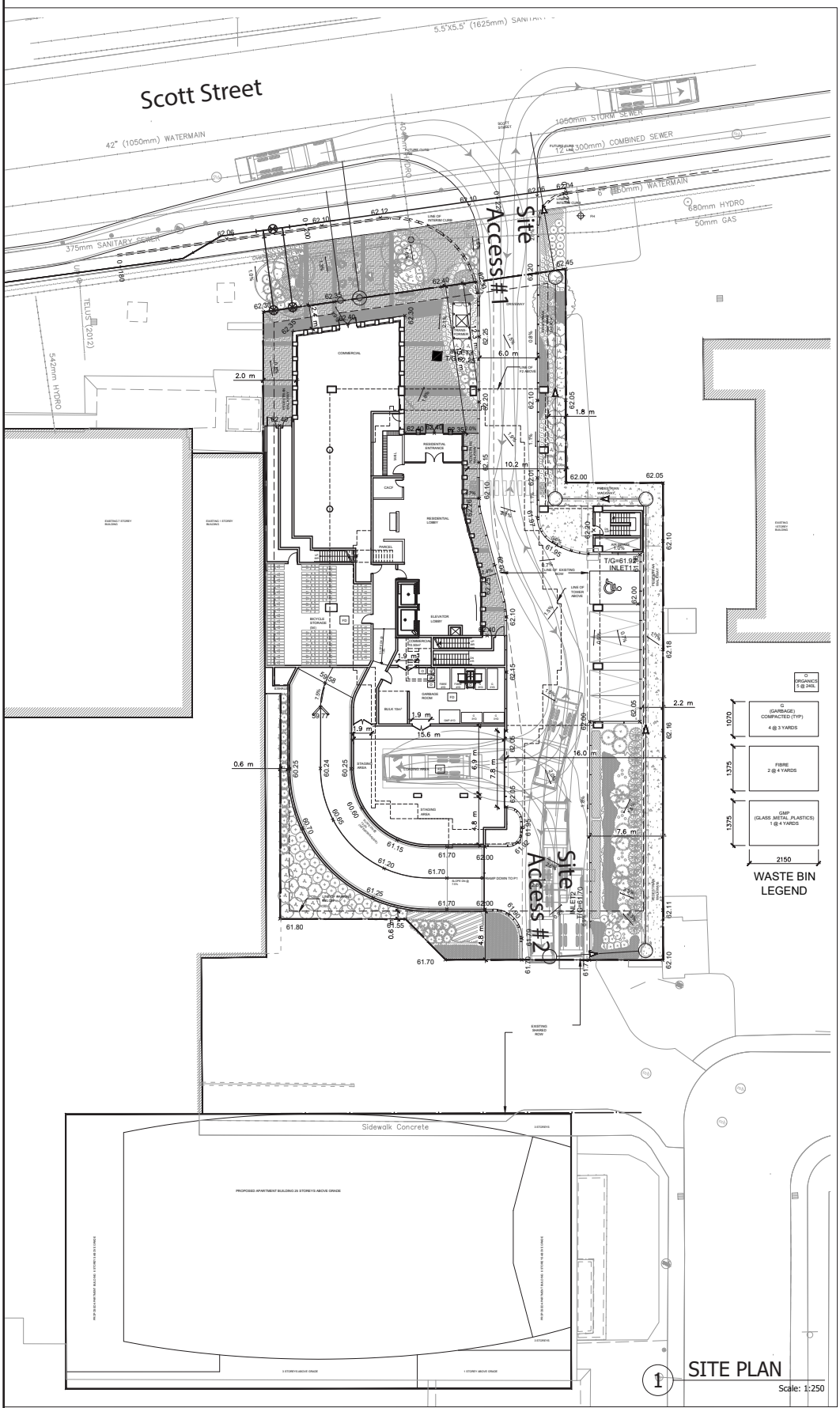
IBI

1546 Scott Street
Transportation Impact Assessment

Exhibit 1:
Site Location

PROJECT No. 132902

SCALE: 0m 100m 200m



1 SITE PLAN
Scale: 1:250

NORTH

CONSULTANTS:

PLANNER
IBI GROUP
650 Dalton Avenue
Kingston, ON K7M 8N7 Canada
tel +1 613 531 4440 ext 63309

LANDSCAPE ARCHITECT
IBI GROUP
Suite 101
410 Albert Street,
Waterloo, ON N2L 3V3
tel +1 519 585 2255

TRAFFIC ENGINEER
IBI GROUP
400-333 Preston Street
Ottawa, ON K1S 5N4
tel +1 613 225 1311

CIVIL ENGINEER
IBI GROUP
400-333 Preston Street
Ottawa, ON K1S 5N4
tel +1 613 225 1311

NOISE & VIABRATION STUDY
AGILE RESPONSE
85 Bathurst Drive,
Unit D,
Waterloo, ON N2V 1Z5

GEOTECH
YURI MENDEZ ENGINEERING
196 Britannia Road,
Ottawa, ON K2B 5W9
Tel: + 1 613 899 0834

WIND STUDY
RWDI
600 Southgate Drive,
Guelph, ON N1G 4P6
Tel: +1 519 823 1311

SURVEYOR
FAIRHALL, MOFFATT & WOODLAND LTD.
600 Terry Fox Dr #100
Kanata, ON K2L 4B6
tel +1 613 591-2580

Site Grading and Servicing information is for reference only. Refer to Site Grading Plan Drawing C-200, Storm Drainage Area Plan C-500 and Site Servicing Plan Drawing C-001 prepared by IBI GROUP, dated Aug 18, 2022, for the purpose of obtaining site grading and servicing information.

Landscaping information is for reference only. Refer to the Landscape Plan Drawings L-1, L-2, LD1, LD2 and LD3 prepared by IBI GROUP dated Aug 18, 2022, for full landscape details.

Building classification:
OBC 3.2.2.42, Group C, Any Height, Any Area, Sprinklered

DATE	No.	ISSUE
2022-08-18	02	SPA/ZBA
2021-11-24	01	SPA/ZBA

ARCHITECT:
TREGEBOV COGAN *ARCHITECT*
40 St. Clair Avenue East, Suite 303
Toronto, ON M4T 1M9
PHONE: 647.352.3350

OWNER:
REID'S Heritage Properties

PROJECT NAME:
EVOKE

1546 SCOTT STREET OTTAWA,ON
Based on :
TOPOGRAPHY SURVEY OF PART OF LOTS 3&4 (NORTH OF BULLMAN STREET) AND PART OF LOTS 3 & 4 (SOUTH OF SCOTT STREET) REGISTERED PLAN 58 & PART OF LOTS 1290, 1292 & 1303 REGISTERED PLAN 157 CITY OF OTTAWA.
PREPARED BY FAIRHILL, MOFFATT & WOODLAND LIMITED, ONTARIO LAND SURVEYORS
JAN 21, 2020

DRAWING TITLE:
SITE PLAN
CONTEXT PLAN
SITE STATISTICS

PRINT DATE: 2022-08-18

ONTARIO ASSOCIATION OF ARCHITECTS
MICHAEL COGAN
LICENCE 7264

NORTH

PROJ. No.: 1085	CITY FILE #: D02-21-0148 CITY PLAN #: 18686
SCALE: 1:250, AS NOTED	DWG NO. **A1.01**
DRAWN BY: MC	SPA AND ZBA

3.2 Existing Conditions

3.2.1 Road Network

The proposed development is bound by the following street(s):

- **Scott Street** is an arterial road under the jurisdiction of the City of Ottawa and is oriented east-west from Churchill Avenue North to Bayview Station Road, becoming Albert Street further east. Within the context area, Scott Street is presently configured with a four-lane, undivided cross-section which includes curbside bus lanes in both directions and a posted speed limit of 50 km/h. The Official Plan identifies a right-of-way protection of 26 metres along its entire length.
- **Hamilton Avenue North** is a local road under the jurisdiction of the City of Ottawa, oriented north-south and features an approximate 19-metre right-of-way, as well as a posted speed limit of 40 km/h.
- **Bullman Street** is a local road under the jurisdiction of the City of Ottawa, oriented east-west from Hamilton Avenue North to Hinchey Avenue and consists of an approximate 15-metre right-of-way and a posted speed limit of 40 km/h.

Other streets within the vicinity of the site are as follows:

- **Parkdale Avenue** is an arterial road under the jurisdiction of the City of Ottawa and is oriented north-south from the Sir John A. Macdonald Parkway to Carling Avenue. Within the context area, the roadway generally consists of a two-lane, undivided cross-section and a posted speed limit of 40km/h. Two-hour on-street parking is permitted on the west side of the Parkdale south of Bullman Street. The Official Plan indicates that the right-of-way protection along Parkdale Avenue within the vicinity of the site is 26 metres.
- **Holland Avenue** is a major collector road under the jurisdiction of the City of Ottawa and is oriented north-south from Scott Street to Carling Avenue. North of Scott Street, Holland Avenue becomes Tunney's Pasture Driveway which serves as the main thoroughfare within the Tunney's Pasture federal government campus. Within the context area, Holland Avenue consists of a four-lane, undivided cross-section with a posted speed limit of 50 km/h. Two-hour on-street parking is permitted in the east curb lane.
- **Tunney's Pasture Driveway** is a two-lane local road under the jurisdiction of the Federal Government and serves as the main thoroughfare within the Tunney's Pasture complex. The road features one vehicle travel lane and one parking lane in each direction separated by a median. The posted speed limit if 30km/h.

3.2.1.1 Driveways Adjacent to Development Access

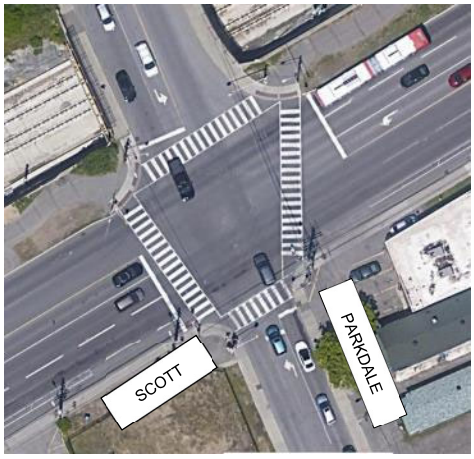
Existing driveways within 200m of Site Access #1, proposed on Scott Street, are located to the east of the site and generally serve a public parking lot facility, as well as a commercial businesses. Similar to the site access, each of these driveways provide full-movement connections to Scott Street.

For Site Access #2, driveways within 200 metres of the proposed driveway on Bullman Street/Hamilton Avenue North, generally serve single or low- to mid-rise multi-family residences, small-scale commercial businesses, as well as a loading access for the Holland Cross complex.

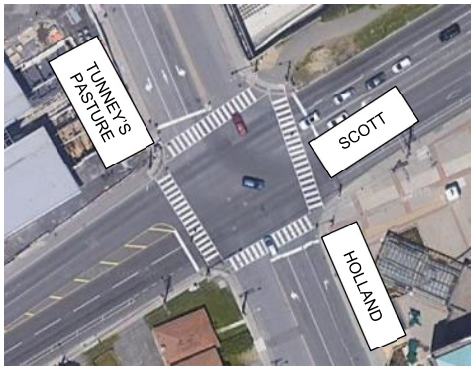
3.2.2 Intersections

The following signalized intersections are located within the immediate vicinity of the proposed development:

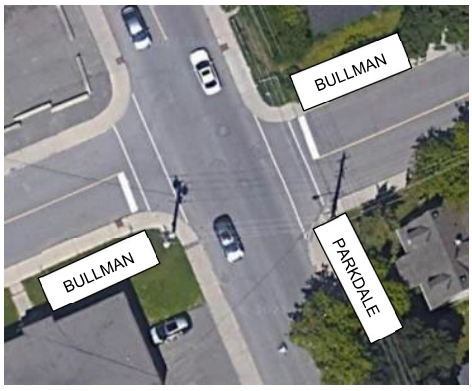
The following intersections have the greatest potential to be impacted by the proposed development:



- **Scott Street & Parkdale Avenue** is a four-legged, signalized intersection with one through lane provided on each approach, along with a dedicated left-turn lane. Curbside bus lanes on Scott Street are interrupted to accommodate auxiliary right-turn lanes. This intersection is located approximately 115 metres east of the site.

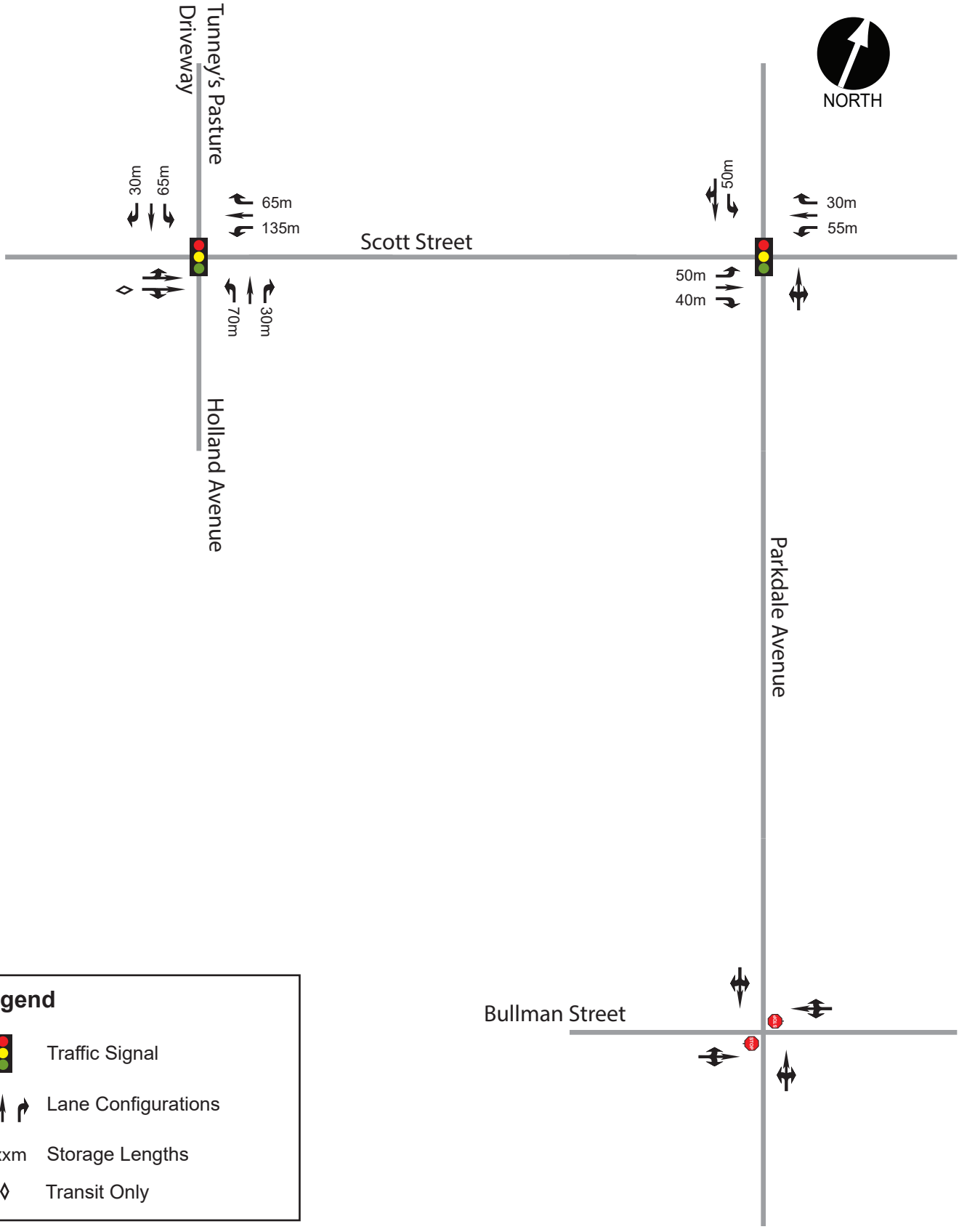


- **Scott Street & Holland Avenue/Tunney's Pasture Driveway** is a four-legged, signalized intersection with one through lane for mixed traffic provided on each approach, as well as curbside bus lanes on Scott Street. There are auxiliary left- and right-turn lanes provided on all approaches with the exception of the eastbound approach which consists of a shared configuration. This intersection is located approximately 160 metres west of the site.



- **Bullman Street & Parkdale Avenue** is a is a four-legged, two-way stop-controlled intersection with free-flow on Parkdale Avenue. A single vehicle travel lane is provided on each approach. This intersection is located approximately 75 metres east of the site.

The intersection control and lane configurations for each study area intersection are shown in **Exhibit 3** below.



IBI

1546 Scott Street
Transportation Impact Assessment

Exhibit 3:
Existing Lane Confiugarations
& Intersection Control

PROJECT No. 132902

SCALE: N.T.S.

3.2.3 Existing Transit Service

3.2.3.1 Local & Feeder Bus Routes

The following local and feeder transit routes, operated by OC-Transpo, serve bus stops on Scott Street between Holland and Parkdale:

- **Route #14** provides regular, all-day service between Tunney's Pasture Station and St. Laurent, generally operating on 15-minute headways during weekday peak periods. On weekends, service is reduced to between 15- and 30-minute headways.
- **Route #16** provides regular, all-day service between Tunney's Pasture and Main Street (at Hazel Street), operating on 30-minute headways on both weekday and weekends.
- **Route #53** provides regular, all-day service between Tunney's Pasture and Carlington, generally operating on 15-minute headways during the weekdays. On weekends, service is reduced to between 15- and 30-minute intervals, with a total of 4 buses operating on each day.
- **Route #54** provides regular, all-day service within the Tunney's Pasture Government Campus, as well as its boundary streets, operating on 30-minute headways on weekdays. On weekends, service is reduced to 2-hour intervals, with a total of 4 buses operating on each day.
- **Route #57** provides regular, all-day service between Bayshore Station and Tunney's Pasture Station, operating on 10- to 15-minute headways during weekday peak periods. On weekends, service is generally reduced to between 15- and 20-minute headways. Select trips travel further west to serve both the Queensway Carleton Hospital Campus, as well as Moodie/Fitzgerald in Bell's Corners.
- **Route #61** provides regular, all-day service between Tunney's Pasture Station and the Terry Fox Station, operating on 15- and 20-minute headways during weekday peak periods. On weekends, service is generally reduced to 30-minute headways. Select trips are extended further west to the Goulbourn Recreation Complex in Stittsville and further east to Queen/Metcalfe in the downtown core.
- **Route #75** provides regular, all-day service between Barrhaven Centre/Cambrian and Tunney's Pasture, operating on 15-minute headways during weekday peak periods and Saturday.

The nearest eastbound bus stop is located approximate 55-metre walking distance west of the site, while the nearest westbound bus stop is located at the northwest corner of Scott & Parkdale and represents an approximate 170-metre walking distance.

No transit service is currently provided on Bullman Street or Hamilton Avenue within the study area.

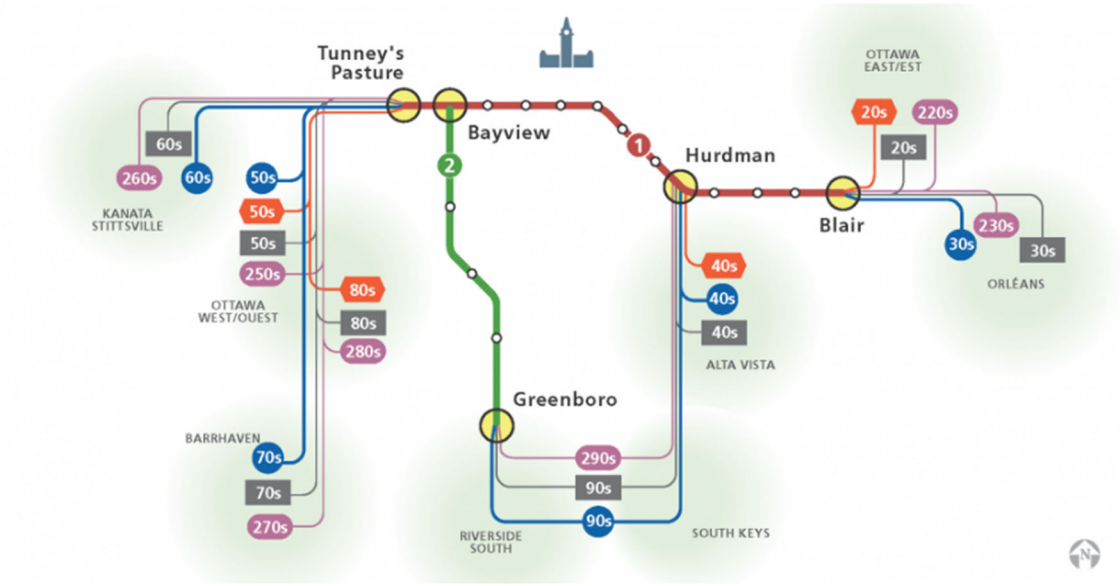
Transit maps for the above noted routes are provided in **Appendix C**.

3.2.3.2 Confederation Line

The proposed development is also located an approximate 200-metre walking distance from Tunney's Pasture Station, which presently exists as the western terminus of the Confederation Line LRT which opened for full revenue service in September 2019. As such, this transit hub currently functions as a major transfer point between LRT and other bus services including numerous local feeder routes and the City's Bus Rapid Transit (BRT) network further west.

The City-wide transit network as it relates to the Confederation Line (O-Train Line 1) is illustrated in **Figure 1** below.

Figure 1 – City-wide Transit Network w.r.t. O-Train Line 1



Source: OC Transpo

3.2.4 Existing Pedestrian & Cycling Facilities

Pedestrian facilities are provided on both sides of all streets within the context area of the proposed development. A plaza exists approximately 40 metres south of the subject site as part of the Holland Cross complex and provides a public mid-block pedestrian connection between Holland Avenue and Hamilton Avenue North as well.

In terms of cycling facilities, an eastbound bike lane with a painted buffer presently exists on the south side of Scott Street through the context area, as well as a winter-maintained multi-use path on the north side which is separated from vehicular travel lanes by a grassed boulevard.

3.2.5 Existing Traffic Volumes

As the proposed development will consist primarily of residential land uses, the weekday peak hour traffic conditions will be most affected by any associated increase in traffic. Weekday morning and afternoon peak hour turning movement counts were therefore obtained from the City of Ottawa at the following intersections:

- Bullman Street & Parkdale Avenue (City of Ottawa, March 2020)
- Scott Street & Holland Avenue (City of Ottawa, November 2017)
- Scott Street & Parkdale Avenue (City of Ottawa, November 2017)

The cycling and pedestrian volumes were extracted from turning movement counts conducted listed above, while the vehicular volumes were developed as described below.

The intersections of Scott Street with Holland and Parkdale were included in a recent, comprehensive trip generation exercise conducted as part of the ongoing Scott Street Corridor Study. As such, traffic volumes for these two intersections were developed based on 2019 and 2031 volumes from the Scott Street study. It is important to recognize, however, that the 2019 volumes included a significant detour of Transitway buses which was ongoing at that time to facilitate the construction of Confederation Line Stage 1. As such, the Transitway detour volumes were isolated and subsequently removed from the 2019 data through a comparison with 2031 projections to approximate 2019 'non-detour' volumes.

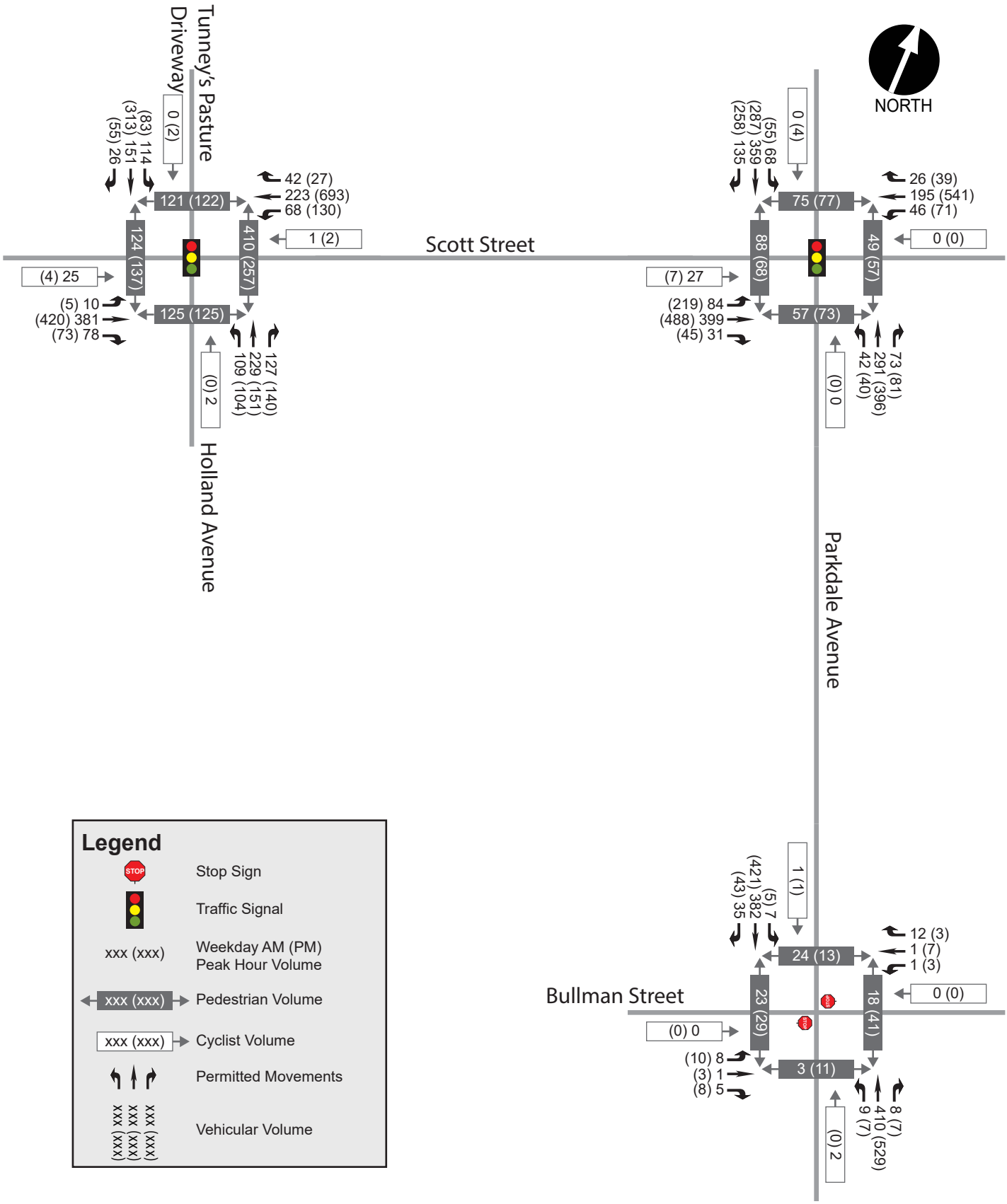
Traffic volumes on Scott Street were interpolated to approximate existing (2021) volumes based on the 2019 'non-detour' and 2031 projections, while a growth rate was applied to approximate existing (2021) traffic volumes on Parkdale at Bullman. Justification of the background growth rate is discussed further in the Forecasting section of the report.

Peak hour traffic volumes representative of existing conditions are shown in **Exhibit 4** below. Traffic count data and relevant extracts from the Scott Street study memorandums are provided in **Appendix D**.

3.2.6 Traffic Management Measures

The following traffic management measures presently exist within the study context area:

- Holland Avenue
    - Electronic speed display devices
- Parkdale Avenue
    - Flexible centreline stakes
    - 'Traffic-Calming Neighbourhood' signage
- Scott Street
    - Painted, buffered eastbound bike lane facility on the south side of the road
- Scott & Holland intersection
    - 'No right-turn on red' signage exists for vehicles on the southbound approach
    - Eastbound left-turns are prohibited for private automobiles from 3:30 to 5:30pm



IBI

1546 Scott Street
Transportation Impact Assessment

Exhibit 4:
Existing (2021)
Traffic

PROJECT No. 132902

SCALE: N.T.S.

3.2.7 Collision History

The TIA Guidelines require a 5-year review of historical collision data on the boundary streets adjacent a proposed development. If it is found that there have been at least six collisions for any one movement of a discernible pattern over this time period, additional analysis may be warranted.

Table 2 below summarizes all reported collisions between January 1, 2015 to December 31, 2019.

Table 2 – Reported Collisions within the Vicinity of Proposed Development

LOCATION	# OF REPORTED COLLISIONS
INTERSECTIONS	
Scott Street & Parkdale Avenue	34
Scott Street & Holland Avenue/Tunney's Pasture Driveway	36
Bullman Street & Parkdale Avenue	5
SEGMENTS	
Bullman St (Hamilton Ave N to Parkdale Ave)	0
Hamilton Ave N (Bullman St to Spencer St)	2
Scott St (Holland Ave to Parkdale Ave)	8

Based on a preliminary review of the collision history noted above, intersections or road segments with at least six collisions over the five-year period may require further review.

Detailed collision records are provided in **Appendix E**.

Another method of evaluating the relative magnitude of collision frequency at one intersection compared to another is to quantify the average historical number of collisions against the daily volume of traffic entering the intersection. This is commonly expressed in terms of Million Vehicles Entering (MVE) and a rate of greater than 1.0 is considered significant. The above noted intersections are therefore calculated as having average collision frequencies per MVE values:

- Scott Street & Parkdale Avenue – 0.85
- Scott Street & Holland Avenue/Tunney's Pasture Driveway – 0.93

Both of the study area intersections evaluated above have a collision per MVE of less than 1.0 and therefore are not considered significant.

3.3 Planned Conditions

3.3.1 Future Road Network

The 2013 Transportation Master Plan (TMP) outlines future road network modifications required in the 2031 'Affordable Network'. A review of the TMP Affordable Plan indicates that there were no planned changes to the arterial road network within the broader area surrounding the proposed development.

Since the time of the 2013 TMP, however, the redesign of the Scott Street within the context area was undertaken which involves a phased approach to upgrade study area intersections along the corridor with enhanced facilities for active transportation users. This project would also see the removal of curbside bus lanes that were implemented as a temporary measure between January

2016 and September 2019 to accommodate detoured Transitway buses during the LRT Stage 1 construction.

As the Scott Street corridor includes a Complete Street design, Module 4.3 of the TIA Guidelines indicates that the following tasks must be completed:

- Identify the design at the interface of the street and the subject development; and
- Assess the potential impact of the subject development on the design.
    - If changes to the design are required, develop an interim design concept for the boundary street.

These tasks will be completed and discussed in the Analysis section of this TIA. As a Complete Street concept has already been established for Scott Street, segment-based Multi-Modal Level of Service (MMLOS) will not be required as part of this study.

3.3.2 Future Cycling and Pedestrian Facilities

The TMP and Ottawa Cycling Plan identify Holland Avenue and Scott Street as 'Spine Routes' which form part of a system linking commercial, employment, institutional, residential and educational nodes throughout the City. Scott Street is further identified as a 'Major Pathway' east of Holland Avenue, as well as a 'Cross-town Bikeway' through the study context area, with the objective of providing continuous connectivity over long distances for cyclists crossing the City.

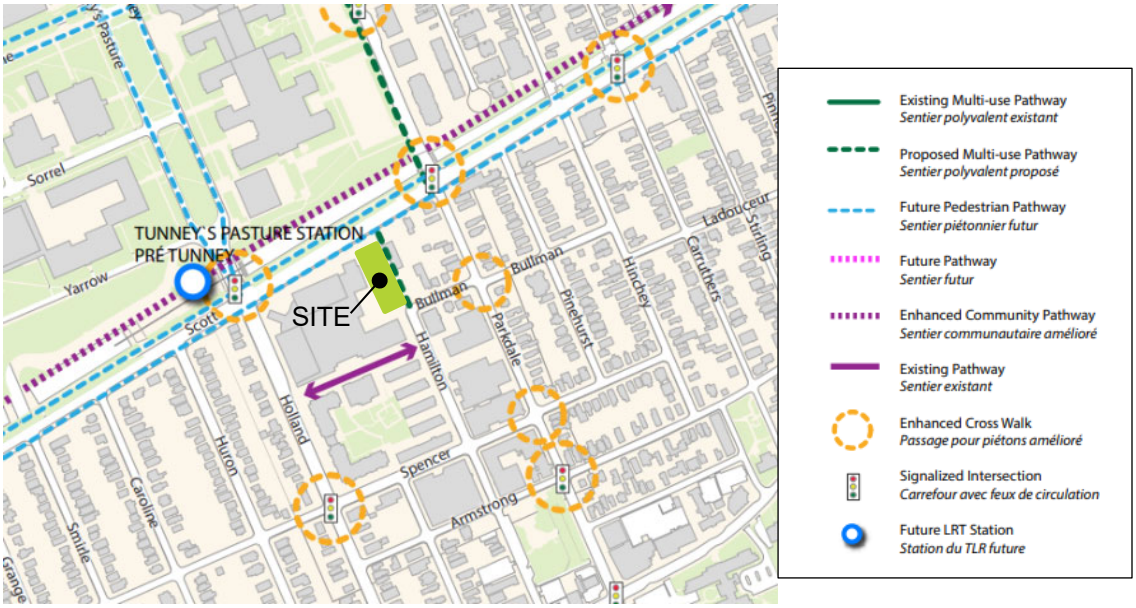
The future cycling facilities within the context area are provided in **Figure 2** below.

Figure 2 – Future Cycling Facilities within the Context Area

Source: GeoOttawa

The Scott Street Community Design Plan (CDP) identifies a potential mid-block connection immediately east of the subject site at 1530 Scott Street, 'enhanced cross-walks' at the intersections of Scott Street with Holland and Parkdale, as well as proposed pedestrian/multi-use pathway facilities on Scott Street. An excerpt from the Scott Street CDP illustrating these improvements is provided in **Figure 3** below.

Figure 3 – Scott Street CDP – Proposed Pedestrian Network



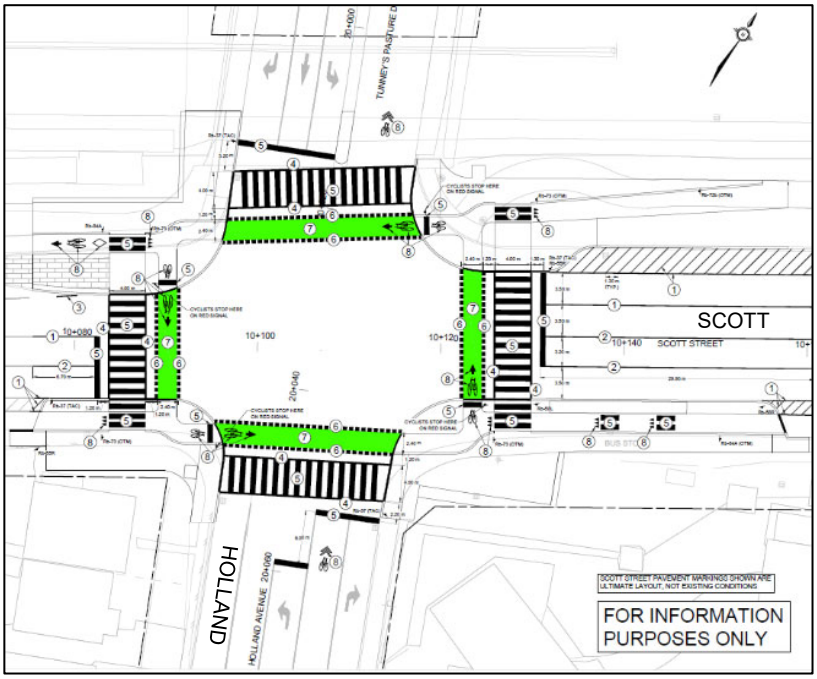
Source: Scott Street CDP – Proposed Pedestrian Network, p. 69

Based on discussions with City technical staff, it is expected that the intersection of Scott & Holland will be constructed as a 'protected intersection' in the latter half of 2021, while the conversion of Scott Street & Parkdale Avenue to a 'protected intersection' is expected to follow in 2022 or 2023. Both 'protected intersection' designs will integrate dedicated pedestrian and cycling facilities on all approaches, thereby increasing comfort and safety for vulnerable road users.

An interim design of Scott Street along the subject development's frontage is expected to be implemented in 2022 and will include painted hatching of the curbside bus lanes and upgrading the eastbound on-road bike lane with a pinned curb for increased separation from vehicular traffic.

Ultimately, Scott Street will be upgraded to include grade-separated cycle tracks and concrete sidewalks on both sides of the corridor. It is understood that the implementation of this design would also include the removal of the northside multi-use pathway as well. The timeline for construction of this 'ultimate' design, however, is not known and will be dependent on the availability of funding to carry out this capital project. The 'protected intersection' design for Scott & Holland is provided in **Figure 4** below.

Figure 4 – Scott & Holland 'Protected Intersection' Design



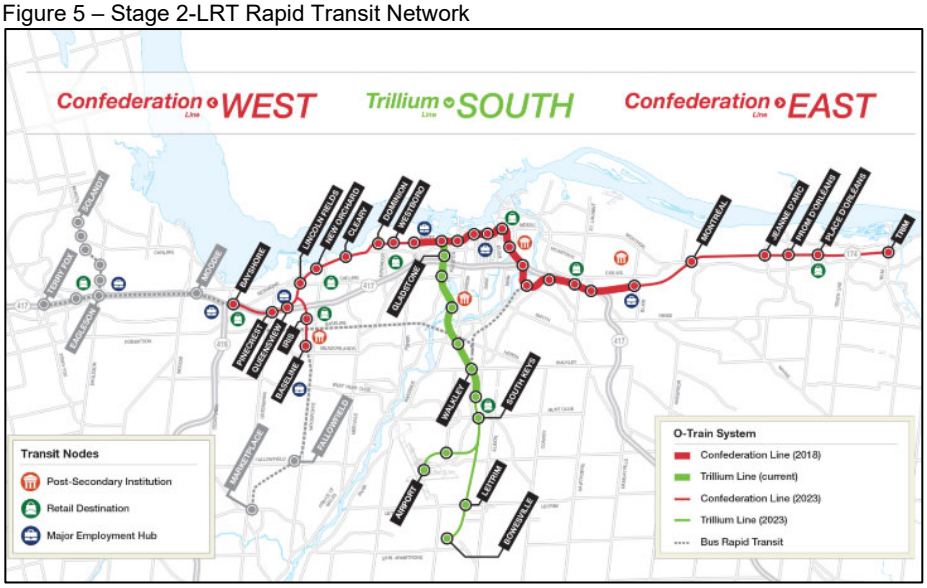
Source: Pavement Marking & Signage Plan – MH, Nov. 2020

3.3.3 Future Transit Facilities and Services

The 2013 Transportation Master Plan (TMP) identifies Holland Avenue within the context area as a 'Transit Priority Corridor' with isolated measures, however City staff have not indicated a proposed timeline for the implementation of these measures.

Construction of LRT-Stage 2 is currently underway and will result in the extension of Trillium Line further south to Riverside South (2022), as well as the extension of the Confederation Line further east and west to Trim Road (2024) and Moodie Drive/Baseline (2026), respectively. The Stage 2 LRT Rapid Transit Network is illustrated in **Figure 5** below.

Figure 5 – Stage 2-LRT Rapid Transit Network



Source: OCTranspo

3.3.4 Future Adjacent Developments

The City of Ottawa Transportation Impact Assessment (TIA) Guidelines specify that all significant developments proposed within the surrounding area which are likely to occur within the study's horizon year must be identified and taken into consideration in the development of future background traffic projections.

Table 3 below summarizes the key details of all development applications of significance within the context area.

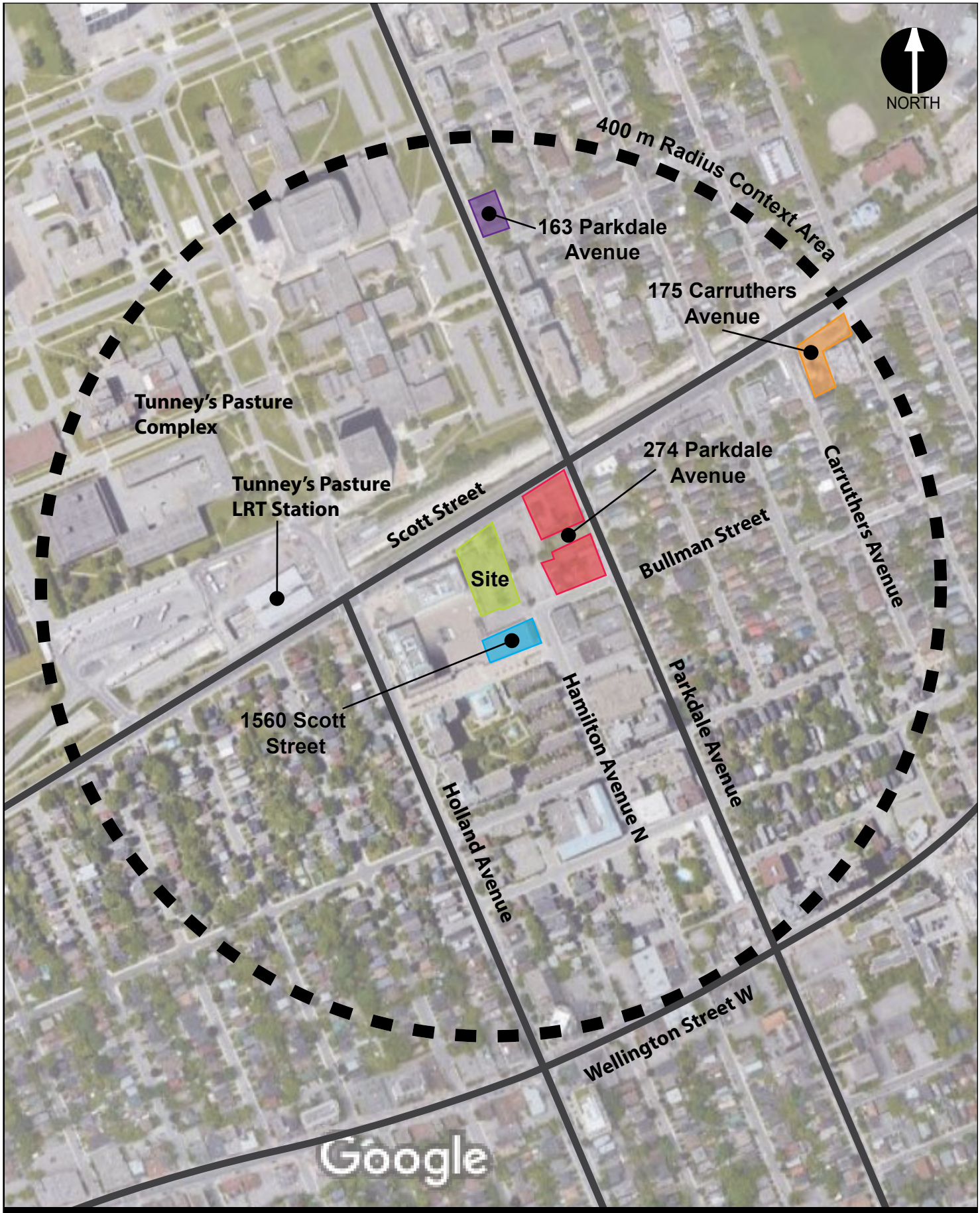
Table 3 – Future Adjacent Developments

LOCATION	DESCRIPTION	EXPECTED BUILD-OUT
163 Parkdale Avenue	• 31-storey building ➢ 264 apartment units ➢ ~119 m^2 commercial space	2023
1560 Scott Street	• 29-storey building ➢ 337 apartment units ➢ ~80 m2 of commercial space	2024
175 Carruthers Avenue	• 18-storey mixed-use building with 187 apartment units • 4-storey building with 12 stacked townhome apartments	Constructed[1]
274 Parkdale Avenue	• 28 & 32 storey buildings ➢ 499 residential apartment units ➢ ~3,593 m2 of commercial space ➢ ~3,593 m2 of office space	2024[2]

Notes:
[1] This development was not built/occupied prior to turning movement counts being conducted for each study area intersection and therefore its traffic impacts are being considered explicitly.
[2] Occupancy assumed to coincide with full build-out of proposed development in 2024.

It should be noted that the redevelopment of the Tunney's Pasture Complex is a long-term project which is not expected to occur within the City's 2031 ultimate planning horizon and therefore will not be taken into consideration in this study.

The approximate locations of all developments and planned future developments are shown in **Exhibit 5** below.



IBI

1546 Scott Street
Transportation Impact Assessment

Exhibit 5:
Adjacent Developments

PROJECT No. 132902

SCALE: 0m 100m 200m

3.3.5 Network Concept Screenline

Not Applicable - A network screenline analysis is not expected to be necessary for this development, as it does not trigger the threshold prescribed by the TIA of 200 person-trips during the peak hour beyond what is otherwise permitted by zoning. Detailed trip generation will be provided in the Forecasting section of this report.

3.4 Study Area

With consideration of the information presented thus far, the following intersections have been identified as being most impacted by the proposed development:

- Scott Street & Holland Avenue/Tunney's Pasture Driveway
- Scott Street & Parkdale Avenue
- Bullman Street & Parkdale Avenue
- Scott Street & Site Access #1 – proposed
- Bullman Street/ Hamilton Street North & Site Access #2 – proposed

The all-way stop-controlled intersection of Spencer Street & Hamilton Avenue North was excluded from the study area, as it represents a much more indirect route to access the reginal road network in comparison with the Bullman/Parkdale intersection.

Beyond the limits of the above-noted study area intersections, site-generated traffic impacts are expected to be minimal. Motorists have a variety of options to access the broader arterial road network surrounding the two proposed site access driveways, resulting in a dispersion of vehicular demand within the periphery of the context area. Furthermore, sustainable transportation modes are expected to represent a significant proportion of the overall site generation due to the proximity of this development to the Tunney's Pasture LRT Station in an area of the City which is already considered to be highly walkable/bikable, and will be further supported by a suite of Transportation Demand Management (TDM) measures. As such, this TIA will focus on site-specific impacts, integration with its boundary streets, including a functional review of the site access geometry, on-site drive aisle requirements, a review of the site's parking/loading requirements, as well as discussions on TDM measures and potential Neighbourhood Traffic Management impacts.

An intersection Multi-Modal Level of Service (MMLOS) and capacity analysis for the above-noted study area intersections will not be required, as these impacts have already been extensively studied as part of the ongoing Scott Street Corridor Study and 1560 Scott Street TIA. As such, relevant extracts of the recently-completed analysis from these transportation studies will be provided as part of this study.

In terms of segment-based MMLOS, since a Complete Street concept exists for Scott Street, a multi-modal evaluation of the corridor will not be required as part of this study. Further, Bullman Street/Hamilton Avenue North are classified as local roads which are inherently designed to accommodate multi-modal travel demands and therefore neither of these low-speed and low-volume roads will require segment-based MMLOS analysis either.

3.5 Time Periods

As the proposed development will consist of primarily residential dwelling units, traffic generated during the weekday morning and afternoon peak hour is expected to result in the most significant impact to traffic operations on the adjacent road network in terms of combined development-generated and background traffic.

3.6 Study Horizon Year

As the proposed development is expected to be fully built out and occupied in a single phase by 2024, the horizon year for this study will therefore be 2029.

3.7 Exemptions Review

The TIA Guidelines provide exemption considerations for both the Design Review and Network Impact components. **Table 3** identifies the components of the TIA that are not required.

Table 4 – Exemptions Review

TIA MODULE	ELEMENT	EXEMPTION CONISDERATIONS	REQUIRED?
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	• Only required for site plans	✓
	4.1.3 New Street Networks	• Only required for plans of subdivision	✗
4.2 Parking	4.2.1 Parking Supply	• Only required for site plans	✓
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	✗
Network Impact Component			
4.5 Transportation Demand Management	All Elements	• Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	✓
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	✓
4.8 Network Concept	n/a	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	✗

4 Forecasting

4.1 Development-Generated Traffic

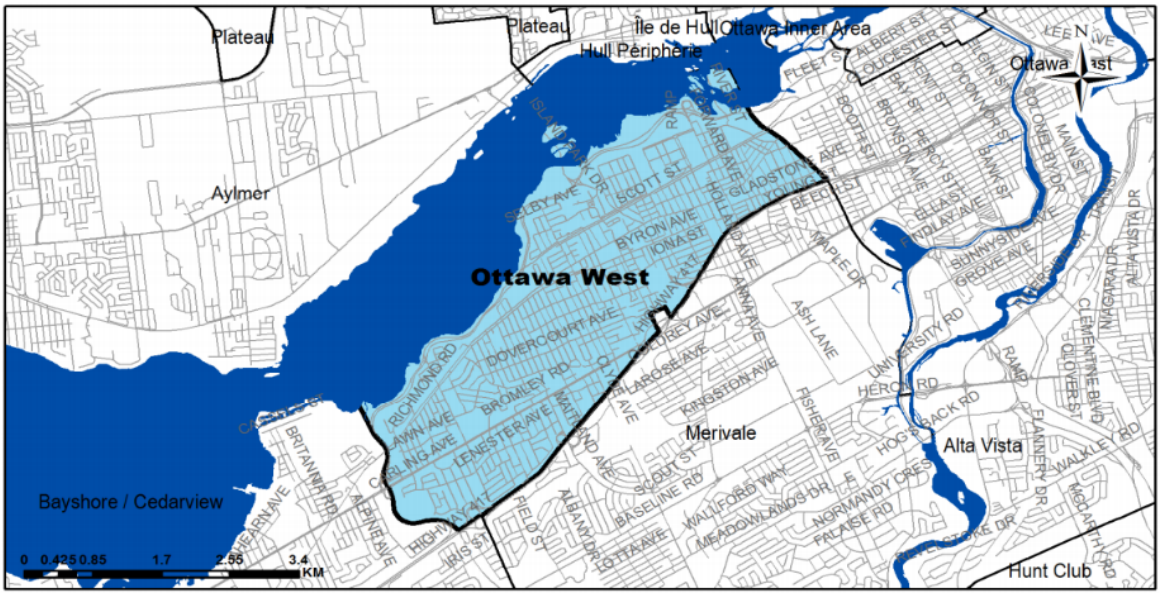
4.1.1 Trip Generation Methodology

Peak hour residential site-generated traffic volumes were developed using the 2020 TRANS Trip Generation Manual. The TRANS trip generation rates are based on blended rates derived from the 49 trip generation studies undertaken between 2008 and 2012, the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and the 2011 TRANS O-D Travel Survey. Separate peak period person-trip generation rates are provided for single-detached housing, low-rise multifamily housing (i.e. two storeys or less) and high-rise multifamily housing (i.e. three storeys or more). Site-generated peak period person-trips were estimated using the appropriate rates and subsequently subdivided based on representative mode share percentages applicable to the study area. Mode-specific adjustment factors were then applied to these peak period person-trips to determine the number of peak hour vehicle, passenger, transit, cycling and pedestrian trips.

Local mode share targets were based on the 2020 TRANS Trip Generation Manual which provides blended mode shares based on the 2011 TRANS Origin-Destination (O-D) Survey for select land uses for each of the Traffic Assessment Zones (TAZs) in the O-D Survey. The proposed development is located within the Ottawa West TAZ, which has been referenced for this study.

The extents of the Ottawa West TAZ are shown in **Figure 6** below.

Figure 6 – Ottawa West TAZ



Source: 2011 TRANS O-D Survey

Given the small footprint of the ground floor commercial component within the proposed development which does not meet the Trip Generation Trigger, it is expected that these commercial uses will generate primarily pass-by or active trips and a negligible number of new vehicle trips. As such, the development of site-generated trips for this study focused on the residential component.

4.1.2 Base Trip Generation

4.1.2.1 Person Trip Generation

Site-generated trips were derived through the use of the recommended residential person-trip rates for weekday morning and afternoon peak periods, as presented for 'Multi-Unit (High-Rise)' uses in the 2020 TRANS Trip Generation Manual. Peak periods are defined as 7:00 to 9:30 AM and 3:30 to 6:00 PM.

The resulting number of person-trips have been summarized in **Table 5** below. Relevant extracts from the TRANS Trip Generation Manual are provided in **Appendix F**.

Table 5 – Peak Period Person-Trip Generation

LAND USE	SIZE	PERIOD	PERSON TRIPS (PPP)		
			IN	OUT	TOTAL
Multi-Unit (High-Rise)	230 units	AM	57	127	184
		PM	120	87	207

Notes: ppp = persons per period

4.1.2.2 Mode Share Proportions

The 2020 TRANS Trip Generation Manual provides approximations of the existing modal share within the Ottawa West Traffic Assessment Zone (TAZ) for the 'High-Rise Multi-Family Housing' land use, and is generally considered as a baseline when developing mode share projections. A blended rate (i.e. average) of the weekday AM and PM peak period rates was calculated for comparison against the City's mode share targets for Transit-Oriented Development (TOD) zones. It is important to note that these rates are for the Ottawa West TAZ as a whole and do not account for the significantly higher transit usage which is assumed to occur within close proximity to rapid transit stations.

The City of Ottawa has established mode share targets for residential developments within Transit-Oriented Development (TOD) zones to leverage transit and active transportation infrastructure and plan for a sustainable future. As such, 15% auto driver, 65% transit, 15% active (walking/cycling) and 5% auto passenger targets were assumed for this study. The active mode share was adjusted to maintain the proportions determined from the blended mode share.

It is acknowledged that Transportation Demand Management (TDM) measures will be required to this support the 85% non-auto mode share; the details of which will be discussed in the Analysis component of this study.

Table 6 below summarizes the 2011 O-D Survey mode share distributions for the Ottawa West TAZ. The target mode shares are assumed to remain unchanged throughout both the 2024 and 2029 future analysis years of this study.

Relevant extracts from the TRANS Trip Generation Manual are provided in **Appendix F**.

Table 6 – Existing Mode Share & Proposed Mode Share Targets

TRAVEL MODE	2020 TRANS TRIP GENERATION [1]		BLENDED MODE SHARE	MODE SHARE TARGETS (WITH TDM)
	AM	PM		
Auto Driver	28%	33%	31%	15%
Auto Passenger	11%	11%	11%	5%
Transit	41%	26%	33%	65%
Cycling	3%	7%	5%	4%
Walking	16%	23%	20%	11%

[1] - *Residential mode share for High-Rise Multi-Family Housing – Ottawa West TAZ – Table 8*

It should be noted that a sustainable mode share of 80% is targeted for this development due to its proximity to the Tunney's Pasture LRT station, as compared to the existing 58% share documented for the broader area within the TAZ.

4.1.2.3 Trip Generation by Mode

The mode share targets presented above were applied to the number of development-generated person-trips to establish the number of peak period person-trips per travel mode, as summarized in **Table 7** below.

Table 7 – Person-Trips by Mode (Peak Period)

MODE	AM			PM		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver (15%)	9	19	28	18	13	31
Auto Passenger (5%)	3	6	9	6	4	10
Transit (65%)	37	83	120	78	57	135
Walking (11%)	2	5	7	5	3	8
Cycling (4%)	6	14	20	13	10	23
Total Person-Trips	**57**	**127**	**184**	**120**	**87**	**207**

The peak period person-trips presented previously in **Table 7** were converted to peak hour person-trips through the use of adjustment factors prescribed in the 2020 TRANS Trip Generation Manual. The peak hour site-generated person-trips by travel mode are summarized in **Table 8** below.

Table 8 – Person-Trips by Mode (Peak Hour)

MODE	PEAK PERIOD TO PEAK HOUR ADJUSTMENT FACTORS (AM/PM)	AM			PM		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver (15%)	0.48/0.44	4	9	13	8	6	14
Auto Passenger (5%)	0.48/0.44	1	3	4	3	2	5
Transit (65%)	0.55/0.47	20	45	65	37	27	64
Walking (11%)	0.58/0.52	1	3	4	2	2	4
Cycling (4%)	0.58/0.48	4	8	12	7	5	12
Total Person-Trips	**0.50/0.44**	**31**	**69**	**100**	**56**	**41**	**97**

As indicated in **Table 8** above, the proposed development is expected to generate just 13 and 14 two-way vehicular trips during the weekday morning and afternoon peak hours, respectively.

4.1.3 Trip Reduction Factors

Deduction of Existing Development Trips

The site is presently occupied by a retail outlet which will be demolished as part of the redevelopment of the site. As a conservative measure, existing site-generated trips were not explicitly removed from the adjacent road network as part of this study.

Pass-by Traffic

Not Applicable - Based on the ITE Trip Generation Handbook (3rd Edition), approximately 66% of vehicular trips generated by ground floor commercial uses within the proposed development are expected to be from pass-by traffic, or in other words, traffic that is already present on the adjacent roadway. As the planned commercial floor area is relatively small and will generate primarily local trips by active modes, the resulting volume of new commercial trips will be nominal. As such, the application of a pass-by reduction factor is not necessary for this study.

Synergy/Internalization

Not Applicable - Synergy or internalization is typically applied to developments with two or more land uses to prevent double counting of trips with multiple intermediate destinations within the same site. With respect to this site, the interaction between the residential and commercial land uses as the primary trip purpose is not expected to be significant. As such, no internalization has been considered in the analysis.

4.1.4 Trip Distribution & Assignment

Route selection and weighting for the proposed development distribution was established based on a review of travel patterns from Ottawa West Traffic Assessment Zone (TAZ), the configuration of the road network within the vicinity of the site and the concentration of employment nodes within adjacent TAZs. Consideration was also given to Google Maps travel times during peak hour conditions, and the availability of alternative routes.

Based on the above, distribution of site-generated traffic has been assumed will use the following primary routes:

- 10% to/from the North
    - 100% on Parkdale
- 20% to/from the South
    - 45% on Parkdale
    - 45% on Holland
    - 10% on Hamilton
- 50% to/from the East
    - 60% on Scott
    - 40% on Parkdale/Hwy 417
- 20% to/from the West
    - 50% on Scott
    - 50% on Parkdale/Hwy 417

Utilizing the estimated number of new auto trips and applying the above distributions, future site-generated traffic volumes are illustrated for each of the study area intersections in **Exhibit 6** below.

IBI

1546 Scott Street
Transportation Impact Assessment

Exhibit 6:
Site-Generated Traffic

PROJECT No. 132902

SCALE: N.T.S.

4.2 Background Network Traffic

4.2.1 Changes to the Background Transportation Network

As discussed previously, the transportation network within the study area is expected to undergo significant changes within the timeframe of this study which will further support the use of sustainable modes including transit, walking and biking. Scott Street will be incrementally reconstructed as a Complete Street and Stage 2 LRT (Western Extension) is expected to be open for full revenue service within the timeframe of this study.

4.2.2 General Background Growth Rates

The Existing (2021) volumes derived for this study were interpolated based on the 2019 volumes (with Transitway in use) and 2031 traffic projections from the Scott Street Corridor Study. In keeping with the growth rate assumptions from the Scott Street study, a 1.0% growth rate was applied to through movements on Parkdale at Bullman Street as well.

4.2.3 Other Area Development

As agreed to by City staff, adjacent developments discussed in the Study scope were assumed to be accounted for in the 2031 traffic volume projections developed as part of the Scott Street Corridor Study. These 2031 volumes are considered the most refined projections available for the Scott Street corridor and therefore likely account for traffic impacts associated with the adjacent developments at the intersections of Scott Street with Parkdale and Holland.

It was, however, still necessary to explicitly consider the impact of adjacent development traffic at the Parkdale & Bullman intersection which was outside of the limits of the Scott Street Corridor Study. As such, the impacts of the future adjacent development outlined previously in **Table 3** were considered in the approximation of Existing (2021) traffic volumes for this study.

4.3 Demand Rationalization

Not Applicable – The purpose of this section is to rationalize future travel demands within the study area to account for potential capacity limitations in the transportation network and its ability to effectively accommodate the additional demand generated by a new development. In this circumstance, the proposed development's vehicular impacts on the adjacent road network will be sufficiently small so as to not trigger any additional capacity constraints beyond those identified in previous studies including the Scott Street Corridor Study or recently-conducted TIA's for adjacent developments. As such, no additional demand rationalization is required beyond the use of the 85% non-auto mode share target prescribed by the City which will be supported by the Transportation Demand Management (TDM) measures identified in the Analysis component of this study.

4.3.1 Description of Capacity Issues

A review of the Scott Street Corridor Traffic & MMLOS Analysis of Functional Design Memorandum (June 2021 Draft) indicates that the intersection of Scott & Parkdale is expected to experience capacity issues by 2031 during the weekday afternoon peak hour on the westbound and northbound approaches.

An intersection capacity analysis for the Holland & Scott intersection was not included in the Scott Street memorandum, however a recently conducted TIA for 1560 Scott Street (Stantec, 2020) identified the potential for several capacity constraints to occur within the timeframe of this study, including the eastbound left-through and westbound left-turn movements under both weekday morning and afternoon peak hours, as well as the westbound through and northbound right-turn movements under weekday afternoon peak hours only.

As discussed previously, the proposed development is expected to generate a nominal number of overall vehicle trips on the adjacent road network and, by extension, will also contribute minimally to any critical movements noted above. As such, additional site-generated contributions are not expected to exacerbate any potential capacity constraints at the intersections of Scott Street with Parkdale or Holland.

The Parkdale & Bullman intersection is not expected to experience any capacity issues within the 2029 study horizon year under weekday morning or afternoon peak hour conditions, as indicated in the 1560 Scott Street TIA.

4.3.2 Adjustment to Development-Generated Demands

No further adjustments were made to the development-generated demands beyond the use of a 65% transit mode share, which is the City of Ottawa's prescribed target for residential developments within Transit-Oriented Development (TOD) zones along the Confederation Line. As noted previously, a Transportation Demand Management (TDM) strategy will be detailed in the Analysis component of this study to help achieve the transit and other non-auto mode share targets.

It is acknowledged that the proposed development will contribute a significant amount of pedestrian crossing demand at the Scott & Holland intersection, however based on historical traffic data conducted in November 2017, there is already high pedestrian demand at this intersection, likely triggering a pedestrian phase on every cycle. As such, any additional site-generated pedestrian activity will have no impact on the signal timing or overall intersection capacity.

4.3.3 Adjustment to Background Network Demands

A significant trip generation exercise was recently undertaken as part of the Scott Street Corridor Study to project long-term traffic volumes for the corridor. As such, no subsequent refinements were applied beyond the removal of detour Transitway buses from the 2019 volumes to develop Existing (2021) volumes for this study, as discussed previously.

4.4 Traffic Volume Summary

4.4.1 Future Background & Total Traffic Volumes

Based on the low site-generated traffic volumes presented previously in **Exhibit 6**, there would be no discernible difference between any traffic projections with or without the inclusion of site-generated traffic in terms of overall capacity analysis results. As such, it was not necessary to develop Future Background or Future Total traffic volumes for analysis purposes in this study. Further, the intersections most likely to be impacted by site-generated traffic have already been studied extensively as part of either the Scott Street study or recently-conducted adjacent development TIAs.

5 Analysis

5.1 Development Design

5.1.1 Design for Sustainable Modes

In compliance with the City of Ottawa's Urban Design Guidelines and transportation policies, new developments shall provide safe and efficient access for all users while creating an environment that encourages walking, cycling and transit use.

The proposed development is located within an existing Transit-Oriented Development (TOD) zone and an approximate 250-metre walking distance to the existing Tunney's Pasture LRT Station. This rapid transit station presently serves as the western terminus of the Confederation Line which is being extended further west as part of LRT Stage 2 and is slated to begin full revenue service in 2026. This high-density residential development is well suited in this context, given its proximity to high quality transit service and the numerous services and amenities offered well within a 15-minute walking distance of the site. The development conforms to City policies that encourage compact, high-rise developments within TOD zones.

Further, the site integrates well with the adjacent transportation network by providing direct access to Tunney's Pasture Station inherently through its street-oriented design. As indicated previously in **Exhibit 2**, concrete pathways are proposed between primary and secondary building entrances and active transportation facilities on Scott Street to provide convenient, barrier-free linkages without the need to cross vehicular parking areas. The site configuration also provisions for the right-of-way protection required to accommodate the future redevelopment of the Scott Street corridor which will feature enhanced pedestrian and cycling facilities adjacent to the site.

The TDM-Supportive Development Design and Infrastructure Checklist was completed and is provided in **Appendix G**. This checklist identifies anticipated measures that are being considered in association with the proposed development to offset the vehicular impact on the adjacent road network. Some notable proposed measures are listed below:

- Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multifamily residential developments;
- Integrate a permanent bike repair station with commonly used tools adjacent to the designated indoor bike parking area;
- Provide secure and sheltered bike parking on the ground floor and upper level of the underground parking garage for residents, as well as some additional bike stalls outdoors near the primary residential and commercial entrances;
- Locate building close to street entrance with no vehicular parking areas between the street and building entrances;
- Design roads used for access or circulation by cyclists with a target operating speed of no more than 30 km/h, or provide a separated cycling facility; and
- Distinguish between short-term and long-term parking to permit access controls and simplify enforcement.

5.1.2 Circulation and Access

The proposed development will retain the two full-movement private approach driveways by providing connections to Scott Street and Bullman/Hamilton, therefore site access from the public right-of-way will remain unchanged from existing conditions.

Both driveways will provide access to the four-level underground parking garage entrance. Within the parking garage, a clear width of 6.0 metres will be maintained at the access driveway and internal drive aisles in accordance with the Zoning By-law.

Waste collection and deliveries will occur at-grade adjacent to the parking garage entrance. As a result of the perpendicular configuration of the waste collection area, the adjacent drive aisle was designed with a width of approximately 7.9 metres to accommodate a standard waste collection vehicle, as determined through turning templates, and to maintain consistency with the drive aisle width within the shared right-of-way to the south. Swept path analyses provided in **Appendix H** confirms the ability of a standard waste collection design vehicle to access the site from either proposed driveway, maneuver within the internal drive aisle to the designated waste collection/delivery area and egress onto either Hamilton/Bullman or Scott Street. The waste collection vehicle is expected to be the largest vehicle that will require regular access to the loading area, therefore no swept path analysis was conducted for a delivery vehicle. The maneuverability of a fire truck was also confirmed within the on-site drive aisle.

5.1.3 New Street Networks

Not Applicable – As defined in the study scope, this element of the TIA Guidelines is not required for development applications involving site plans.

5.2 Parking

5.2.1 Parking Supply

Vehicular Parking

As the site is located within Area 'Z' of the Zoning By-law, there is no requirement to provide parking spaces for residents, however, a minimum of 22 designated visitor parking spaces must be accommodated based on the prescribed ratio and no more than 30. Furthermore, as the site is within a 600 metres of a rapid transit station, there is a maximum of 365 parking spaces which can be provided on-site. As such, the 149 parking spaces proposed on-site are well within the permissible range prescribed in the by-law. Of the total resident parking supply, 127 spaces are identified for residents which provides a ratio of approximately 0.55 spaces per unit.

The remaining 22 parking stalls will be signed for visitors and, for ease of access, will either be located near the parking garage entrance (17 spaces) or outdoors along the eastern property boundary (5 spaces).

For ease of access, all of the at-grade parking stalls along the eastern property boundary will be signed for visitor parking, as well as additional stalls located close to the parking garage entrance.

Bicycle Parking

A total of 242 bicycle parking stalls will be provided, which exceeds the 116 spaces required in the by-law by more than two-fold. Of this total, 230 stalls will be provided in a sheltered and secure location on the ground floor or the upper level of the underground parking garage to provide a 1:1 bike parking ratio for residents. The remaining 12 stalls will be located at-grade and divided evenly between the primary commercial and residential entrances.

5.2.2 Spillover Parking

The ITE Parking Generation Manual (5th Edition) indicates a parking ratio in the order of 0.6 spaces per dwelling unit is appropriate for a high-rise residential development within a 'Dense Multi-Use' urban setting and within 0.5 miles (i.e. ~0.8 km) of rail transit. Given that the subject development is located well within the Transit-oriented Development (TOD) zone, it is reasonable to assume

that the slightly reduced rate of 0.55 vehicle spaces per unit will be appropriate in this context. As such, no further review of spillover parking is required as part of this study.

Relevant extracts from the Parking Generation Manual are located in **Appendix F**.

5.3 Boundary Streets

5.3.1 Complete Streets

As discussed in the study scope, segment-based Multi-Modal Level of Service (MMLOS) is not required for this development, as a Complete Street design strategy exists for Scott Street adjacent to the site. Further, Bullman Street/Hamilton Avenue North are classified as local roads which inherently cater to multi-modal travel demands and therefore neither of these low-speed and low-volume roads will require segment-based MMLOS analysis either.

The proposed development is being coordinated with City technical staff to ensure that sufficient right-of-way is protected for the future redesign of Scott Street along the site's frontage. Across Site Access #1, the curb will be depressed and allow for the continuity of pedestrian/cycling facilities planned as part of the 'interim' and 'ultimate' configurations for Scott Street, thereby minimizing any potential impacts associated with the subject development.

5.3.2 Road Safety

A summary of all reported collisions within the study period over the past five years was presented in the Scoping section of this TIA. The City requires a safety review if at least six collisions for any one movement or of a discernible pattern have occurred over the five year-period from January 1, 2015 to December 31, 2019. Preliminary analyses identified that all study area intersections may be of potential concern. Further review was therefore conducted at the following locations, as summarized below:

5.3.2.1 Intersections

Scott & Parkdale

As discussed in the study scope, there were 34 collisions recorded at the Scott & Parkdale intersection over the latest five years of available data. Of these collisions, the vast majority (28/34) were classified as 'property damage only', while the remainder were considered 'non-fatal injury'. As such, all of these collisions are considered to be minor in nature. Further review of the data indicated 'rear end' as the most common impact type. Given that the majority of these collisions occurred during the weekday peak hours (7/11) and that these collisions experienced a near even distribution across the four cardinal directions, no discernible pattern was identified and therefore no further analysis is required.

Scott & Holland

There were 36 collisions recorded at the Scott & Holland intersection over the latest five years of available data. Further review of the data by collision type indicated that the most dominant were 'rear end' (11/36) and 'turning movement' (11/36) collisions. The majority of both the 'rear end' and 'turning movement' collision types occurred during the weekday peak hours (14/22) and therefore are likely the result of increased traffic volumes experienced on the adjacent road network during the commuter peak periods. Of these collisions for the above noted impact types, the vast majority (20/22) were classified as either 'property damage only', while the remainder were considered 'non-fatal injury'. As such, these collision events can be considered minor in nature.

The Million Vehicle Entering (MVE) assessment conducted as part of the study scope for Scott & Parkdale and Scott & Holland identified both intersections as experiencing average collision

frequencies per MVE values of less than 1.0 at both locations with their existing configurations and therefore, even without any of the planned 'protected intersection' upgrades, neither is considered significant with respect to overall number of collisions. Given the high volume of pedestrian crossings at these intersections, there is an increased safety risk. The reconfiguration of these intersections is expected to lessen the severity and number of overall collisions by reducing operating speeds through the intersections, thereby improve sightlines for motorists and the environment for active transportation users.

5.3.2.2 Roadway Segments

Table 9 below summarizes the number of collisions recorded along each roadway segment within the study area in the five-year period, subdivided by collision type. As the segment of Hamilton/Bullman from Parkdale Avenue to Spencer Street experienced less than six collisions in the five-year period, it has been excluded from further analysis.

Table 9 – Roadway Segment Collisions by Type

ROADWAY SEGMENT	COLLISION TYPE					
	Angle	Rear End	Sideswipe	Turning Mvmt	Single Motor Vehicle	Other
Scott Street – Holland to Parkdale	2	1	0	3	2	0

As indicated in **Table 9** above, no significant collision patterns (i.e. 6 collisions or more) have been noted within the five-year period along the site frontage. As such, no further analysis is required.

5.4 Access Intersections

5.4.1 Location and Design of Access

Site Access #1 will generally retain its existing width and location but will be modified to accommodate the additional right-of-way protection required for the implementation of the Scott Street Functional Design, as shown previously in **Exhibit 2**.

Site Access #2 is accessed through a shared right-of-way with the neighbouring Holland Cross property and therefore the configuration of this access connection with Bullman/Hamilton will remain unchanged. As such, no further review of this access is required with respect to the Private Approach By-law 2003-447.

Site Access #1 is within conformance with the City of Ottawa Private Approach, with particular confirmation of the following items:

- Width: As the site is within a Mature Neighbourhood overlay, the minimum and maximum widths of a private approach are governed by the Zoning By-law. The Zoning By-law states that in the case of a two-way driveway for an apartment building that leads to more than 20 parking spaces, the driveway must provide between 6.0m and 6.7m of clear width.
    - Site Access #1 will provide 6.0 metres of clear width. ✓
- Distance from Intersecting Road: Where a property abuts or is within 46 metres of an arterial road or major collector highway and proposes between 100 & 199 parking spaces, the proposed private approach must be at least 30 metres from the nearest intersecting street line.

  - Site Access #1 is located approximately 130 metres and 98 metres from the Holland Avenue and Parkdale Avenue streetlines, respectively, and is therefore in conformance with the by-law. ✓

- Quantity and Spacing of Private Approaches: For sites with frontage between 20 and 34 metres, one (2) two-way or two (2) one-way private approaches are permitted. Any two private approaches must be separated by at least 9.0m and can be reduced to 2.0m in the case of two one-way driveways. On lots that abut more than one roadway, these provisions apply to each frontage separately.
  - The subject site's frontage on Scott Street is approximately 32 metres and therefore the proposed two-way private approach is compliant with the by-law. ✓
- Distance from Property Line: Private approaches must be at least 3.0m from the abutting property line, however this requirement can be reduced to 0.3m provided that the access is a safe distance from the access serving the adjacent property, sight lines are adequate and that it does not create a traffic hazard.
  - The proposed private approach on Scott Street will be located approximately 1.7 metres from the eastern property line.
    - The adjacent access on the neighbouring property to the east is approximately 8 metres from the property line and is considered to provide reasonable separation of approximately 9.5 metres from Site Access #1. It should be noted as well that there are no horizontal or vertical constraints along this segment of Scott Street and that an access serving the existing retail is being retained in its current location.

The Transportation Association of Canada (TAC) recommends a minimum throat length of 40 metres for a site access driveway serving an apartment use with greater than 200 dwelling units accessing an arterial road. As shown previously in **Exhibit 2**, Site Access #1 will consist of an approximate 28-metre throat length. Given that the recommendation of minimum throat lengths are only general guidelines and that the proposed development is expected to generate only a nominal amount of vehicular traffic, the throat length provided will be more than sufficient to avoid any potential queue spillback onto Scott Street.

There are no minimum throat lengths specified in TAC for site access connections with local roads, as these facilities generally have lower overall operating speeds and traffic volumes in comparison to higher-order roads. As such, there is a reduced potential for vehicular conflicts to occur and so the proposed design can be deemed sufficient.

5.4.2 Access Intersection Control

It is anticipated that the site access driveways will be unsignalized.

5.4.3 Access Intersection Design

Both site access driveways will be unsignalized, therefore Multi-Modal Level of Service Analysis (MMLOS) analysis is not required at either location.

No auxiliary lanes will be required at either site access driveway. Site-generated traffic demands are expected to contribute less than 5 vehicles on any given movement during both the weekday morning and afternoon peak hours, as indicated previously in **Exhibit 6**.

At Site Access #1, the curb and sidewalk will be continuous and depressed across this driveway as per City Standard Drawing SC7.1 (March 2021). The design of Site Access #1 also provisions for the implementation of a future, uninterrupted cycle track facility across the site access driveway as part of the Scott Street redevelopment, as indicated previously in **Exhibit 2**.

Site Access #2 will not be modified as part of the proposed development.

5.5 Transportation Demand Management (TDM)

The City of Ottawa requires that Transportation Demand Management (TDM) measures be included as part of all new development applications in an effort to reduce automobile dependence, particularly during the weekday peak travel periods. TDM initiatives are aimed at encouraging individuals to use non-auto modes of travel during the peak periods.

5.5.1 Context for TDM

As discussed previously, the proposed development is located well within the Tunney's Pasture Station TOD zone, Community Design Plan (CDP) and Design Priority Area (DPA). This development was designed in accordance with the City's urban design guidelines, which encourage high-density and compact growth within these areas. The proposed development offers a range of dwelling sizes and layouts to help promote the development of a sustainable and diverse community.

In the Forecasting section of this report, the mode share targets from the 2011 O-D Survey for the Ottawa West TAZ were refined beyond the use of a typical blended rate with consideration of the site's proximity to high quality transit and active transportation facilities. Sustainable modes are expected to incrementally offset vehicular demands within the study area with the planned opening of LRT Stage 2 in combination with the strengthening of active transportation infrastructure within the timeframe of this study.

5.5.2 Need and Opportunity

With the proximity of this site to Tunney's Pasture, a major rapid transit hub, there is an opportunity to shift the existing auto-oriented environment of the site to be more pedestrian friendly and align with the City's policy objectives.

It is acknowledged that a suite of Transportation Demand Management (TDM) measures, as described in the following section, will be required to achieve the significant 85% non-auto mode share targets proposed in this study.

5.5.3 TDM Program

The City of Ottawa's TDM Measures Checklist was completed for the proposed development, and the results are provided in **Appendix G**. Notable measures that are being considered include:

- Designating an internal coordinator, or contract with an external coordinator;
- Displaying relevant transit schedules and route maps at entrances;
- Conducting periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress;
- Offering PRESTO cards preloaded with one monthly transit pass upon resident move-in (first year of development);
- Providing a multimodal travel option information package to new residents;
- Unbundling parking costs from monthly rent; and
- Contacting local companies to determine if there is a desire to partner for either bikeshare/carshare services.

5.6 Neighbourhood Traffic Management

The proposed development is accessible via local roads including Hamilton Avenue North and Bullman Street, therefore a Neighbourhood Traffic Management review is required as part of the TIA process.

As indicated previously in **Exhibit 6**, the low site-generated traffic volumes will be divided between two site access driveways and, as a result, are expected to contribute less than 5 additional two-way vehicle trips on the local road network during each of these weekday peak hours. These trips will be further dispersed amongst the two local roads (i.e. Bullman and Hamilton), therefore any potential community impacts associated with site-generated traffic will be negligible.

5.7 Transit

5.7.1 Route Capacity

The estimated transit ridership demand generated by the proposed development was determined to be in the order of 65 and 64 transit trips during the weekday morning and afternoon peak hours, respectively, from the Forecasting component of this study. This projected volume of additional transit users is not expected to have a significant impact on the capacity of the existing transit network and should be easily accommodated by the O-Train Confederation Line and its extension further west as part of LRT Stage 2, as well as the numerous feeder routes operating within the study area.

5.7.2 Transit Priority

Not Applicable - The proposed development will not contribute to traffic congestion along Scott Street and have no impact on transit times. As noted previously, increased pedestrian traffic is likely to be accommodated within the existing pedestrian crossing phase actuations at signalized intersections within the study area.

5.8 Review of Network Concept

Not Applicable – The Network Concept element is exempt from this TIA, as defined in the study scope. This element is not required for proposed developments expected to generate less than 200 person-trips beyond what is otherwise permitted by zoning during the weekday morning and afternoon peak hours.

5.9 Intersection Design

5.9.1 Traffic Signal Warrants

Not Applicable – All intersections within the study area are presently signalized with the exception of Bullman & Parkdale, which is configured as a two-way stop-controlled intersection. The capacity analysis conducted as part of the 1560 Scott Street TIA indicates that this intersection is expected to operate at an acceptable level of service (i.e. LOS 'E' or better) beyond the 2029 horizon year of that study. As such, no traffic signal warrant analysis was deemed to be necessary for this study.

Relevant extracts of the intersection capacity analysis from the 1560 Scott Street TIA are provided in **Appendix H**.

5.9.2 Roundabout Analysis

Not Applicable - The implementation of roundabouts does not align with the City's long-term vision for the Scott Street corridor at the intersections of Scott with Parkdale or Holland. Further, the intersection of Bullman & Parkdale is expected to continue operating acceptably (i.e. LOS 'E' or better) beyond the timeframe of this study with its stop-controlled configuration. As such, no roundabout analysis is required for this TIA.

5.9.3 Intersection Capacity Analysis

Since the proposed development will be a low traffic generator and the study area intersections have been extensively studied as part of recently-conducted transportation studies such as the 1560 Scott Street TIA and the Scott Street Corridor Study, it was agreed to by City technical staff that a comparison of site-generated traffic volumes with the corresponding future total traffic volumes from these studies would sufficiently address the capacity analysis portion of the TIA for the three study area intersections. The 1560 Scott Street TIA included a '2029 Total Traffic' scenario, while the Scott Street Corridor Study considered both 2031 'Baseline' and 2031 'Ultimate Functional Design' scenarios.

Relevant extracts from each study are provided in **Table 10** below, as well as in **Appendix I**.

Table 10 – Intersection Capacity Analysis Extractions

LOCATION	SCENARIO	TRAFFIC CONTROL	PERIOD	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)
Scott & Holland[1]	2029 'Total Traffic'	Signalized	AM	D (0.72)	EBLT (0.82)
			PM	D (0.90)	**WBT (1.08)**
Scott & Parkdale[2]	2031 'Baseline' Traffic Scenario	Signalized	AM	C (0.79)	**NBLTR (0.93)**
			PM	**F (1.34)**	**NB (1.82)** **WBT (1.16)**
	2031 Ultimate Functional Design	Signalized	AM	C (0.76)	SBTR (0.88)
			PM	**E (0.94)**	**NBL (1.05)** **WBT (1.05)** **SBTR (1.11)**
Bullman & Parkdale[1]	2029 'Total Traffic'	Unsignalized	AM	B (14.0s)	EB (14.0s)
			PM	C (19.0s)	EB (19.0s)

Sources:
[1]1560 Scott Street TIA Draft (Stantec, 2020)
[2] Scott Street Corridor Study – Traffic and MMLOS Analysis of Functional Design Draft (WSP, 2021)

Based on the results extracted from the 1560 Scott Street TIA presented in **Table 10** above, the Scott & Holland and Parkdale & Bullman intersections are shown to operate at overall acceptable levels of service (i.e. LOS 'E' or better) under 2029 Total Traffic conditions established for that study. Site-generated traffic is not expected to contribute to east-west crossing volumes at the

Bullman & Parkdale intersection, which would be most likely to degrade the intersection's performance as a whole.

The Scott & Parkdale intersection is expected to experience significant capacity issues on the westbound through and northbound approaches under weekday afternoon peak hours, operating at a LOS 'F', if its existing configuration is maintained until 2031. These capacity constraints, however, are well documented in numerous planning studies, and will not be exacerbated by the minimal site-generated traffic contributions on the adjacent road network. As indicated in the Scott Street Corridor Study, the Ultimate Functional Design plan for the Scott & Parkdale intersection is expected to significantly improve the LOS to within overall acceptable operating standards. Given the negligible site-generated traffic impacts and the planned redesign of the two key study area intersections to accommodate long-term travel demands within the study area, no further intersection capacity analysis was determined to be necessary for this study.

It is important to recognize as well that the net traffic impacts associated with the site's redevelopment may yield a net-zero increase in site-generated traffic relative to the existing conditions. As such, it was not necessary to undertake an intersection capacity analysis exercise for the site access driveways as part of this study either.

5.9.4 Multi-Modal Level of Service

As discussed in the study scope, Multi-Modal Level of Service (MMLOS) analysis was recently conducted as part of the 1560 Scott Street TIA, as well as the Scott Street Corridor Study. The Scott & Holland intersection was excluded from the Scott Street Corridor Study and therefore MMLOS analysis was referenced from the 1560 Scott Street TIA instead. This analysis was updated, however, to reflect changes to the methodology from the 2017 MMLOS Addendum and City's standardized spreadsheet. The Level of Service (LOS) for each mode has been calculated for each intersection where signals exist or are anticipated, based on the City's standardized spreadsheet that includes different targets for each respective area of the City. The targets for the subject site are based on the Transit-Oriented Development (TOD) Policy Area.

Relevant intersection MMLOS extracts from both the 1560 Scott Street TIA, as well as the Scott Street Corridor Study, are provided in **Appendix J**.

The refined intersection MMLOS results are summarized in **Table 11** below.

Table 11 – Intersection MMLOS – Existing Configuration

LOCATION	SCENARIO	LEVEL OF SERVICE BY MODE			
		PEDESTRIAN (PLOS)	BICYCLE (BLOS)	TRANSIT (TLOS)	TRUCK (TkLOS)
Scott & Holland [1]	Existing Conditions	**F** (Target: A)	**D** (Target: A)	**F** (Target: D)	**D** (Target: D)
Scott & Parkdale [2]	2031 - 'Baseline' Configuration	**F** (Target: A)	**F** (Target: A)	**F** (Target: D)	**F** (Target: D)
>Scott & Parkdale [2]	2031 - Ultimate Functional Design	**D** (Target: A)	**D** (Target: A)	**F** (Target: D)	**F** (Target: D)

Sources:
[1]Based on 1560 Scott Street TIA Draft (Stantec, 2020) and updated as per 2017 MMLOS Addendum
[2] Scott Street Corridor Study – Traffic and MMLOS Analysis of Functional Design Draft (WSP, 2021)

5.9.4.1 Pedestrian Level of Service (PLOS)

- The PLOS analysis indicates that both signalized study area intersections are not presently meeting the City's target of 'A', based on the result of the PETSI and Pedestrian Delay scores. The 2017 MMLOS Addendum reflects changes to the methodology since the 2015 publication, including 'lanes crossed' based on the equivalent number of 3.5-metre lanes. It should be noted that although neither intersection achieves the target PLOS, the planned conversion of both to 'protected intersections' is expected to significantly improve overall pedestrian comfort and safety within the timeframe of this study.

5.9.4.2 Intersection Bicycle Level of Service (BLOS)

- Based on the BLOS analysis presented in **Table 11** above, neither study area intersection is presently achieving the BLOS target of 'A' as a result of the operating speeds of 60km/h and the number of lanes cyclists are required to cross to perform a left-turn movement. Ultimately, the introduction of 'protected intersection' configurations, which are planned for implementation within the timeframe of this study, will significantly improve the BLOS score and support operating speeds of 50km/h or less.

5.9.4.3 Transit Level of Service (TLOS)

- Based on the results of the analysis, neither intersection is currently meeting its TLOS target of 'D'. It should be noted that the Scott & Parkdale intersection was recently modified to include a transit priority signal in the westbound direction which is accounted for in the TLOS analysis, however delays on the north/south approaches govern the intersection's performance. Scott Street, however, is parallel and directly adjacent to the Confederation Line LRT corridor within the study area and the extension of LRT service west of Tunney's Pasture Station as part of Stage 2 LRT is expected to further reduce the reliance on Scott Street as a transit corridor.

5.9.4.4 Intersection Truck Level of Service (TkLOS)

- The results of the analysis indicate that the Scott & Holland intersection is presently achieving its TkLOS target of 'D', while Scott & Parkdale is exceeding this target and operating with a TkLOS of 'F'. It is worth noting that the southwest corner of the Scott & Parkdale intersection has been recently modified to better accommodate turning movements of heavy vehicles such as buses or trucks through the implementation of a larger turning radii on that corner, as well as removal of the northbound left-turn auxiliary lane. It is likely not feasible to improve TkLOS without negatively impacting sustainable modes of transportation.

The recommended measures listed above are intended only as suggestions to the City on how the MMLOS within the study area could be improved and do not identify measures to be implemented as a direct consequence of this development. The MMLOS analysis identifies existing deficiencies in the study area and are not expected to be exacerbated by the proposed development.

5.10 Geometric Review

5.10.1 Sight Distance and Corner Clearances

Site Access #1 is located along a segment of Scott Street with no significant vertical or horizontal constraints upstream or downstream. The Transportation Association of Canada (TAC) Geometric

Design Guide for Canadian Roads indicates that a minimum corner clearance of 70m should be maintained between a private approach on a private access and the nearest signalized intersection. This proposed connection with Scott Street will be located approximately 130 metres from Scott & Holland and approximately 98 metres from Scott & Parkdale, respectively, therefore this requirement has been met.

Site Access #2 is accessed via a local road and will be maintained with its existing configuration at the interface with Hamilton/Bullman, therefore no further review of this private approach is required as part of this study.

5.10.1 Queue Length Analyses

A review of 95th percentile queue lengths for all movements at each signalized study area intersection, in comparison with available storage or distance to the nearest upstream intersection, is presented in **Table 12** below.

To maintain consistency with the intersection capacity analyses presented previously in this study, the queue lengths for Scott & Holland are referenced from the 1560 Scott Street TIA under '2029 Total Traffic' conditions, while the Scott Street Corridor Study was referenced under 2031 'Ultimate Functional Design' conditions for the Scott & Parkdale intersection. Extracts from these relevant transportation studies are provided in **Appendix I**.

Table 12 – Queue Length Analyses for Signalized Study Area Intersections

INTERSECTION	SCENARIO	MOVEMENT	STORAGE LENGTH OR NEAREST UPSTREAM INTERSECTION (M)	95TH PERCENTILE QUEUE AM/PM (M)
Scott & Holland [1]	2029 'Total Traffic'	NBL	70	34 (23)
		NBT	220	48 (31)
		NBR	30	**42 (50)**
		EBT/R	60	**128 (118)**
		SBL	65	20 (15)
		SBT	65	28 (51)
		SBR	30	0 (2)
		WBL	135	19 (32)
		WBT	215	61 (194)
		WBR	65	0 (0)
Scott & Parkdale [2]	2031 'Ultimate Functional Design'	NBL	- [3]	16.3/22.5
		NBT/R	95	92.8/**131.2**
		EBL	50	9.4/31.9
		EBT/R	215	73.4/69.5
		SBL	50	20.9/25.4
		SBT/R	190	141.9/167.4
		WBL	55	7.1/29.8
		WBT	130	20.6/**154.6**
		WBR	30	4.9/15.9

Sources:
[1] 1560 Scott Street TIA Draft (Stantec, 2020)
[2] Scott Street Corridor Study – Traffic and MMLOS Analysis of Functional Design Draft (WSP, 2021)
[3] Storage length to be determined as part of Scott Street Functional Design Study. Queue length projections are well within 95-metre separation distance to nearest downstream intersection at Bullman Street.

As indicated in **Table 12** above, there are several movements at either intersection which are expected to have 95th percentile queue lengths which occasionally exceed their respective storage capacities or the distance to the nearest downstream intersection. It is important to recognize that the upstream separation distances are provided to the nearest local road intersections and that the distances to the nearest upstream signalized intersection significantly exceed the queue length projections in all scenarios. The grid-like configuration of the internal road network within the study area affords motorists multiple access routes to the arterial road network, in the even that queue spillback blockages occur. Further, the proposed development will contribute negligible vehicular volumes to these intersections and therefore will not contribute to the exacerbation of potential queuing issues at any of these movements.

5.11 Summary of Recommended Modifications

All study area intersections were shown to operate at an acceptable level of service (i.e. LOS 'E' or better) during the weekday morning and afternoon peak hours and throughout the timeframe of the study with the exception of the Scott & Parkdale intersection which is expected to experience capacity issues. It is important to recognize that these constraints will not be exacerbated by the minimal site-generated traffic impacts and will be mitigated within the timeframe of this study through the planned implementation of a 'protected intersection' configuration (by others).

The MMLOS results identified deficiencies documented in other transportation studies conducted within the study area. These deficiencies primarily pertain to user comfort and highlight potential issues that could be considered for improvement by the City but are not required to safely accommodate the proposed development.

6 Conclusions

The proposed residential high-rise development at 1546 Scott Street is expected to generate up to 100 and 97 person-trips during the weekday morning and afternoon peak hours, respectively. The site-generated traffic impacts were determined through the application of an 85% non-auto mode share target which is considered appropriate given that the site is well within the Tunney's Pasture TOD zone, a major transit hub along the LRT Confederation Line. The resulting vehicular traffic generation for the proposed development was determined to be 13 and 14 two-way trips during the weekday morning and afternoon peak hours, respectively, which is considered to be negligible. These vehicle trips were divided amongst the two site access driveways, further reducing their impacts on the adjacent road network. As a conservative measure, existing site-generated trips from the retail outlet were not explicitly removed from the adjacent road network as part of this study. The significant non-auto mode share target will be achieved through an extensive suite of Transportation Demand Management (TDM) measures proposed for the subject development, as well as the planned opening of the LRT Stage 2 western extension in 2026.

Given that site-generated traffic contributions will have no significant impact on the adjacent road network and that all three study area intersections have already been evaluated as part of recent transportation studies conducted for 1560 Scott Street and the Scott Street Corridor Study, it was not necessary to undertake any additional intersection capacity analysis as part of this TIA.

Based on the capacity analysis reviewed from these recent transportation studies, the study area intersections were shown to operate at acceptable levels of service (i.e. LOS 'E' or better) during the weekday morning and afternoon peak hours throughout the timeframe of the study with the exception of the Scott & Parkdale intersection which is expected to experience capacity issues during the weekday afternoon peak hour. It is important to recognize that these constraints will not be exacerbated by the minimal site-generated traffic impacts and will be mitigated through the planned implementation of a 'protected intersection' reconfiguration (by others).

It is acknowledged that the proposed development will contribute a significant amount of pedestrian crossing demand at the Scott & Holland intersection, however based on historical data collected by the City of Ottawa, there is already high pedestrian demand on all four approaches at this intersection, likely triggering a pedestrian phase on every cycle. As such, any additional site-generated pedestrian activity will have no impact on the signal timing or overall intersection capacity.

The MMLOS results indicated existing deficiencies documented in other transportation studies conducted within study area. These deficiencies primarily pertain to user comfort and highlight potential issues that could be considered for improvement by the City but are not required to safely accommodate the proposed development. The planned conversion of both Scott & Holland and Scott & Parkdale to 'protected intersections' is expected to significantly improve the environment for active transportation users within the timeframe of this study and encourage travel to and from the site by sustainable modes.

As the multi-modal impact of the proposed development on the adjacent intersections is expected to be insignificant, no off-site modifications will be required, therefore the TIA does not include an RMA component.

Similarly, due to the negligible increases in site-generated traffic expected on the adjacent road network as a result of the proposed development, a Post-Development Monitoring Plan is not required as part of this TIA.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network.

Appendix A – City Circulation Comments

Step 1 & 2 Submission (Screening & Scoping) – Circulation Comments & Response

Report Submitted: August 6, 2021
Comments Received: August 16, 2021
Transportation Project Manager: Neeti Paudel

Please use the memos provided for Scott Street for the projected 2031 volumes, existing August 2019 traffic (prior to the opening of the Confederation Line and the removal of the Transitway detour) and the transit volumes for the corridor. Please use that data to provide an estimate of 2021 volumes instead of assuming 50% reduction for the buses.

- **IBI Response: The Existing (2021) Traffic volumes for the study have been revised to remain consistent with the Scott Street Functional Design Study memorandums with regards to the removal of Transitway buses on Scott Street. Relevant extracts from the Scott Street memorandums are provided in Appendix C for reference.**

Please remove the ultimate functional design for Scott from the report as well. This is not public information yet.

- **IBI Response: The ultimate functional design for Scott Street has been removed from the TIA.**

Step 3 & 4 Submission (Forecasting & Analysis) – Circulation Comments & Responses

Report Submitted: November 23, 2021
Comments Received: March 2, 2022
Transportation Project Manager: Neeti Paudel

Transportation Engineering Services

As indicated in the report, Scott St is identified as a cross town cycling route which is the highest order of cycling facility. Therefore, it is recommended that through this opportunity of redevelopment that the access to Scott Street be removed and all vehicular access be connected to Hamilton Avenue.

If removing the access to Scott Street is determined not to be feasible, the access should be designed to control vehicle traffic movements across the cycling lane and sidewalk to give priority to pedestrians and cyclists. This can be achieved by using materials that match the pedestrian environment along the frontage rather than using asphalt to define the access. In addition, maintaining the elevation of the sidewalk across the access and requiring vehicles entering from Scott St to transition up to the sidewalk level will require vehicles to slow down and give priority to pedestrians and cyclists. Ensure that there are no curb lines through the sidewalk to define the access.

- **IBI Response: It is desirable to maintain two vehicular access driveways for overall site circulation and to provide flexibility in the event of an emergency or site blockage. As requested, however, the Scott Street access will be designed with materials that match the existing concrete sidewalk and the sidewalk elevation will be maintained across the access to provide continuity of the pedestrian experience and reduce vehicular turning speeds. Green thermoplastic shall be provided across the width of the cycling facility to indicate this as a potential conflict point for both motorists and cyclists as well. Further, the site plan has been updated so that no curb lines will be shown across the sidewalk through the Scott Street access, as per SC7.1 (revised March 2021).**

In relation to Section 25.1.p of the PABL, the distance between Site Access #1 (off Scott St) and the adjacent property line is not only less than 3.0m at the street line as mentioned in Section 5.4.1 of the report, but it actually encroaches into the adjacent property at the curb line. The minimum distance requirement from Section 25.1.p of the PABL applies to both the street line and curb line.

- **IBI Response: Noted. The Scott Street access has been shifted 1.6m to the west and the curb radii has been revised so that it does not encroach on the neighbouring property to the east. The swept path analysis for Site Access #1 has been updated in Section 5.2.1 accordingly, as well as the PABL review in Section 5.4.1.**

Table 11 of the report shows a PLOS value of E for the Scott St / Holland Ave intersection. The PLOS is F due to the equivalent amount of 3.5m lanes being crossed by pedestrians. Please refer to Section 2.8 of the Addendum to the MMLOS Guidelines.

- **IBI Response: Noted. The MMLOS analysis extracted from Scott Street & Holland Avenue has been updated based on the 2017 MMLOS Addendum and the City's standardized spreadsheet. Section 5.9.4 and Appendix H of the TIA have been updated accordingly.**

Consideration of construction traffic management is recommended prior to site plan approval.

- **IBI Response: Noted.**

Right of Way Protection on Scott Street from Churchill to Bayview is 26m. Ensure this is protected and shown on the site plan.

- **IBI Response: Noted. The site plan has been updated to reflect the Scott Street Functional Design Study.**

Site Plan Comments:

The slope for the underground parking ramp is shown to be 15%. Note that when this slope exceeds 8%, a vertical-curve transition or a transition slope of half the ramp should be implemented. In addition, when the slope is exceeding 6%, a subsurface melting device should be used.

- **IBI Response: It is not feasible to adjust the ramp slope based on the site constraints. The parking garage ramp will be fully enclosed, therefore it is not necessary to provide a subsurface melting device.**

The Site Access #1 width at the curb line appears to be larger than permitted by the PABL (which applies at both the street line and curb line). Please also provide the Site Access #2 width as well as grades of both accesses.

- **IBI Response: Noted. The width of Site Access #1 has been reduced so that it does not exceed 9 metres at both the streetline and curb line. The width of Site Access #2 was measured to be approximately 11 metres at the curb line, however it is important to note that this is an existing access that will not be altered as part of this development application. Grades at the site access driveway are provided on the grading plan and will conform to Section 25.u of the PABL which states that the slope must not exceed 2% within 9 metres of the street line (or future street line) and be angled towards the City right-of-way.**

Traffic Signal Operations

Provide 95th percentile queue lengths and indicate when storage length, or distance to upstream intersection, is exceeded.

- **IBI Response: Noted. A comparison of 95th percentile queue lengths in relation to available storage or the nearest upstream intersection is provided in Section 5.9.**

Consider limiting parking spaces within the development to try to achieve the stated Transit Oriented Development target.

- **IBI Response: The resident vehicle parking supply has been reduced from the previous ratio of 0.67 spaces per unit to provide 0.55 spaces per unit which aligns more closely with the TOD development target. A host of Transportation Demand Management (TDM) Measures are proposed to further reduce reliance on automobiles as the primary mode of transportation among residents, including 1 bike parking stall per dwelling unit and a pre-loaded PRESTO card with one month of transit on tenant move-in. The proponent has also expressed interest in partnering with a car-share company to provide dedicated car-share stalls on-site to help off-set private automobile ownership among residents and within the surrounding community. It is the opinion of IBI that the combination of proposed on-site and existing off-site TDM measures will complement each other to help achieve the Transit-oriented Development (TOD) targets.**

Traffic Signal Design

The project should be coordinated with ongoing Scott Street projects.

- **IBI Response: Noted. The Scott Street Functional Design Study has been referenced in the completion of this TIA, as well as the latest available information available on DevApps for adjacent developments, including 1560 Scott Street at the time of preparing this study. The Scott Street Functional Design has also been incorporated into Exhibit 2.**

Street Lighting

Comments based on subsequent submissions.

Future considerations are as follows:

If there are any proposed changes to the existing roadway geometry, the City of Ottawa Street Light Asset Management Group is required to provide a full street light design. Upon completion of proposed roadway geometry design changes, please submit digital Micro Station drawings with proposed roadway geometry changes to the Street Lighting Department, so that we may proceed with the detailed street light design and coordination with the Street Light maintenance provider and all necessary parties. Be advised that the applicant will be 100% responsible for all costs associated with any Street Light design because of the roadway geometry change.

Alterations and/or repairs are required where the existing street light plant is directly, indirectly, or adversely affected by the scope of work under this circulation, due to the proposed road reconstruction process. All street light plant alterations and/or repairs must be performed by the City of Ottawa's Street Light maintenance provider.

Be advised that the applicant will be 100% responsible for all costs associated with any relocations/modifications to the existing street light plant. Should a conflict arise or if you have any questions please contact Barrie Forrester at (613) 580-2424 ext 23332 or Barrie.Forrester@ottawa.ca.

- **IBI Response: Noted.**

Transit Services

Section 3.2.3

Please include description of transit service on Scott Street and other local streets, as well as identifying nearby transit stops in the existing transit service section.

- **IBI Response: Noted. A description of transit service on Scott Street has incorporated into Section 3.2.3. No transit service is currently provided on Bullman Street or Hamilton Avenue within the study area.**

Minor clarification for the caption for Figure 1: This is a diagrammatic summary of the entire transit network as it relates to O-Train Line 1, and not only the rapid transit network.

- **IBI Response: Noted. Section 3.2.3 has been updated accordingly.**

Section 5.2.1

Encourage the applicant to reduce the number of parking spaces provided to further support achieving the target transit mode share of 65%. Consider a maximum rate of 0.5 spaces per unit.

- **IBI Response: See response to Traffic Signal Operations comment regarding vehicle parking above.**

Confirm if the distribution of transit trips has been assessed to determine if there will be any capacity issues on local routes in proximity to the proposed development.

- **IBI Response: Based on the trip generation exercise conducted for this TIA, the site-generated transit ridership is expected to contribute approximately 65 additional trips to the transit network during each weekday peak hour. It is assumed that this marginal increase transit ridership will be divided amongst the Confederation Line LRT, as well as numerous local and feeder routes with bus stops either at Tunney's Pasture Station or within a reasonable 400-metre walking distance of the site. Given the range of transit options available within close proximity to the site and the frequency of these routes, the overall ridership is expected to result in a negligible impact to the capacity of any single transit route within the study area.**

The Transit Priority Signal on Scott WB at Parkdale is not mentioned. Confirm that it been included in relevant analysis.

- **IBI Response: Discussion of the westbound transit priority signal at the Scott & Parkdale intersection has been incorporated into Section 5.9.4.3 of the TIA. It has been confirmed as well that this transit priority signal was accounted for in the TLOS analysis conducted as part of the Scott Street Functional Design Study referenced in this TIA.**

Appendix B – TIA Screening Form

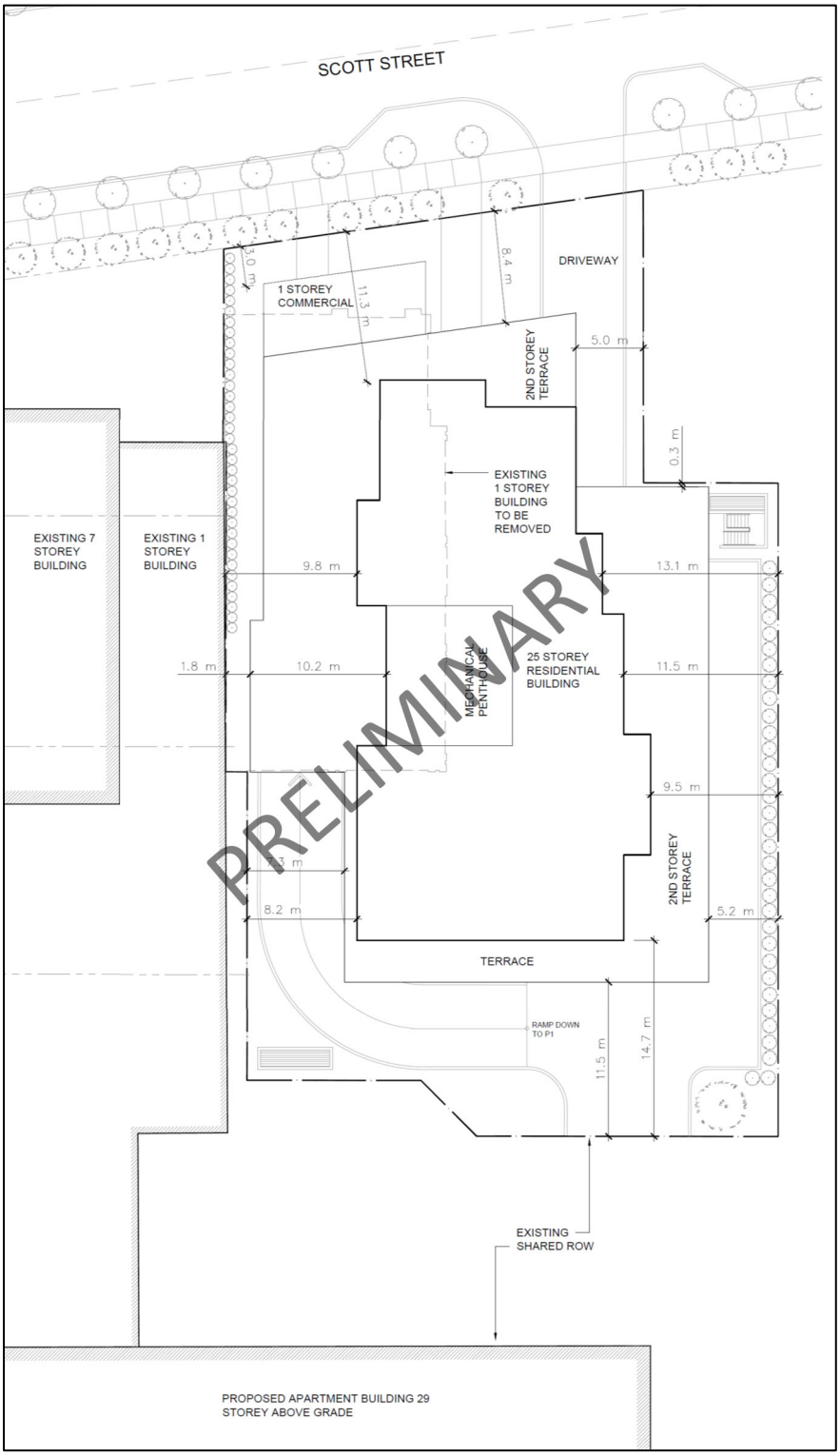
City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	1546 Scott Street
Description of Location	The site is located on the southeast quadrant of the Scott Street & Holland Avenue intersection in Ottawa and is adjacent to the Holland Cross office complex. 
Land Use Classification	Mixed-Use
Development Size (units)	230 apartment units
Development Size (m^2)	~222 m^2 ground floor commercial
Number of Accesses and Locations	Two (2) full-movement access intersections: one on Scott Street and one on Hamilton Avenue North / Bullman Street
Phase of Development	Single Phase
Buildout Year	2025

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

Proposed Development Concept:



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.*

- **The site will include 320 dwelling units therefore 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).*

- **Holland Avenue and Scott Street are both Spine bicycle routes, Holland Avenue is part of the City's transit priority network and the proposed development is located within the Tunney's Pasture Mixed Use Centre Design Priority Area and within the Tunney's Pasture Station Transit-Oriented Development zone. As such, 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 limits sight lines at a proposed driveway?	✓	
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	✓	
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?		✓

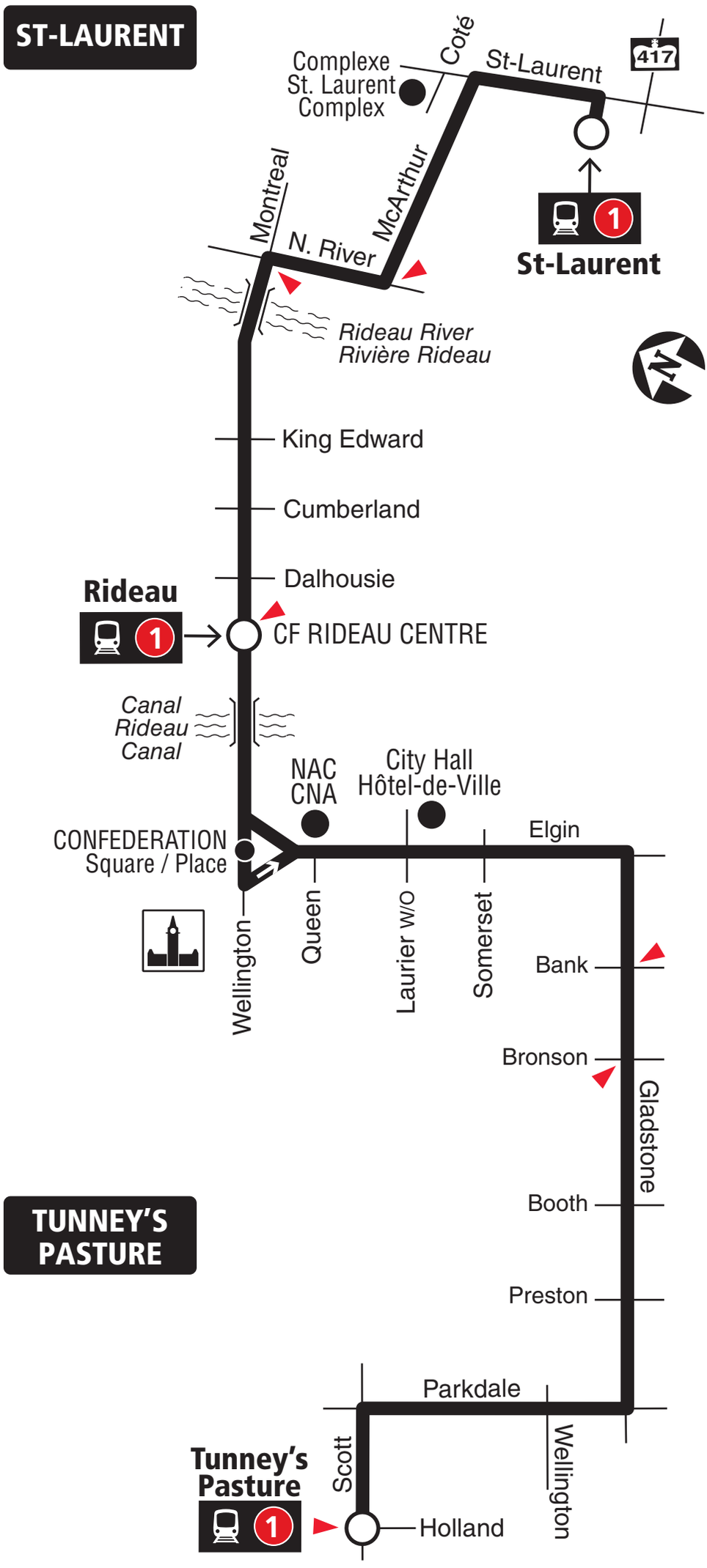
- **The site access on Scott Street is within 150m of the of the Scott Street & Holland Avenue intersection and is within the auxiliary westbound left-turn lane for that intersection as well. The site access on Hamilton Avenue North / Bullman Street is located on a 90-degree curve which could impact sightlines at that access. As such, 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?	✓	

CONCLUSION: As all three of the above triggers have been satisfied, a TIA will be required.

Appendix C – OC Transpo Maps


ST-LAURENT
Complexe St. Laurent Complex
Côté
St-Laurent
417
Montreal
McArthur
N. River
1
St-Laurent
Rideau River
Rivière Rideau
N
King Edward
Cumberland
Dalhousie
Rideau
1
CF RIDEAU CENTRE
Canal
Rideau
Canal
NAC
CNA
City Hall
Hôtel-de-Ville
CONFEDERATION
Square / Place
Elgin
Wellington
Queen
Laurier W/O
Somerset
Bank
Bronson
Gladstone
Booth
Preston
TUNNEY'S
PASTURE
Parkdale
Scott
Wellington
Tunney's
Pasture
1
Holland
Station
Timepoint / Heures de passage

2020.09

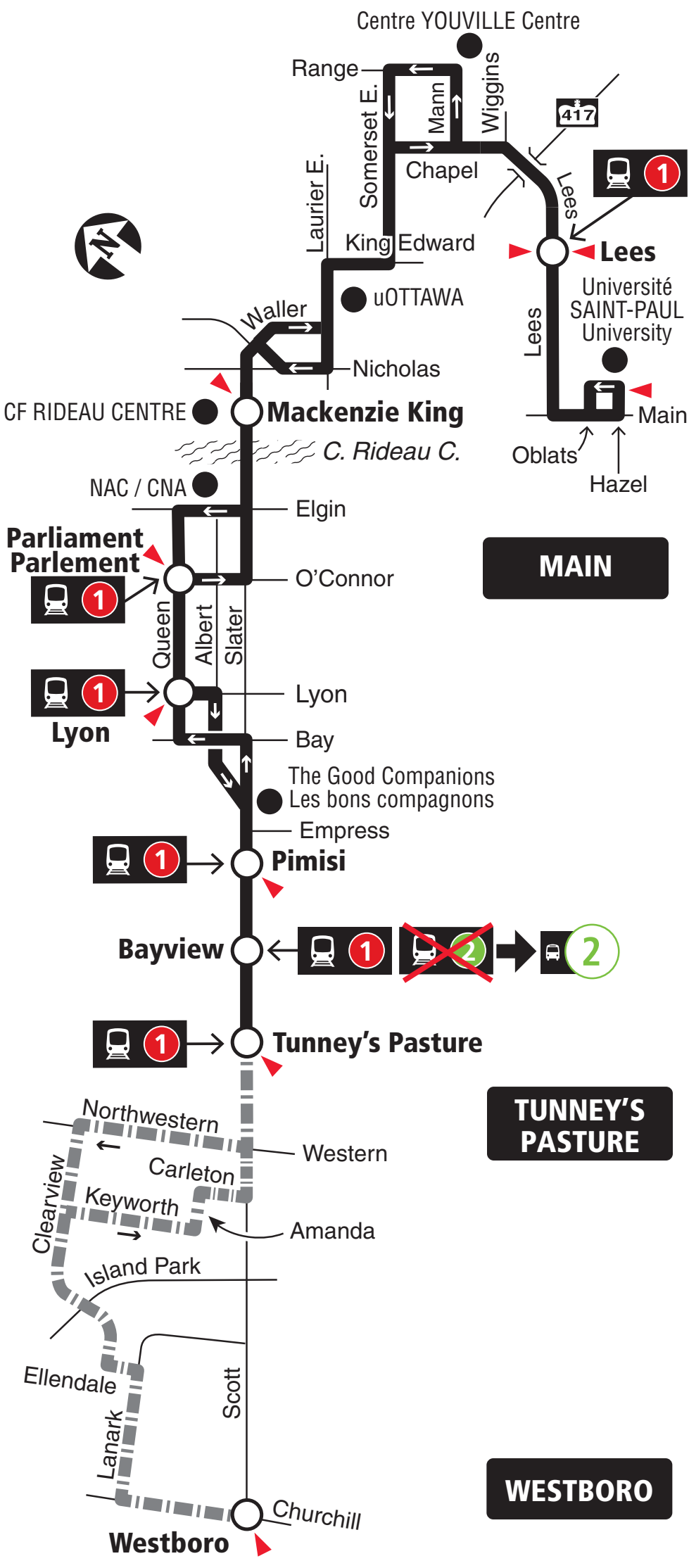
16

MAIN

TUNNEY'S PASTURE
WESTBORO

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Station

No Sunday service / Aucun service le dimanche

Timepoint / Heures de passage

2020.04

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

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

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective May 3, 2020
En vigueur 3 mai 2020

OC Transpo

INFO 613-741-4390
octranspo.com

53

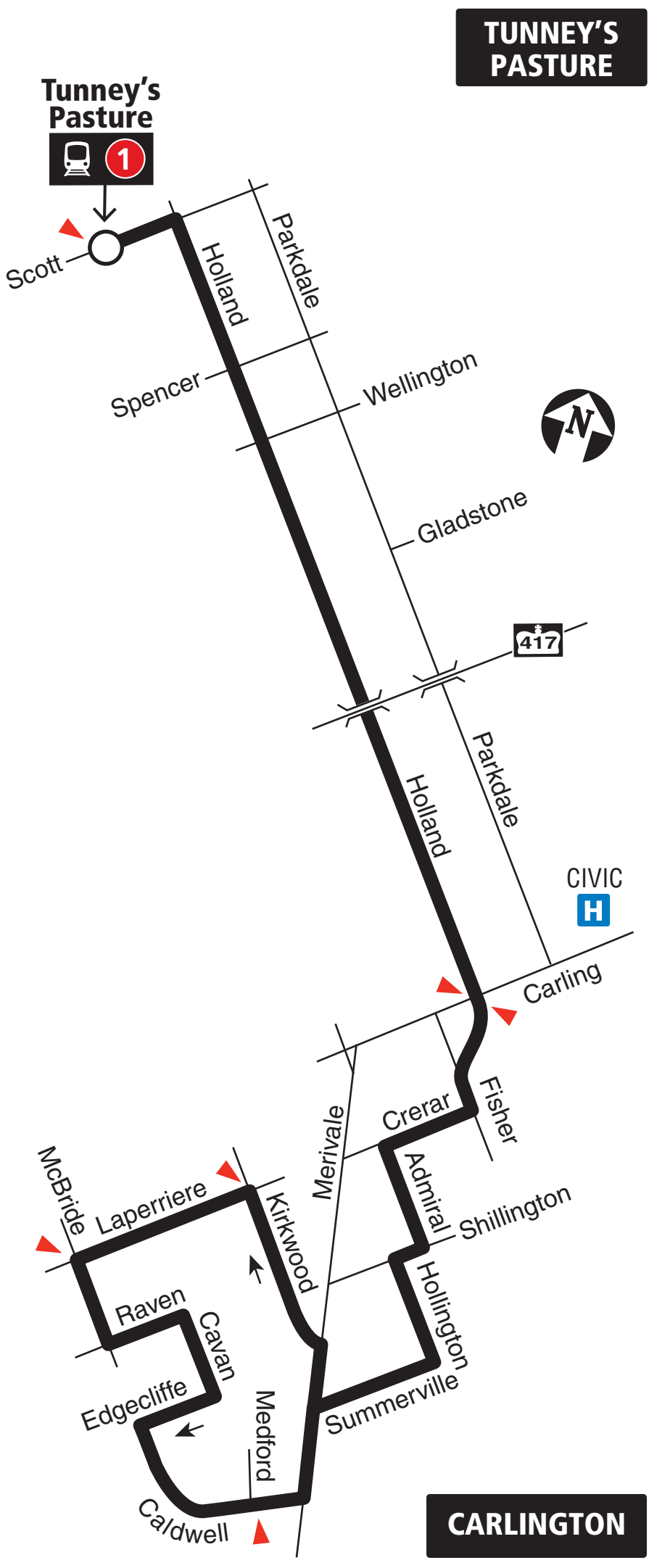
CARLINGTON
TUNNEY'S PASTURE

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Station

Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000

Text / Texto* 560560

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

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective June 20, 2021

En vigueur le 20 juin 2021

OC Transpo

INFO 613-741-4390
octranspo.com

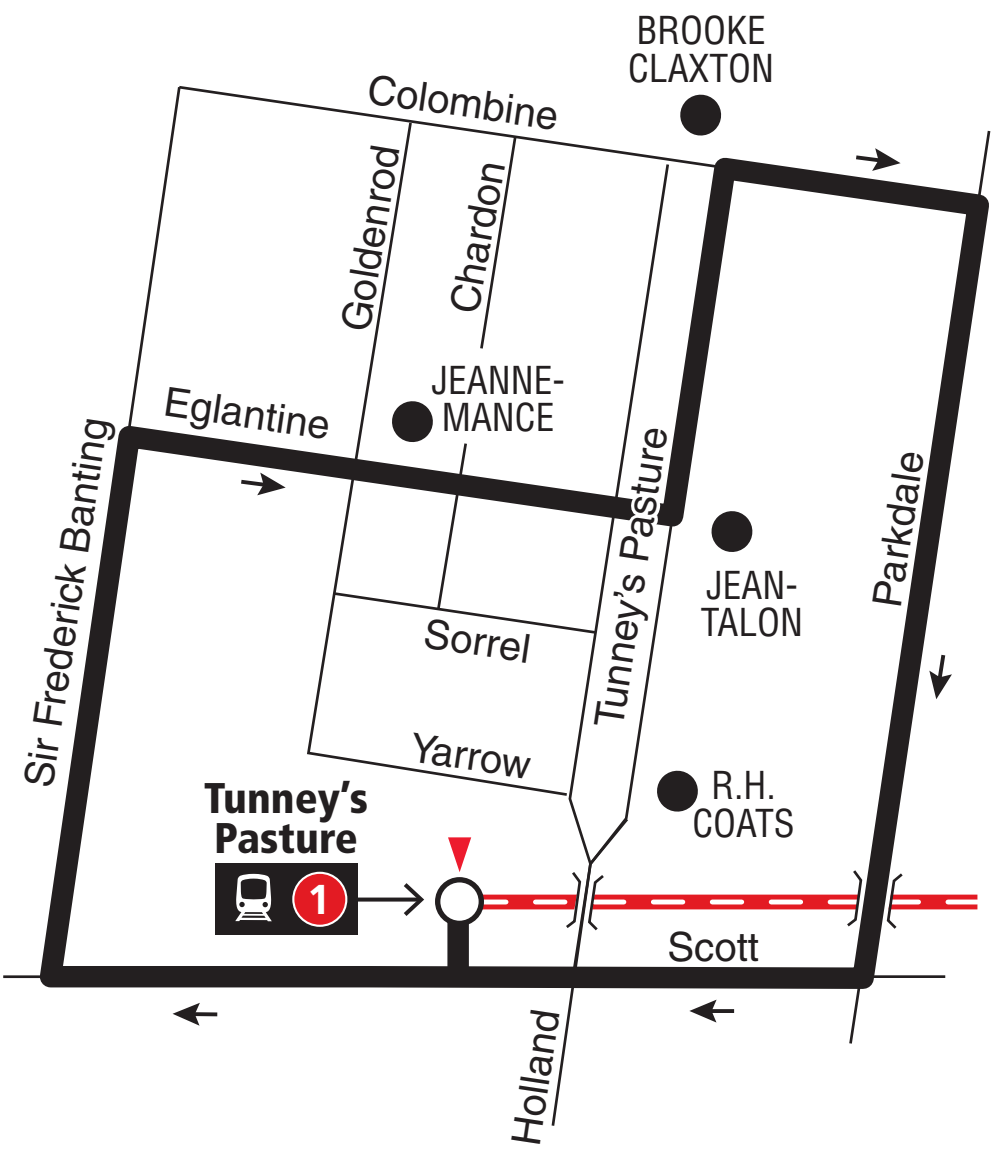
54

LOCAL

TUNNEY'S PASTURE

Local

7 days a week / 7 jours par semaine
Limited service on weekends
Service limité les fins de semaine



Station

Timepoint / Heures de passage

2020.01

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

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective January 5, 2020
En vigueur 20 janvier 2020

OC Transpo

INFO 613-741-4390
octranspo.com

57 Rapide

BAYSHORE
CRYSTAL BAY
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

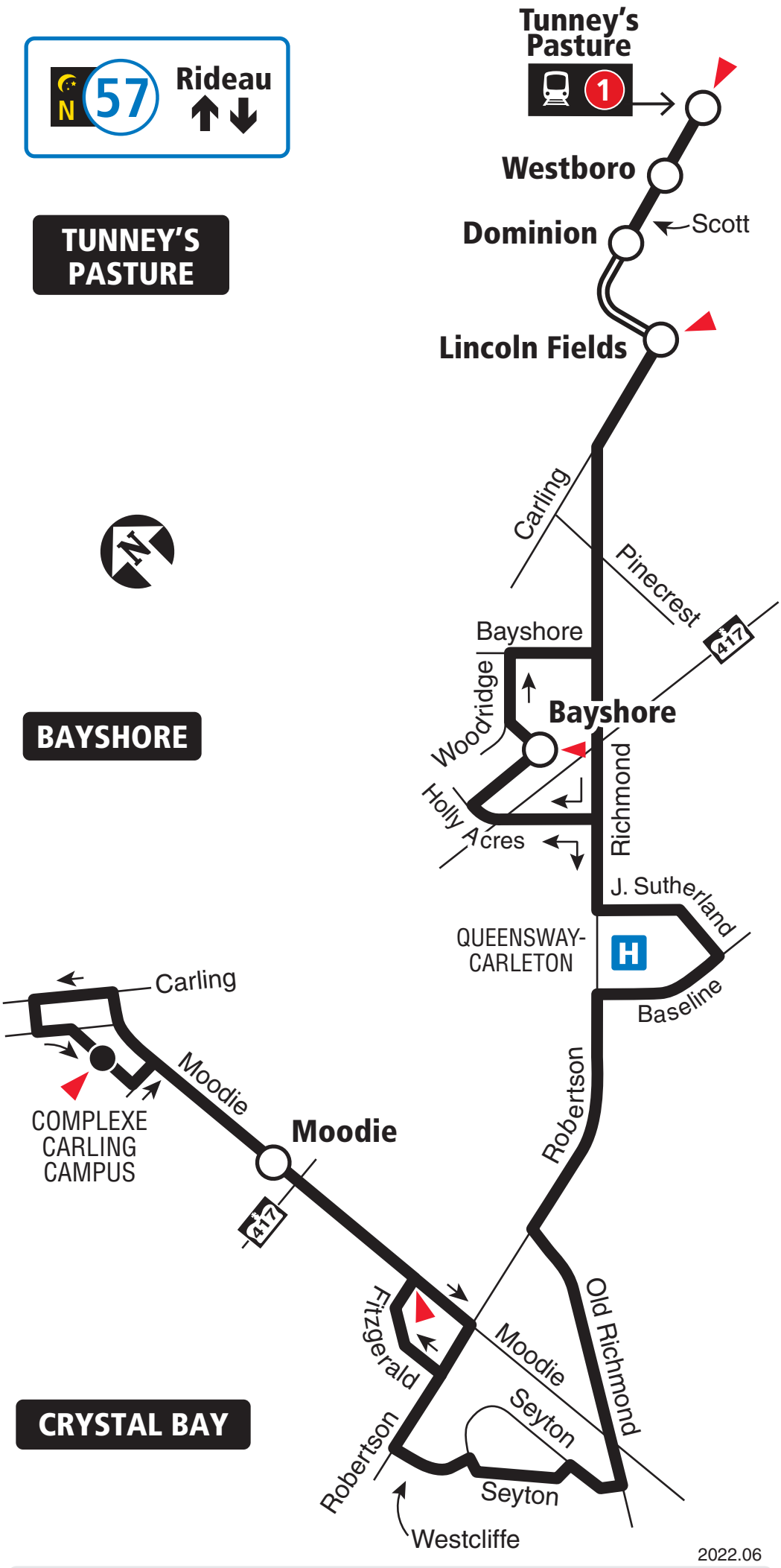
All day and limited overnight service
Service toute la journée et limité la nuit

N 57 Rideau

TUNNEY'S PASTURE

BAYSHORE

CRYSTAL BAY



2022.06

Transitway & Station

Timepoint | Heures de passage

N 57

When O-Train Line 1 is not running overnight, Route 57 will be extended downtown to Rideau Station. / Lorsque la Ligne 1 de l'O-Train ne circule pas la nuit, le circuit 57 sera prolongée au centre-ville jusqu'à la station Rideau.

2022.06

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

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

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

Security / Sécurité **613-741-2478**

Effective June 26, 2022
En vigueur 26 juin 2022

OC Transpo

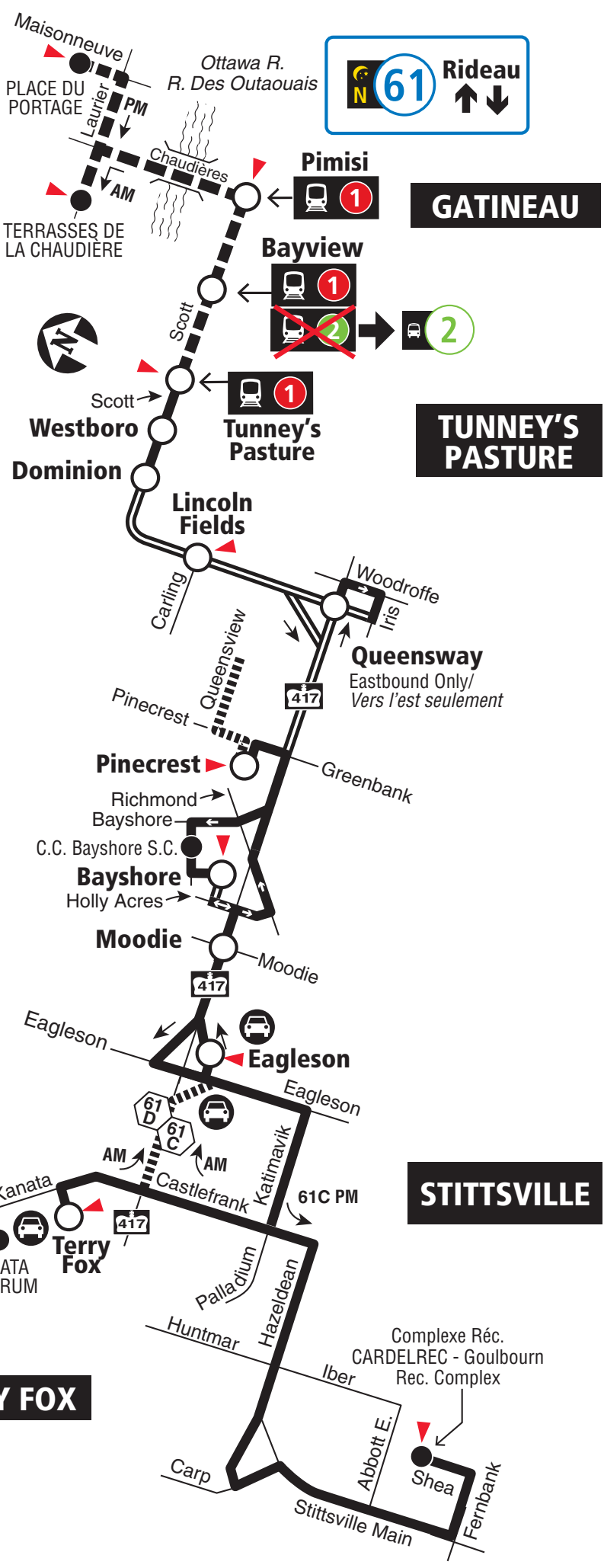
INFO 613-560-5000
octranspo.com

61 Rapide

TERRY FOX STITTSVILLE
TUNNEY'S PASTURE GATINEAU

7 days a week / 7 jours par semaine

All day service and limited overnight
Service toute la journée et limité la nuit



Transitway & Station
Peak trips / Trajets de pointe
Selected time periods / Périodes sélectionnées
Park & Ride / Parc-o-bus
Timepoint / Heures de passage

2022.06

When O-Train Line 1 is not running overnight, Route 61 will be extended downtown to Rideau Station. / Lorsque la Ligne 1 de l'O-Train ne circule pas la nuit, le circuit 61 sera prolongée au centre-ville jusqu'à la station Rideau.

2022.06

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

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

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

Security / Sécurité **613-741-2478**

Effective June 26, 2022
En vigueur 26 juin 2022

OC Transpo

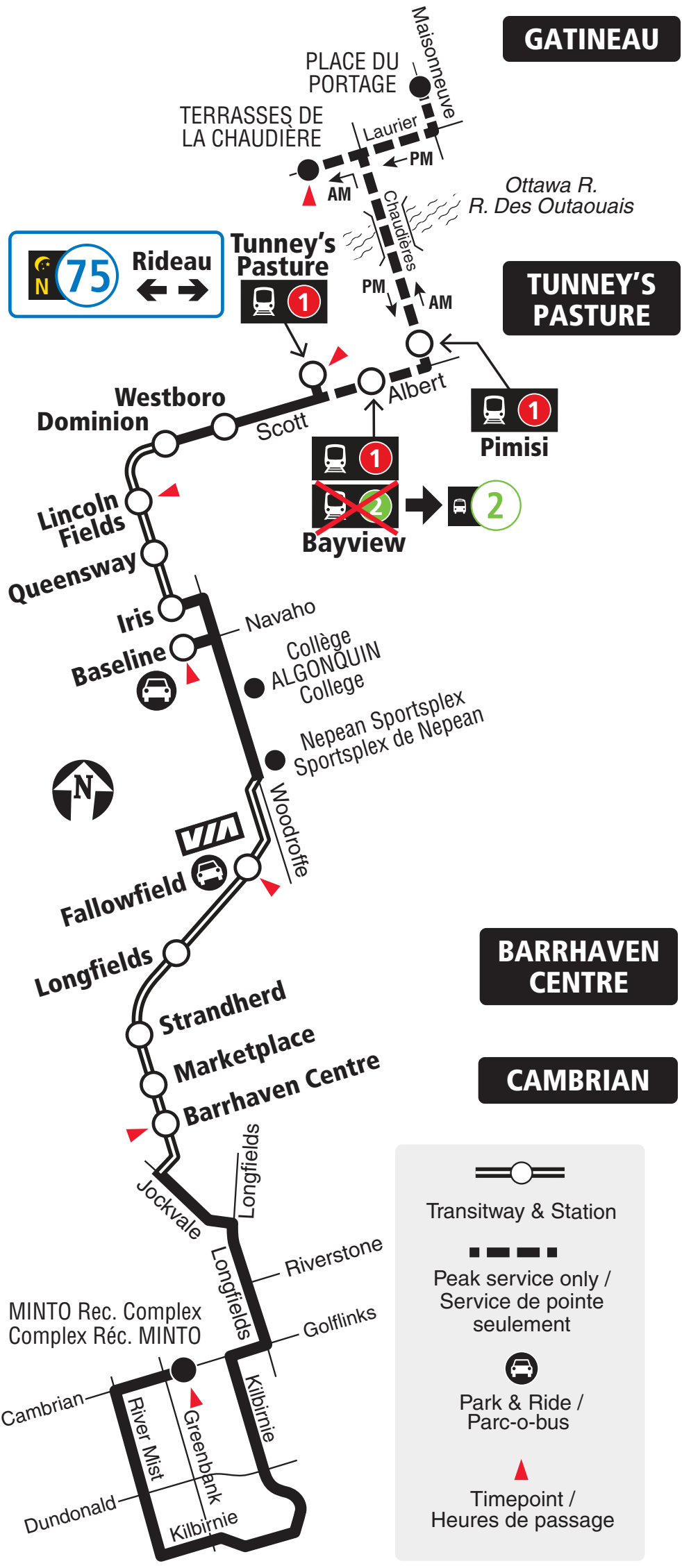
INFO 613-560-5000
octranspo.com

75 Rapide

CAMBRIAN BARRHAVEN C.
TUNNEY'S PASTURE GATINEAU

7 days a week / 7 jours par semaine

All day service and limited overnight
Service toute la journée et limité la nuit



2022.06

When O-Train Line 1 is not running overnight, Route 75 will be extended downtown to Rideau Station. / Lorsque la Ligne 1 de l'O-Train ne circule pas la nuit, le circuit 75 sera prolongée au centre-ville jusqu'à la station Rideau.

2022.06

Schedule / Horaire 613-560-1000

Text / Texto* 560560

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

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

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

Security / Sécurité **613-741-2478**

Effective June 26, 2022
En vigueur 26 juin 2022

OC Transpo

INFO 613-560-5000
octranspo.com

Appendix D – Traffic Data

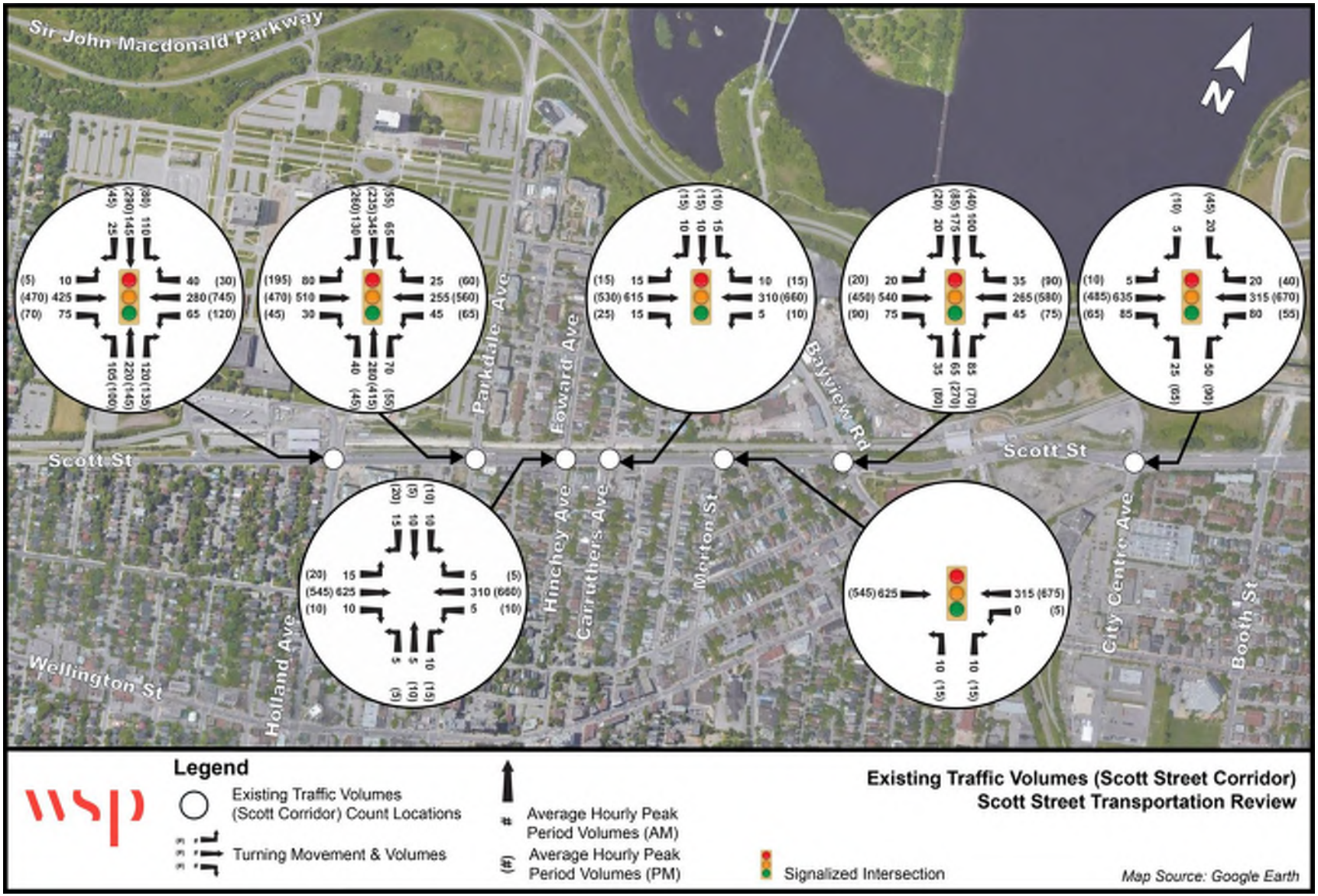


Figure 22: Average Hour during AM (PM) Peak Period, Existing Traffic Volumes within the Study Area

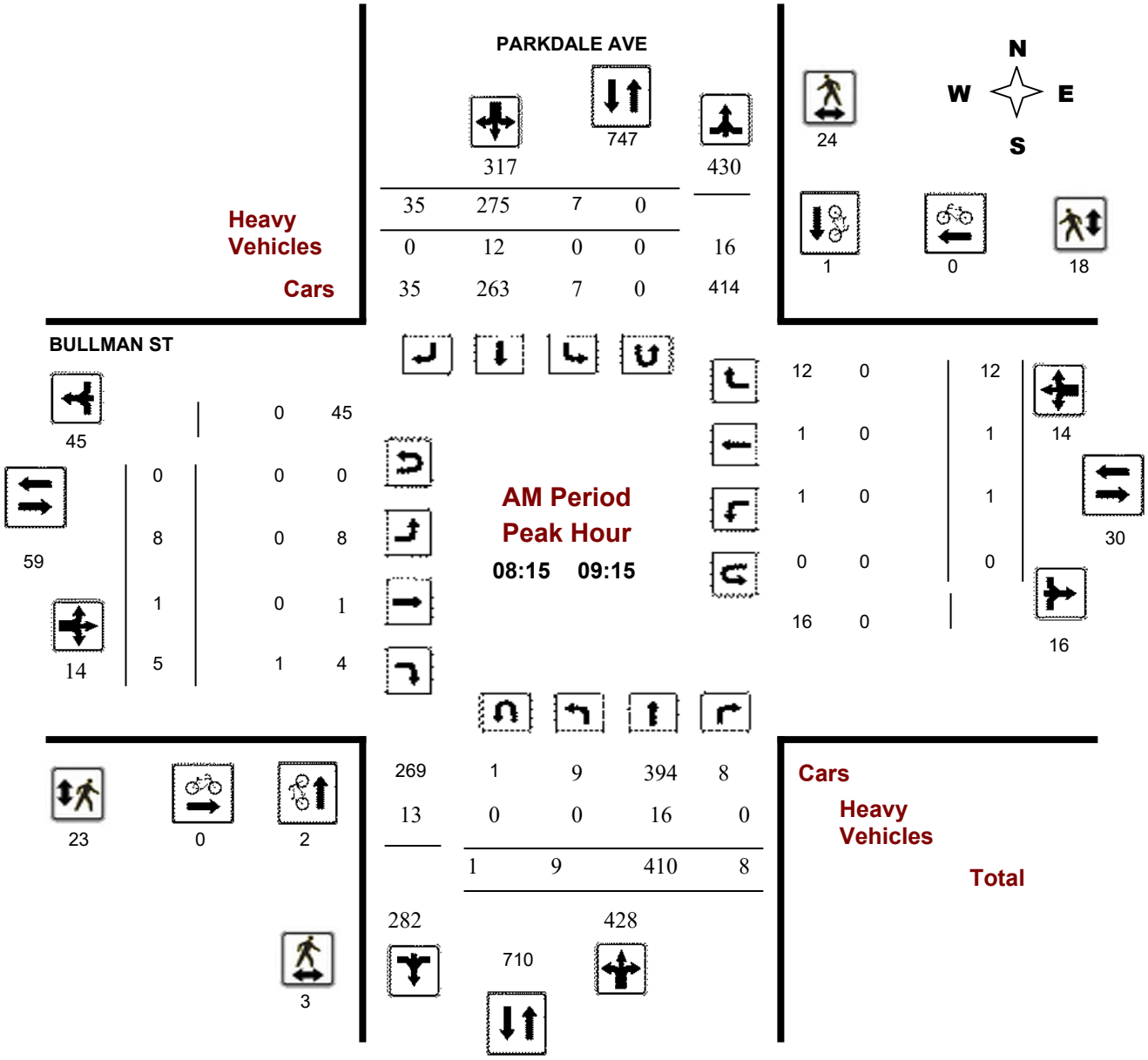
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BULLMAN ST @ PARKDALE AVE

Survey Date: Tuesday, March 10, 2020 **WO No:** 39589

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



Cars

Heavy Vehicles

Total

Comments 5479331 - MAR 10 2020 - 8HRS - LAUREN O'GRADY

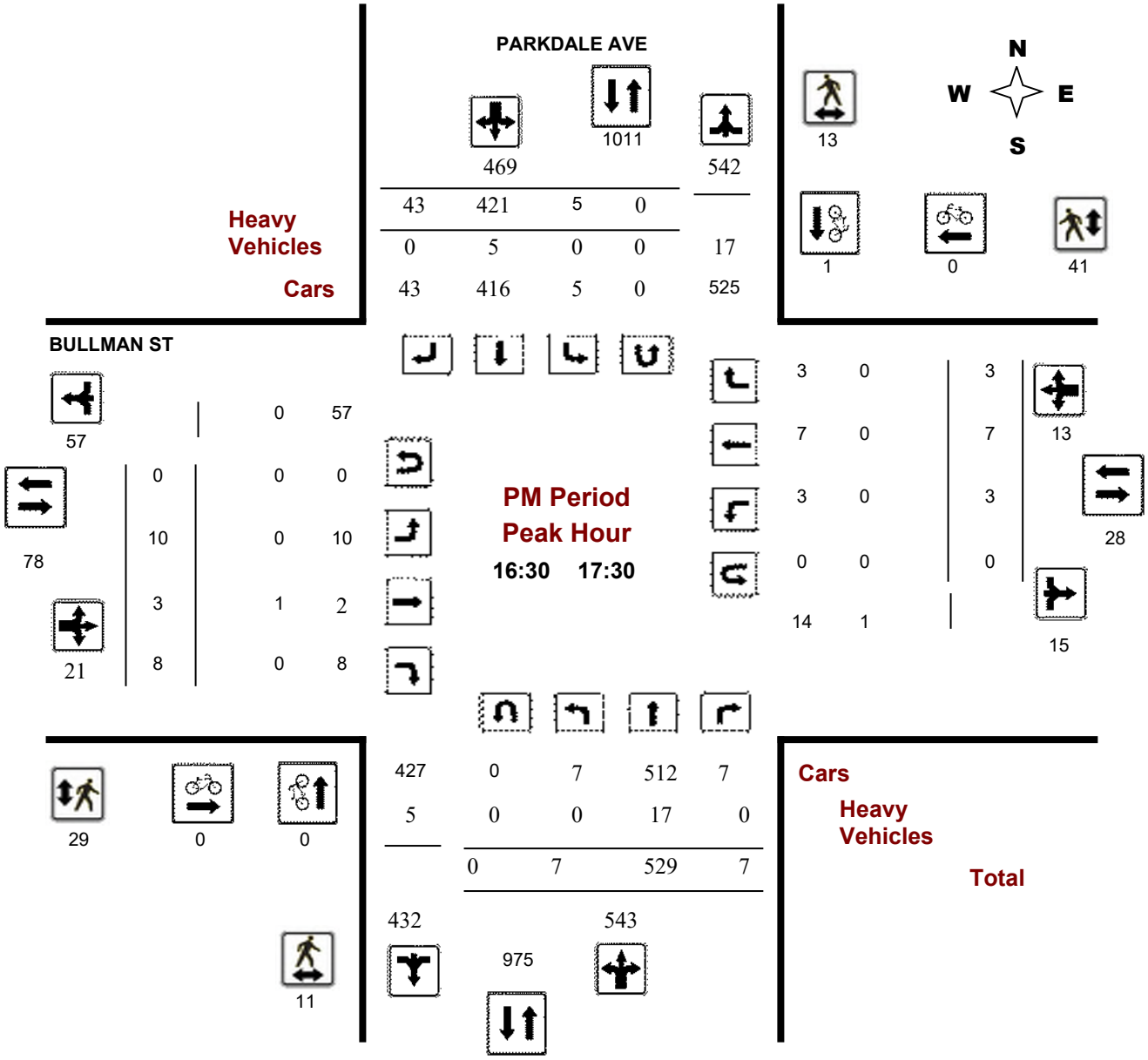
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

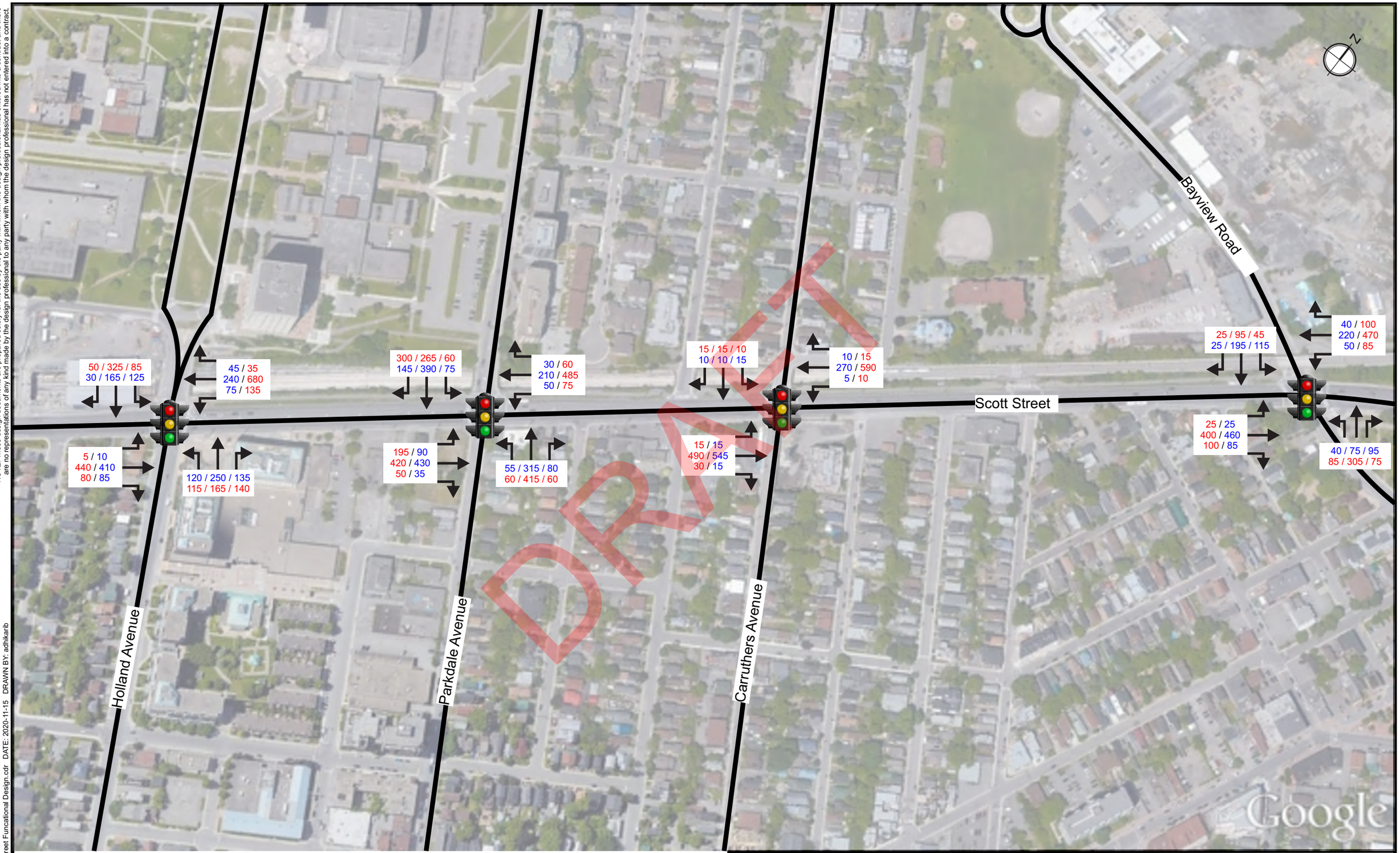
BULLMAN ST @ PARKDALE AVE

Survey Date: Tuesday, March 10, 2020 **WO No:** 39589

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



Comments 5479331 - MAR 10 2020 - 8HRS - LAUREN O'GRADY



Source: Scott Street Corridor - Traffic and MMLOS Analysis of Functional Design Memorandum (June 2021 Draft)

WSP Canada Group Limited
2611 Queensview Dr #300
Ottawa, ON, K2B 8K2
t. 613.829.2800
www.wsp.com

Issue Date - 2020-11-15
Scale: NTS
Aerial Imagery: 2019
Note: All Dimensions shown in Metres unless otherwise

Figure 1
2031 Future Traffic Volumes

Scott Street Functional Design

DRAWING-Scott Street Funcational Design.cdr DATE: 2020-11-15 DRAWN BY: adhikarib

Appendix E – Collision Data

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: BULLMAN ST @ PARKDALE AVE

Traffic Control: Stop sign **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Oct-19, Mon,08:24	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1
2017-May-06, Sat,13:36	Rain	Angle	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-14, Wed,12:37	Clear	Angle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Passenger van	Other motor vehicle	
2018-Oct-16, Tue,17:25	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-13, Thu,17:10	Clear	Angle	P.D. only	Wet	East	Turning left	Unknown	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: HAMILTON AVE N btwn BULLMAN ST & PANORAMA PRIV

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
2018-Dec-13, Thu,13:56	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Unknown	Pedestrian	1

Location: HAMILTON AVE N btwn CRAFTSMAN PRIV & SPENCER ST

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-Sep-25, Sun,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	0

Location: HAMILTON AVE @ SPENCER ST

Traffic Control: Stop sign **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jun-10, Fri,13:05	Clear	Angle	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: HAMILTON AVE @ SPENCER ST

Traffic Control: Stop sign **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Oct-02, Sun,15:12	Clear	Angle	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: HOLLAND AVE/TUNNEY'S PASTURE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 36

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-31, Sat,09:31	Clear	Rear end	P.D. only	Loose snow	East	Turning left	Pick-up truck	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2015-May-01, Fri,13:16	Clear	Turning movement	P.D. only	Dry	North	Going ahead	Unknown	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Nov-03, Tue,09:47	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Passenger van	Pedestrian	1
2015-Nov-03, Tue,16:02	Clear	Rear end	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2015-Dec-03, Thu,16:44	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Municipal transit bus	Other motor vehicle	
2015-Dec-11, Fri,06:56	Clear	SMV other	Non-fatal injury	Wet	North	Turning right	Pick-up truck	Pedestrian	1
2016-Jan-04, Mon,09:22	Clear	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Feb-17, Wed,09:17	Clear	Rear end	P.D. only	Packed snow	North	Stopped	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Mar-02, Wed,09:19	Snow	Rear end	P.D. only	Packed snow	South	Going ahead	Municipal transit bus	Other motor vehicle	0
					South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: HOLLAND AVE/TUNNEY'S PASTURE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 36

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Mar-17, Thu,11:00	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2016-May-18, Wed,08:04	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Pedestrian	1
2016-Jun-09, Thu,15:33	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jun-16, Thu,14:20	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Jun-27, Mon,15:13	Clear	Sideswipe	Non-fatal injury	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2016-Jul-31, Sun,14:41	Clear	Angle	Non-fatal injury	Dry	East	Turning right	Motorcycle	Other motor vehicle	0
					South	Going ahead	Municipal transit bus	Other motor vehicle	
2016-Oct-06, Thu,12:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jan-31, Tue,09:01	Clear	SMV other	P.D. only	Ice	West	Going ahead	Automobile, station wagon	Skidding/sliding	0
2017-Jan-31, Tue,16:27	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Feb-10, Fri,09:48	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-15, Wed,06:20	Snow	Turning movement	P.D. only	Packed snow	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Apr-24, Mon,16:33	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-May-17, Wed,08:40	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Bicycle	Other motor vehicle	0
					North	Stopped	Pick-up truck	Cyclist	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: HOLLAND AVE/TUNNEY'S PASTURE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 36

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Dec-11, Mon,08:45	Clear	Turning movement	P.D. only	Dry	South	Turning left	Unknown	Other motor vehicle	0
					North	Turning right	Municipal transit bus	Other motor vehicle	
2018-Nov-01, Thu,15:41	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-22, Thu,17:30	Clear	Sideswipe	P.D. only	Packed snow	West	Unknown	Unknown	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-08, Sat,21:30	Snow	Rear end	Non-fatal injury	Loose snow	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-10, Mon,14:45	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-10, Mon,18:00	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-12, Wed,16:10	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-25, Tue,18:30	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jul-11, Thu,16:01	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2019-Aug-29, Thu,16:58	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-24, Tue,10:45	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: HOLLAND AVE/TUNNEY'S PASTURE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 36

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Nov-01, Fri,13:36	Clear	Sideswipe	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Municipal transit bus	Other motor vehicle	
2019-Nov-04, Mon,16:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Dec-01, Sun,13:32	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	

Location: PARKDALE AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-27, Fri,08:42	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Pick-up truck	Pedestrian	1
2015-May-21, Thu,08:35	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-05, Sun,17:47	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2015-Nov-03, Tue,15:00	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-26, Thu,22:35	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jul-06, Wed,16:03	Clear	SMV other	P.D. only	Dry	South	Turning right	Municipal transit bus	Pole (utility, power)	0
2016-Jul-23, Sat,10:33	Clear	Turning movement	P.D. only	Dry	West	Turning left	Passenger van	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: PARKDALE AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Nov-14, Mon,17:31	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Dec-06, Tue,18:22	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2017-Feb-24, Fri,09:50	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-04, Sat,18:39	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Apr-30, Sun,12:51	Rain	Sideswipe	P.D. only	Wet	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-23, Tue,14:54	Clear	SMV other	P.D. only	Dry	East	Going ahead	Truck and trailer	Other	0
2017-Jun-30, Fri,02:03	Clear	Angle	P.D. only	Wet	North	Going ahead	Passenger van	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2017-Jul-05, Wed,08:56	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Aug-03, Thu,16:02	Clear	Turning movement	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2018-Mar-17, Sat,15:05	Clear	Sideswipe	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Changing lanes	Automobile, station wagon	Other motor vehicle	
2018-Mar-23, Fri,07:46	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2018-Apr-12, Thu,17:56	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: PARKDALE AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-May-10, Thu,08:45	Clear	Sideswipe	P.D. only	Dry	North	Overtaking	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Truck - dump	Other motor vehicle	
2018-Aug-24, Fri,13:55	Clear	Turning movement	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2018-Oct-04, Thu,14:43	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Cyclist	
2018-Oct-23, Tue,17:07	Clear	Sideswipe	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-18, Sun,18:30	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Dec-03, Mon,18:35	Clear	Approaching	P.D. only	Wet	West	Unknown	Unknown	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Dec-10, Mon,16:05	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Passenger van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Feb-06, Wed,08:39	Clear	Rear end	P.D. only	Loose snow	South	Unknown	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Unknown	Other motor vehicle	
2019-Feb-22, Fri,15:30	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-30, Sat,13:46	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Apr-16, Tue,09:15	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: PARKDALE AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jul-14, Sun,08:25	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2019-Oct-08, Tue,11:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-31, Thu,09:11	Rain	Angle	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-22, Fri,15:16	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Truck - closed	Other motor vehicle	

Location: SCOTT ST btwn TUNNEY'S PASTURE DRWY & PARKDALE AVE

Traffic Control: No control **Total Collisions:** 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-06, Fri,08:47	Clear	Turning movement	P.D. only	Loose snow	East	Turning right	Truck and trailer	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2015-Apr-10, Fri,15:15	Clear	Angle	Non-fatal injury	Wet	North	Turning left	Pick-up truck	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2016-Mar-23, Wed,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	0
2018-Jan-17, Wed,09:12	Clear	Turning movement	P.D. only	Slush	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-05, Mon,16:24	Snow	Angle	P.D. only	Loose snow	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Passenger van	Other motor vehicle	
2018-Jul-16, Mon,07:06	Clear	Turning movement	Non-fatal injury	Dry	East	Turning right	Pick-up truck	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2018-Nov-21, Wed,11:11	Clear	SMV other	P.D. only	Dry	West	Reversing	Construction equipment	Pole (utility, power)	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: SCOTT ST btwn TUNNEY'S PASTURE DRWY & PARKDALE AVE

Traffic Control: No control **Total Collisions:** 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-23, Wed,17:54	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	

Appendix F – Trip & Parking Generation Data

3.2 Recommended Residential Trip Generation Rates

A blended trip rate was developed from the three data sources through application of a rank-sum weighting process, considering the strengths and weaknesses of each dataset for the dwelling type in question. The recommended blended **residential person-trip rates** are presented in **Table 3**. All rates represent person-trips per dwelling unit and are to be applied to the **AM or PM peak period.**

Table 3: Recommended Residential Person-trip Rates

ITE Land Use Code	Dwelling Unit Type	Period	Person-Trip Rate
210	Single-detached	AM	2.05
		PM	2.48
220	Multi-Unit (Low-Rise)	AM	1.35
		PM	1.58
221 & 222	Multi-Unit (High-Rise)	AM	0.80
		PM	0.90

3.3 Adjustment Factors – Peak Period to Peak Hour

The various trip generation data sources require some adjustment to standardize the data for developing robust blended trip rates. The peak period conversion factor in **Table 4** may be used where applicable to develop trip generation rate estimates in the desired format.

Table 4: Adjustment Factors for Residential Trip Generation Rates

Factor	Application	Apply To	Period	Value
Peak Period Conversion Factor	**Peak period to peak hour conversion.** Because the 2020 TRANS Trip Generation Study reports trip generation rates by peak period, factors must be applied if the practitioner requires peak hour rates. In practice, the conversion to peak hour trip rates should occur **after** the application of modal shares.	Person-trip rates per peak period	AM	0.50
			PM	0.44
		Vehicle trip rates per peak period	AM	0.48
			PM	0.44
		Transit trip rates per peak period	AM	0.55
			PM	0.47
		Cycling trip rates per peak period	AM	0.58
			PM	0.48
		Walking trip rates per peak period	AM	0.58
			PM	0.52

Table 8: Residential Mode Share for High-Rise Multifamily Housing

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	AM	18%	2%	26%	1%	52%
	PM	17%	9%	21%	1%	52%
Ottawa Inner Area	AM	26%	6%	28%	5%	34%
	PM	25%	8%	21%	6%	39%
Île de Hull	AM	27%	3%	37%	12%	21%
	PM	26%	8%	27%	11%	28%
Ottawa East	AM	39%	7%	38%	2%	13%
	PM	40%	14%	28%	3%	15%
Beacon Hill	AM	48%	9%	30%	3%	10%
	PM	52%	16%	28%	0%	4%
Alta Vista	AM	38%	12%	42%	2%	7%
	PM	45%	16%	28%	2%	9%
Hunt Club	AM	39%	6%	44%	1%	9%
	PM	44%	11%	35%	2%	9%
Merivale	AM	41%	6%	42%	2%	8%
	PM	41%	11%	33%	2%	13%
Ottawa West	AM	28%	11%	41%	3%	16%
	PM	33%	11%	26%	7%	23%
Bayshore/Cedarview	AM	40%	12%	38%	2%	8%
	PM	40%	15%	33%	1%	11%
Hull Périphérie	AM	48%	11%	30%	1%	10%
	PM	47%	15%	23%	3%	13%
Orleans	AM	54%	7%	29%	0%	10%
	PM	61%	13%	21%	0%	6%
South Gloucester / Leitrim	AM	50%	15%	25%	1%	9%
	PM	53%	17%	21%	1%	9%
South Nepean	AM	58%	6%	30%	2%	4%
	PM	54%	15%	25%	0%	7%
Kanata - Stittsville	AM	43%	26%	28%	0%	4%
	PM	55%	19%	21%	0%	5%
Plateau	AM	53%	9%	35%	3%	1%
	PM	65%	7%	25%	2%	1%
Aylmer	AM	45%	17%	25%	0%	13%
	PM	31%	21%	23%	4%	20%
Pointe Gatineau	AM	44%	15%	24%	3%	14%
	PM	52%	15%	20%	2%	11%
Gatineau Est	AM	53%	10%	25%	0%	12%
	PM	61%	10%	25%	0%	4%
Masson-Angers	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%
Other Rural Districts	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%

Ottawa West

Demographic Characteristics

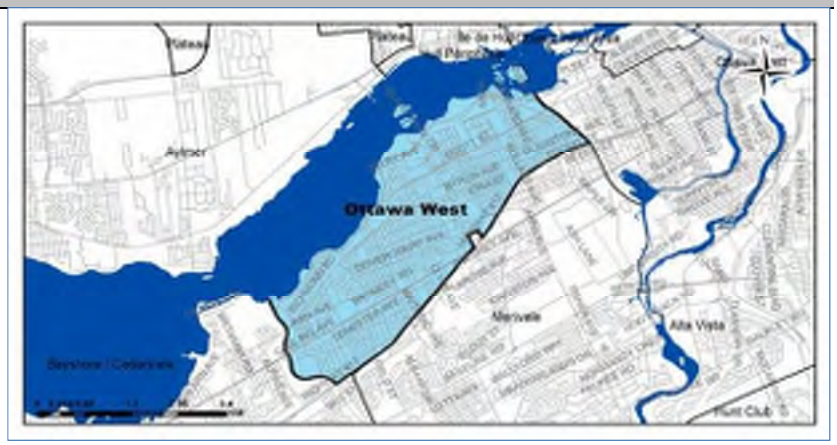
Population	50,410	Actively Travelled	40,800
Employed Population	22,930	Number of Vehicles	23,590
Households	24,070	Area (km^2)	18.3

Occupation

Status (age 5+)	Male	Female	Total
Full Time Employed	10,960	9,490	20,450
Part Time Employed	930	1,540	2,480
Student	4,680	4,690	9,370
Retiree	4,580	7,260	11,840
Unemployed	570	980	1,540
Homemaker	30	990	1,020
Other	670	600	1,270
Total:	22,410	25,560	47,970

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	4,120	5,780	9,900
Licensed Drivers	17,020	17,720	34,740
Telecommuters	140	250	390
Trips made by residents	65,610	75,080	140,690

Selected Indicators	
Daily Trips per Person (age 5+)	2.93
Vehicles per Person	0.47
Number of Persons per Household	2.09
Daily Trips per Household	5.85
Vehicles per Household	0.98
Workers per Household	0.95
Population Density (Pop/km2)	2760

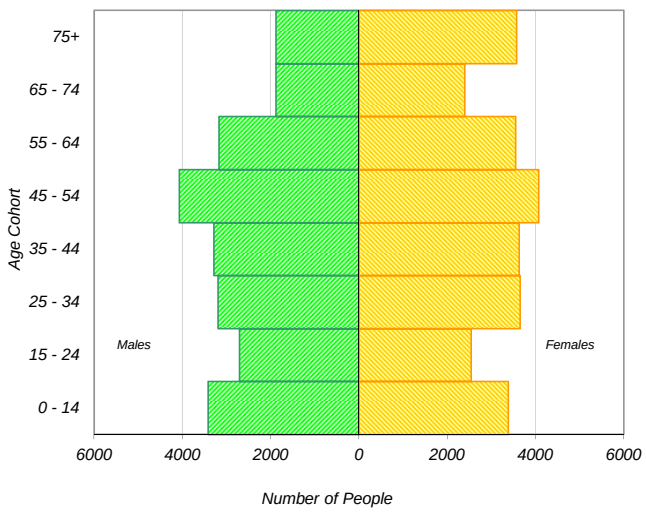


Household Size		
1 person	10,380	43%
2 persons	7,710	32%
3 persons	2,730	11%
4 persons	2,280	9%
5+ persons	970	4%
Total:	24,070	100%

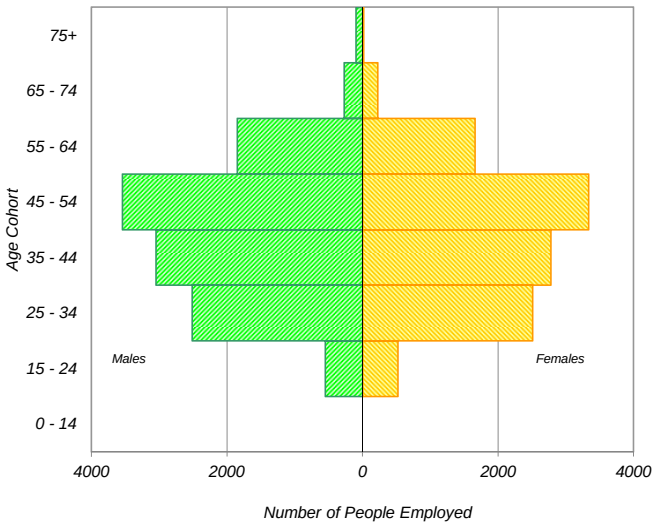
Households by Vehicle Availability		
0 vehicles	6,230	26%
1 vehicle	12,950	54%
2 vehicles	4,200	17%
3 vehicles	540	2%
4+ vehicles	140	1%
Total:	24,070	100%

Households by Dwelling Type		
Single-detached	8,320	35%
Semi-detached	1,780	7%
Townhouse	980	4%
Apartment/Condo	13,000	54%
Total:	24,070	100%

Population



Employed Population



* In 2005 data was only collected for household members aged 11^+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Origins of Trips to Ottawa West

AM Peak Period

Summary of Trips to and from Ottawa West

AM Peak Period (6:30 - 8:59) Districts	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Ottawa Centre	4,270	16%	340	1%
Ottawa Inner Area	3,080	12%	1,750	5%
Ottawa East	310	1%	460	1%
Beacon Hill	150	1%	610	2%
Alta Vista	1,550	6%	1,160	4%
Hunt Club	360	1%	580	2%
Merivale	3,340	13%	4,960	15%
Ottawa West	8,280	32%	8,280	25%
Bayshore / Cedarview	1,940	7%	4,870	15%
Orléans	220	1%	1,460	4%
Rural East	40	0%	60	0%
Rural Southeast	50	0%	190	1%
South Gloucester / Leitrim	0	0%	290	1%
South Nepean	160	1%	1,830	6%
Rural Southwest	80	0%	400	1%
Kanata / Stittsvile	840	3%	2,020	6%
Rural West	70	0%	170	1%
Île de Hull	730	3%	170	1%
Hull Périphérie	170	1%	360	1%
Plateau	40	0%	760	2%
Aylmer	60	0%	770	2%
Rural Northwest	20	0%	310	1%
Pointe Gatineau	30	0%	450	1%
Gatineau Est	70	0%	310	1%
Rural Northeast	60	0%	170	1%
Buckingham / Masson-Angers	70	0%	140	0%
Ontario Sub-Total:	24,740	95%	29,430	90%
Québec Sub-Total:	1,250	5%	3,440	10%
Total:	25,990	100%	32,870	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	17,850	19%	24,050	25%	4,670	8%
School	3,820	4%	4,540	5%	4,230	7%
Shopping	9,960	10%	10,800	11%	10,260	18%
Leisure	9,570	10%	9,420	10%	6,520	11%
Medical	2,740	3%	2,190	2%	1,140	2%
Pick-up / drive passenger	6,010	6%	7,490	8%	4,320	7%
Return Home	40,560	43%	32,380	34%	23,230	40%
Other	4,500	5%	4,550	5%	3,520	6%
Total:	95,010	100%	95,420	100%	57,890	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	11,500	65%	16,000	65%	1,900	23%
School	2,450	14%	4,090	17%	3,260	39%
Shopping	120	1%	250	1%	270	3%
Leisure	720	4%	450	2%	340	4%
Medical	470	3%	330	1%	60	1%
Pick-up / drive passenger	1,110	6%	1,880	8%	1,400	17%
Return Home	790	4%	530	2%	560	7%
Other	540	3%	1,060	4%	490	6%
Total:	17,700	100%	24,590	100%	8,280	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	590	2%	550	3%	300	2%
School	180	1%	10	0%	110	1%
Shopping	2,510	10%	2,680	12%	1,940	14%
Leisure	2,090	8%	2,220	10%	1,780	13%
Medical	200	1%	270	1%	120	1%
Pick-up / drive passenger	1,970	8%	2,350	11%	1,030	7%
Return Home	17,330	68%	12,540	58%	8,090	57%
Other	790	3%	870	4%	850	6%
Total:	25,660	100%	21,490	100%	14,220	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	248,320		23%
AM Peak Period	50,570	20%	16%
PM Peak Period	61,370	25%	23%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	53,530	56%	53,730	56%	22,130	38%
Auto Passenger	14,560	15%	14,560	15%	6,300	11%
Transit	18,670	20%	18,820	20%	2,810	5%
Bicycle	3,120	3%	3,140	3%	3,110	5%
Walk	2,780	3%	2,750	3%	21,610	37%
Other	2,340	2%	2,430	3%	1,910	3%
Total:	95,000	100%	95,430	100%	57,870	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	8,230	46%	12,650	51%	2,740	33%
Auto Passenger	1,910	11%	3,800	15%	1,220	15%
Transit	5,490	31%	5,550	23%	370	4%
Bicycle	1,050	6%	710	3%	500	6%
Walk	650	4%	770	3%	2,770	33%
Other	370	2%	1,110	5%	690	8%
Total:	17,700	100%	24,590	100%	8,290	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	14,180	55%	11,370	53%	4,550	32%
Auto Passenger	4,060	16%	3,010	14%	1,370	10%
Transit	5,400	21%	5,090	24%	570	4%
Bicycle	750	3%	1,250	6%	1,000	7%
Walk	690	3%	620	3%	6,400	45%
Other	570	2%	160	1%	320	2%
Total:	25,650	100%	21,500	100%	14,210	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.27	1.27	1.28
AM Peak Period	1.23	1.30	1.45
PM Peak Period	1.29	1.26	1.30

Transit Modal Split	From District	To District	Within District
24 Hours	22%	22%	9%
AM Peak Period	35%	25%	9%
PM Peak Period	23%	26%	9%

Land Use: 222 Multifamily Housing (High-Rise)

Description

High-rise multifamily housing includes apartments and condominiums that have more than 10 levels (floors) of residence. They are likely to have one or more elevators. Multifamily housing (low-rise) (Land Use 220), multifamily housing (mid-rise) (Land Use 221), and affordable housing (Land Use 223) are related land uses.

Additional Data

In prior editions of *Parking Generation*, the high-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of parking demand data found no clear differences in parking demand patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

The average parking supply ratios for the study sites with parking supply information are shown in the table below.

Setting	Proximity to Rail Transit	Parking Supply Ratio	
		Per Dwelling Unit	Per Bedroom
Center City Core	Within ½ mile of rail transit	0.7 (14 sites)	0.6 (13 sites)
Dense Multi-Use Urban	Within ½ mile of rail transit	0.6 (6 sites)	0.5 (6 sites)
	Not within ½ mile of rail transit	0.6 (1 site)	0.3 (1 site)
General Urban/ Suburban	Within ½ mile of rail transit	Not Available	Not Available
	Not within ½ mile of rail transit	1.2 (6 sites)	0.9 (1 site)

The sites were surveyed in the 1980s, the 2000s, and the 2010s in District of Columbia, Tennessee, and Virginia.

It is expected that the number of bedrooms and number of residents are likely correlated to the parking demand generated by a residential site. Parking studies of multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex). Future parking studies should also indicate the number of levels contained in the residential building.

Source Numbers

71, 402, 583

Multifamily Housing (High Rise)
(222)

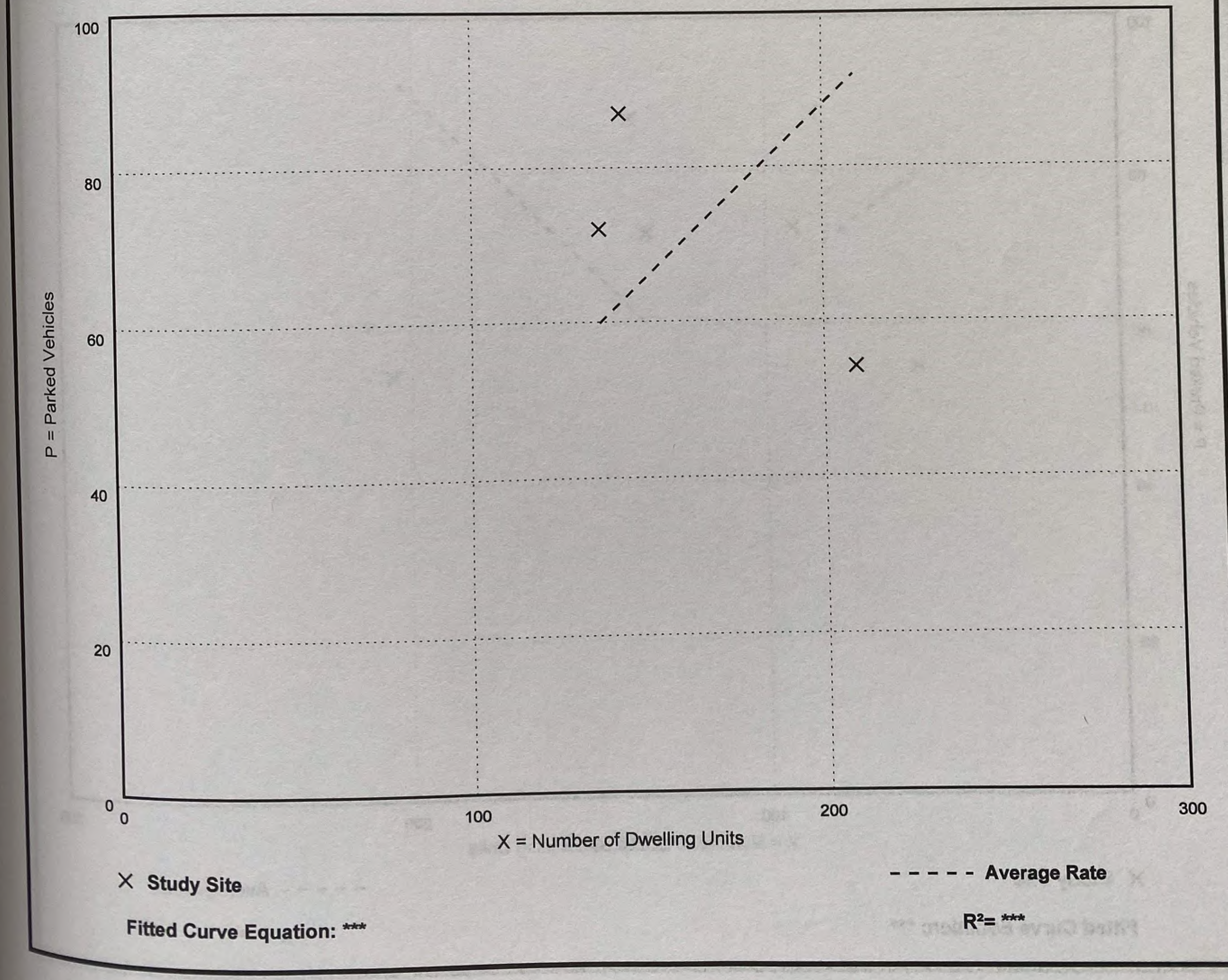
Peak Period Parking Demand vs: **Dwelling Units**
On a: **Weekday (Monday - Friday)**
Setting/Location: **Dense Multi-Use Urban (< 1/2 mile to rail transit)**
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
Number of Studies: 3
Avg. Num. of Dwelling Units: 162

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.44	0.26 - 0.61	0.35 / 0.61	***	0.19 (43%)

Data Plot and Equation

Caution – Small Sample Size



× **Study Site**

- - - - - Average Rate

Fitted Curve Equation: ***

R^2= ***

Multifamily Housing (High Rise)
(222)

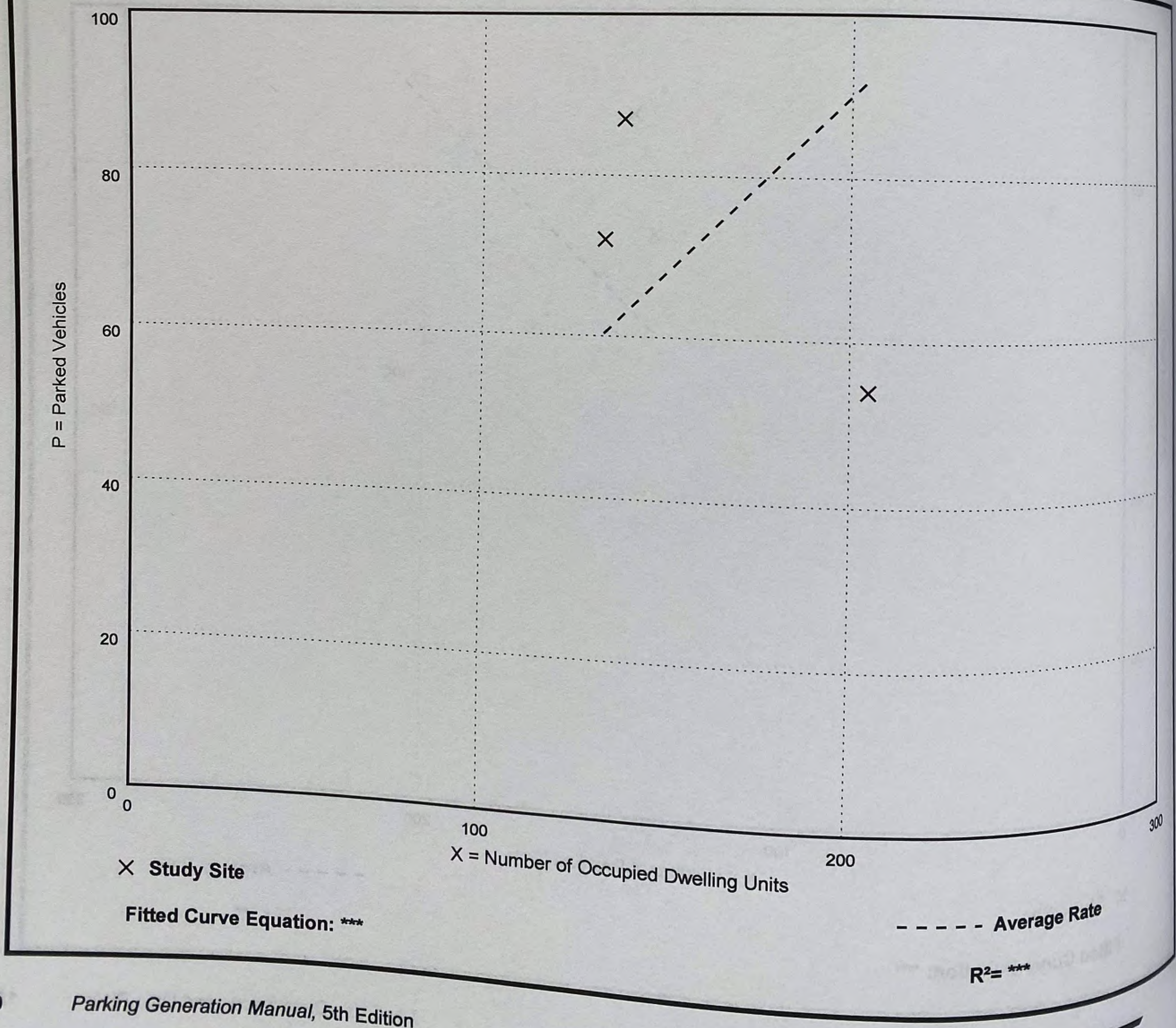
Peak Period Parking Demand vs: **Occupied Dwelling Units**
On a: **Weekday (Monday - Friday)**
Setting/Location: **Dense Multi-Use Urban (< 1/2 mile to rail transit)**
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
Number of Studies: 3
Avg. Num. of Occupied Dwelling Units: 159

Peak Period Parking Demand per Occupied Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.45	0.26 - 0.63	0.35 / 0.63	***	0.20 (44%)

Data Plot and Equation

Caution – Small Sample Size



× **Study Site**

Fitted Curve Equation: ***

– – – – – **Average Rate**

R^2= ***

Multifamily Housing (High Rise)
(222)

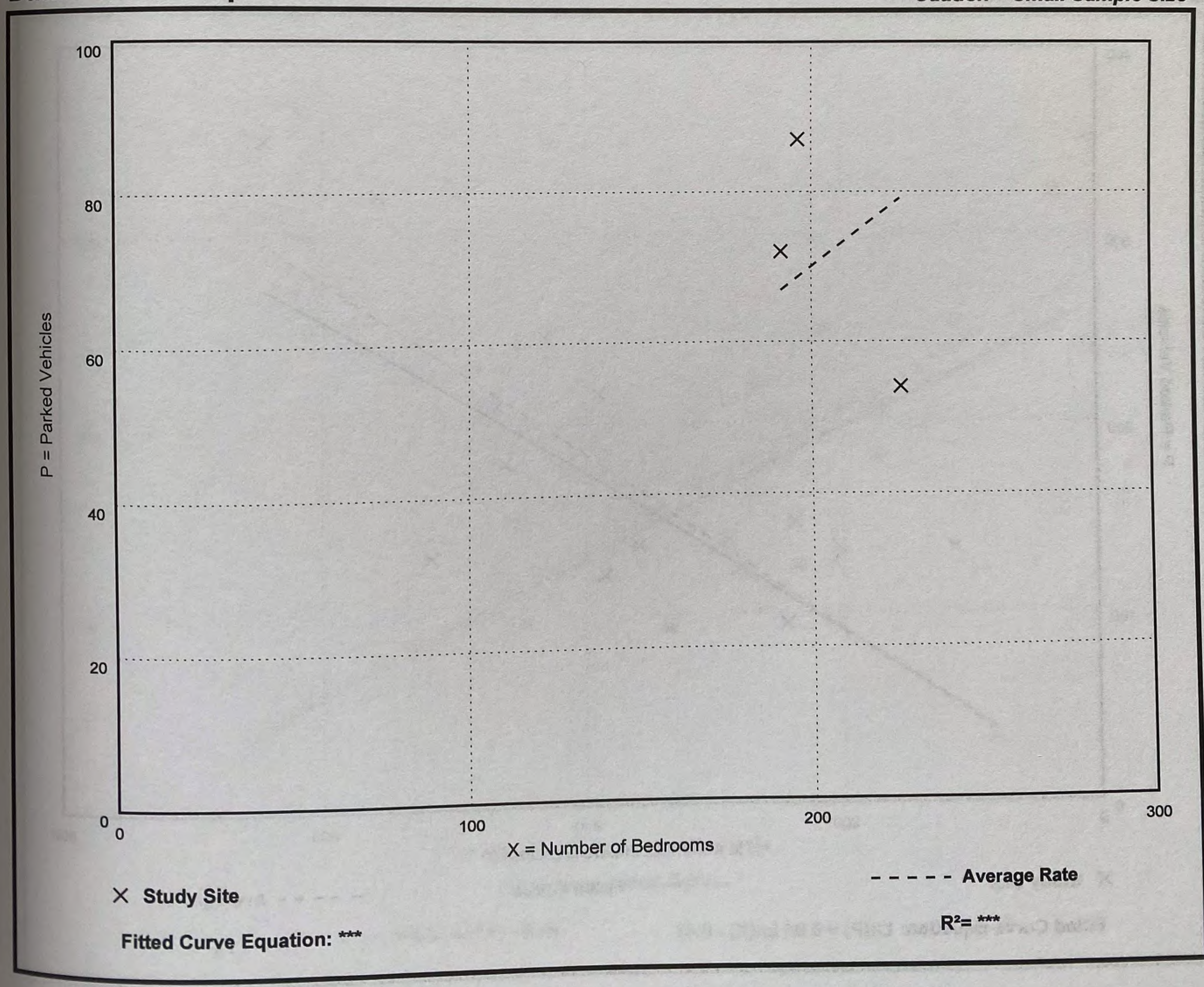
Peak Period Parking Demand vs: **Bedrooms**
On a: **Weekday (Monday - Friday)**
Setting/Location: **Dense Multi-Use Urban (< 1/2 mile to rail transit)**
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
Number of Studies: 3
Avg. Num. of Bedrooms: 204

Peak Period Parking Demand per Bedroom

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.35	0.24 - 0.44	0.28 / 0.44	***	0.11 (31%)

Data Plot and Equation

Caution – Small Sample Size



× **Study Site**

- - - - - Average Rate

Fitted Curve Equation: ***

R^2= ***

Appendix G – TDM Checklists

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

Legend

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

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

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

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☑
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☑ To be located in P1 bike storage room.
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ N/A
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	☐ N/A
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☑ Our lobby will be large enough for tenants to wait in

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☑ We will contact local companies to determine if there is a desire to partner
	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	☑ We will contact local companies to determine if there is a desire to partner
	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	☑ will not exceed maximum requirements in Zoning By-law; reduced to 0.55 spaces per unit
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	☑ Interior/exterior bike storage will be a part of the plan
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☑ We can review the shared parking possibilities
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☑ Visitor parking will be signed and close to the entry, perhaps include parking automation through 1Valet

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

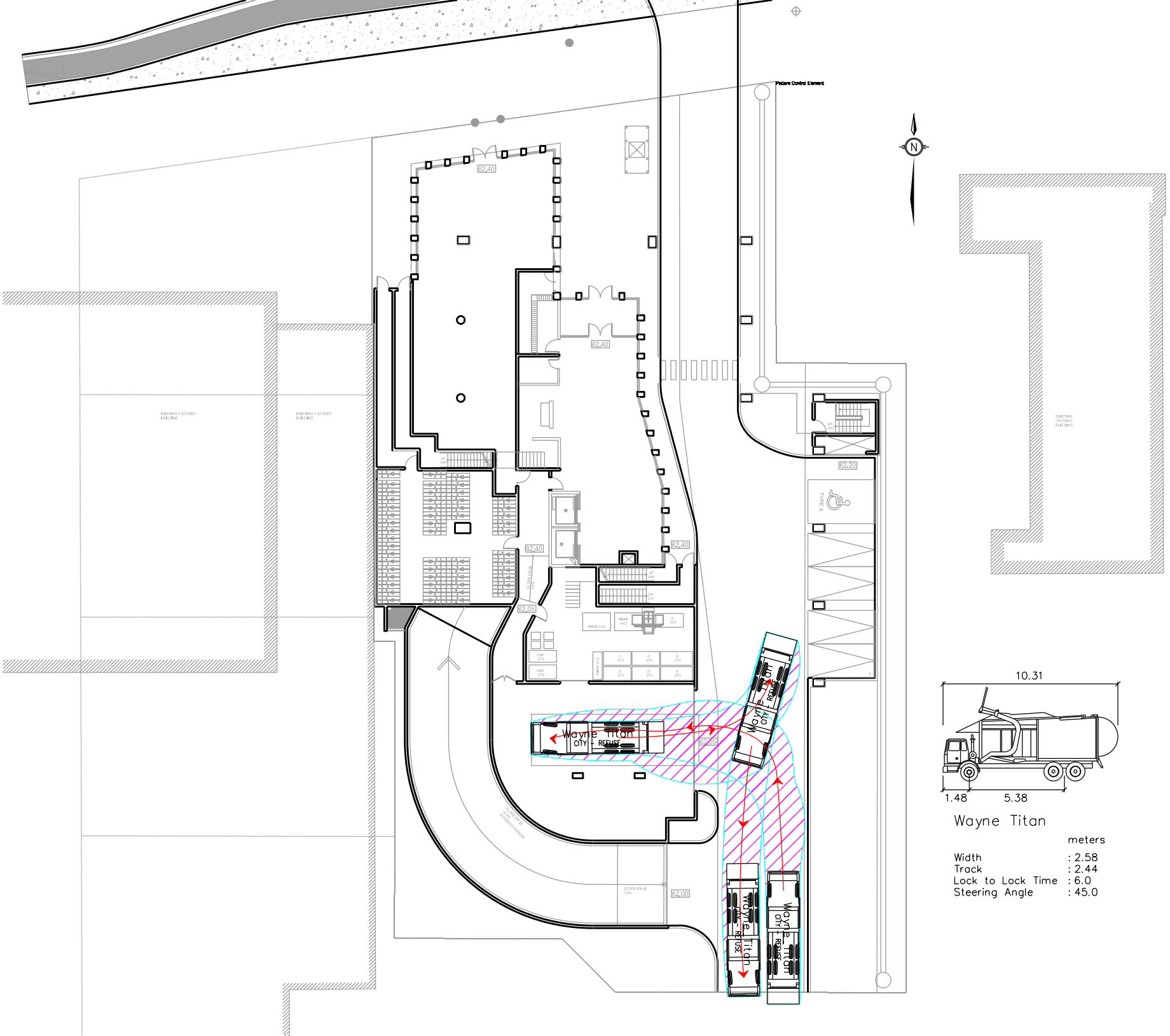
★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

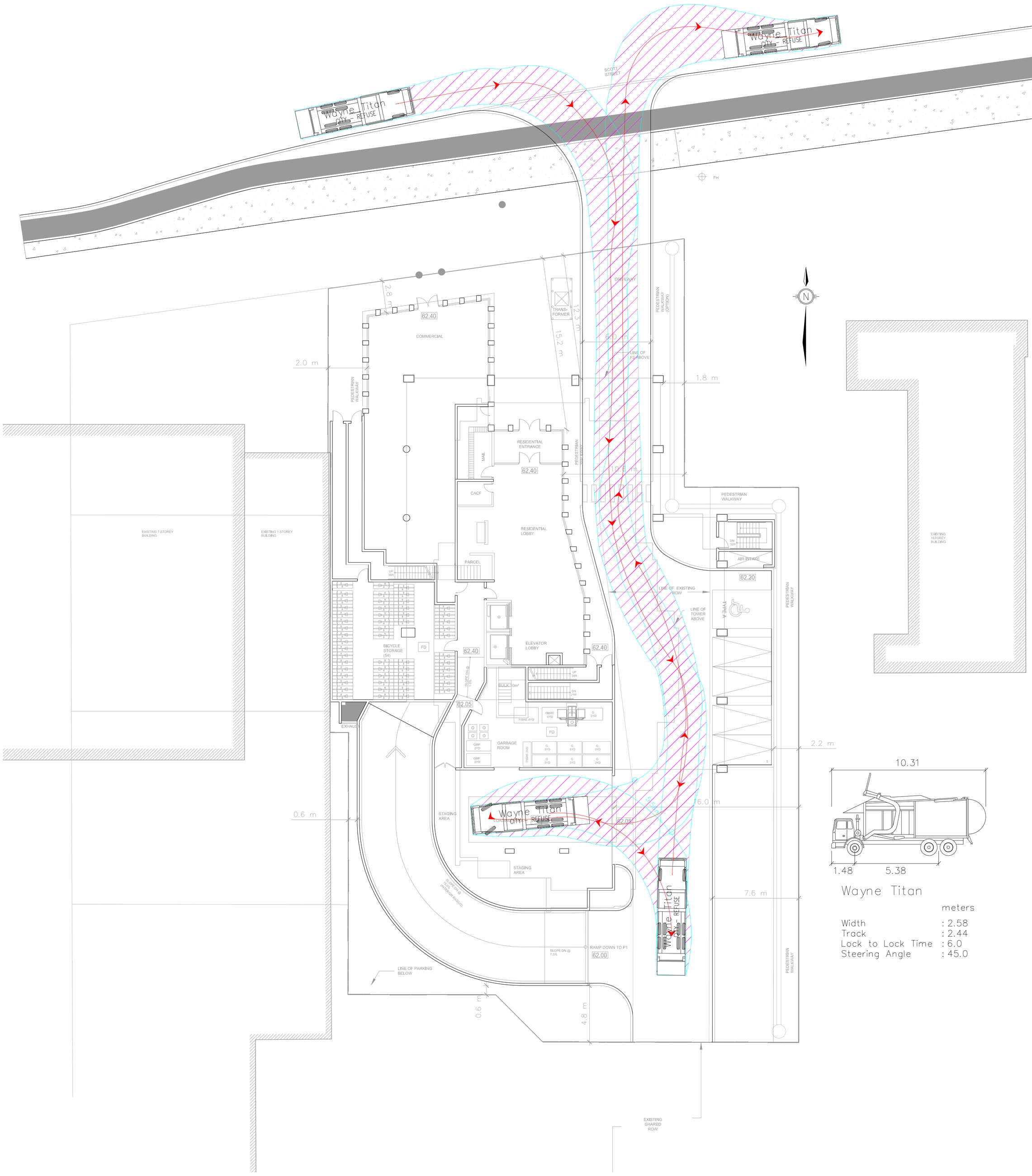
		TDM measures: *Residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☑ Property Manger (PM) will oversee the program as a whole
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☑ PM will maintain communication with tenants to understand their needs best
	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 *(multi-family, condominium)*	☑ Welcome package to include route maps & walkable area amenities
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☑ We will explore what is available with our PM

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑ This could be displayed on the message boards
BETTER	3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐ Unlikely, unless we can have it incorporated with our entry console
		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	☑
BETTER	3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		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 *(subdivision)*	☐ N/A
		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)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER	4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☑ We will contact local companies to see if there is availability
BETTER	4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER	4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☑ We will contact local companies to see if there is availability
BETTER	4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC ★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐
BASIC ★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑ Parking is leased separately from rental rate

			TDM measures: *Residential developments*	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	☑ through our PM, welcome packages for tenants will include all options
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

Appendix H – Swept Path Analyses


Pattern Control Element
62.40
62.40
62.40
62.40
62.05
62.20
62.05
62.00
EXISTING 7 STOREY BUILDING
EXISTING 1 STOREY BUILDING
EXISTING 1 STOREY BUILDING
TYPE A
Wayne Titan
CITY REFUSE
Wayne Titan
CITY REFUSE
Wayne Titan
CITY REFUSE
Wayne Titan
CITY REFUSE
Wayne Titan
CITY REFUSE
10.31
1.48
5.38
Wayne Titan
meters
Width : 2.58
Track : 2.44
Lock to Lock Time : 6.0
Steering Angle : 45.0

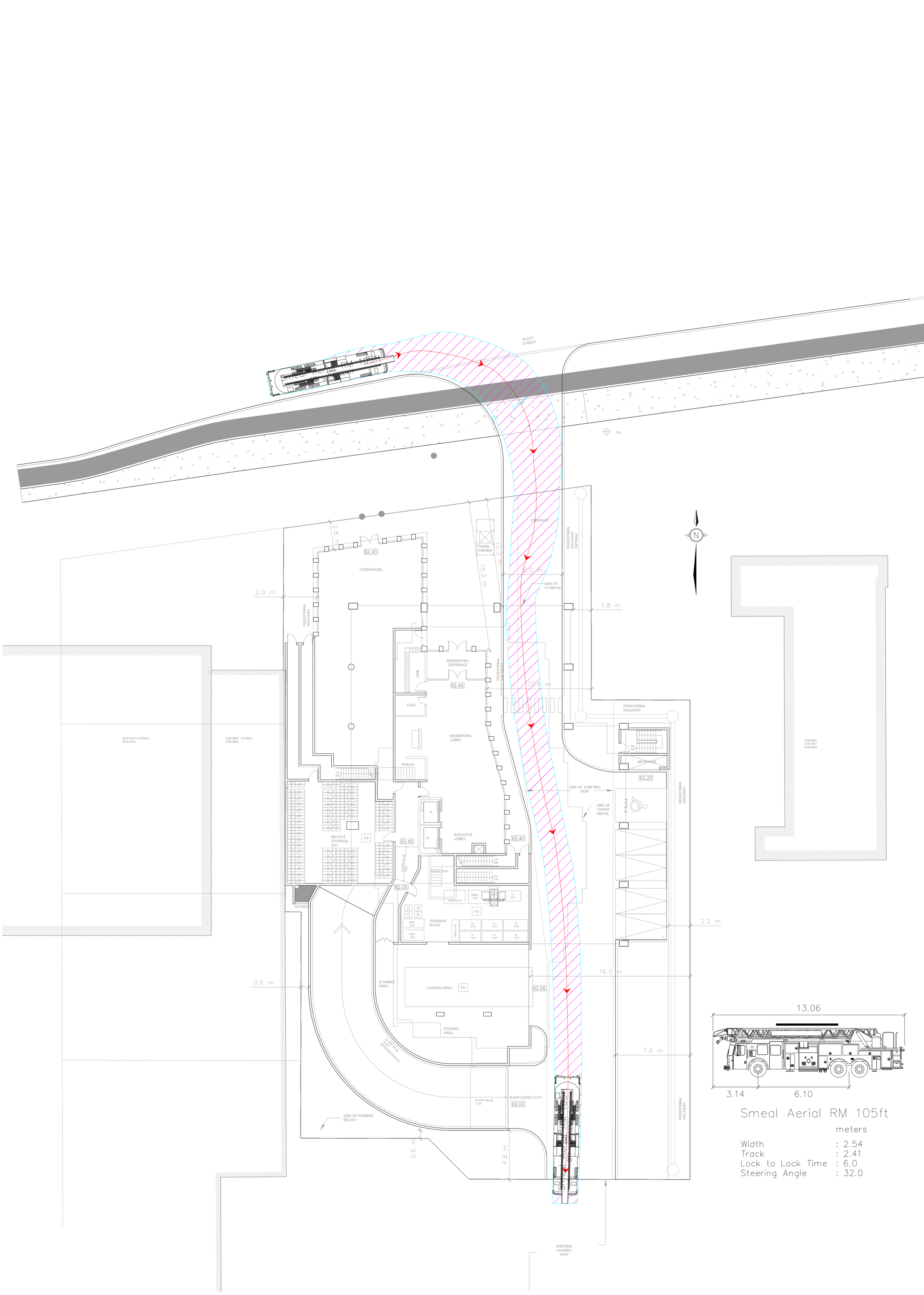


10.31

1.48 5.38

Wayne Titan

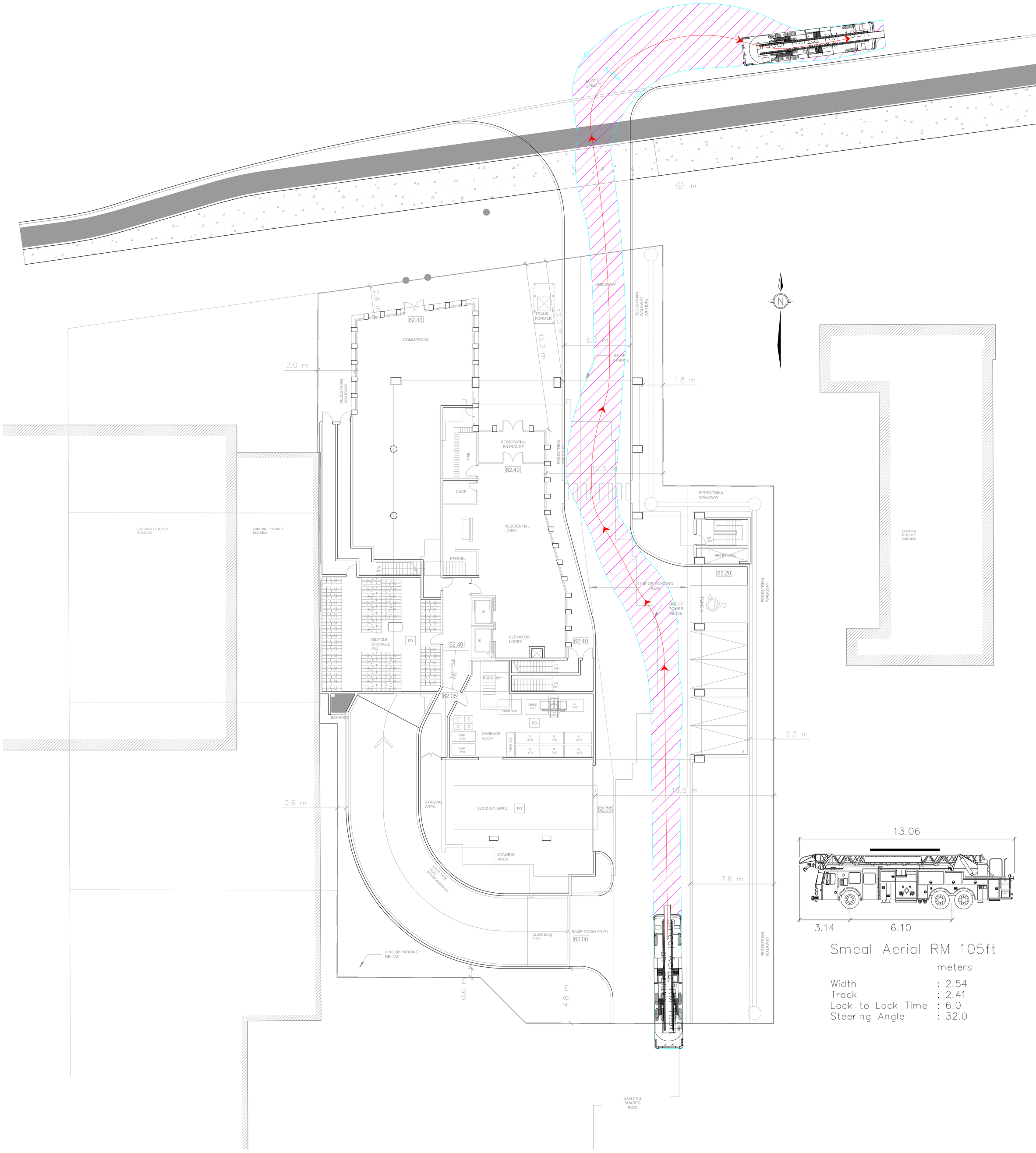
	meters
Width	: 2.58
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 45.0



Smeal Aerial RM 105ft

meters

Width	: 2.54
Track	: 2.41
Lock to Lock Time	: 6.0
Steering Angle	: 32.0



13.06

3.14 6.10

Smeal Aerial RM 105ft

meters

Width	: 2.54
Track	: 2.41
Lock to Lock Time	: 6.0
Steering Angle	: 32.0

Appendix I – Intersection Capacity Analyses

VEHICLE LOS

The assessment of Vehicle Level of Service (VLOS) for intersections under the Functional Design scenario is summarized in Table 12. As described for the Baseline analysis, VLOS is the weighted average of the v/c ratios of the intersection's "critical" movements.

Table 15: Vehicle LOS – 2031 Ultimate Functional Design

INTERSECTION	V/C RATIO AM (PM)	VLOS AM (PM)	CITY TARGET
Scott Street / Parkdale Avenue	0.76 (0.94)	C (E)	E
Scott Street / Carruthers Avenue	0.44 (0.46)	A (A)	
Scott Street-Albert Street / Bayview Station Road	0.55 (0.67)	A (B)	

The Parkdale Avenue intersection shows improved operations compared to Baseline conditions during the PM peak period after reinstating the NBL lane as part of the Ultimate Functional Design. The Parkdale Avenue intersection during the AM peak period and the Carruthers Avenue and Bayview Station Road intersections during both peak periods operate well under capacity during the AM and PM peak periods and within the City's target VLOS E. Detailed traffic analysis results at intersections are presented and discussed in the proceeding section.

In accordance with the MMLOS guidelines, road segments are not assessed for VLOS.

2031 FUNCTIONAL DESIGN TRAFFIC LEVEL OF SERVICE ANALYSIS

The Ultimate Functional Design traffic analysis was carried out for the 2031 weekday AM and PM peak periods in Synchro 10 software. As with the Baseline scenario analysis, only signalized intersections at Parkdale Avenue and Carruthers Avenue were modeled. A peak hour factor of 1.0 was applied to average peak period volumes, in accordance with the City of Ottawa's *Transportation Impact Analysis Guidelines*, and bus blockage factors were applied at bus stops because of transit bus operations in single-lane mixed traffic. The results of this analysis are summarized in Table 16 and detailed in the Synchro reports attached in Appendix B.

Table 16: 2031 Functional Design Traffic Analysis Results

	AM PEAK PERIOD					PM PEAK PERIOD				
Movement	Volume	LOS	v/c	Delay (s)	95th %tile queue (m)	Volume	LOS	v/c	Delay (s)	95th %tile queue (m)
Scott Street / Parkdale Avenue										
EBL	90	A	0.30	15.3	m9.4	195	E	0.92	58.9	m#31.9
EBT	430/35	D	0.85	23.3	m73.4	420/50	C	0.71	24.5	m69.5
WBL	50	A	0.36	22.6	7.1	75	C	0.73	62.0	m#29.8
WBT	210	A	0.38	16.8	20.6	485	F	1.05	82.4	#154.6
WBR	30	A	0.09	15.1	4.9	60	A	0.21	21.8	m15.9
NBL	55	A	0.47	40.5	m16.3	60	F	1.05	154.2	m#22.5
NBTR	315/80	B	0.63	32.6	92.8	415/60	D	0.88	37.5	#131.2
SBL	75	A	0.34	27.9	20.9	60	A	0.56	51.3	#25.4
SBTR	390/145	D	0.88	45.7	#141.9	265/300	F	1.11	103.4	#167.4
Intersection		**C**		**31.0**			**E**		**64.4**	

One notable change from the 2024 Total traffic operating scenario is the westbound through movement during the PM peak period at the intersection of Scott Street and Parkdale Avenue. The movement is anticipated to operate at LOS F with a v/c ratio of 1.05 and a travel time delay of 86 seconds. This is attributed to the high traffic volumes in combination with approximately 34 seconds of green time allotted for this movement (with permissive phasing) per cycle at a cycle length of 100s . Given the continuous transit priority lanes and focus on other modes of transportation including walking and cycling, it is not feasible to increase the number of lanes along the roadway as the intersection is geometrically constrained, nor is it feasible to modify the signal timing plan to increase vehicular green times at the expense of pedestrians and cyclists.

Additionally, the westbound movement at the intersection of Scott Street at Holland Avenue is anticipated to continue operating at LOS F with a v/c ratio pf 1.08 and a travel time delay of 90 seconds during the PM peak. Similar to the buildout conditions findings, this level of operation is deemed to be acceptable and no improvements are recommended.

All remaining study area intersections are anticipated to operate acceptably under 2029 ultimate conditions.

Appendix F contains detailed intersection performance worksheets.

Table 18 - 2029 Ultimate Intersection Operations

Intersection	Intersection Control	Approach / Movement		LOS	V/C	Delay (s)	Queue 95th (veh)
Scott Street at Holland Avenue	Signalized	EB	Left / Through	D (C)	0.82 (0.77)	39 (33)	#128 (118)
			Right	A (A)	0.06 (0.07)	20 (18)	0 (0)
		WB	Left	A (A)	0.37 (0.55)	28 (33)	19 (32)
			Through	A (F)	0.52 (1.08)	27 (90)	61 (#194)
			Right	A (A)	0.04 (0.02)	19 (17)	0 (0)
		NB	Left	A (A)	0.49 (0.39)	39 (38)	34 (23)
			Through	A (A)	0.4 (0.27)	33 (32)	48 (31)
			Right	B (D)	0.67 (0.84)	54 (78)	#42 (#50)
		SB	Left	A (A)	0.44 (0.25)	20 (20)	20 (15)
			Through	A (A)	0.19 (0.38)	20 (26)	28 (51)
			Right	A (A)	0.02 (0.04)	18 (21)	0 (2)
		Overall Intersection		A (D)	0.72 (0.9)	32 (52)	-- (--)
Scott Street at Parkdale Avenue	Signalized	EB	Left	A (B)	0.15 (0.67)	14 (25)	13 (#30)
			Through	C (A)	0.71 (0.59)	25 (22)	106 (83)
			Right	A (A)	0.02 (0.03)	12 (13)	2 (5)
		WB	Left	A (A)	0.16 (0.25)	14 (26)	10 20()
			Through	A (F)	0.39 (1.05)	17 (86)	48 (#157)
			Right	A (A)	0.01 (0.03)	12 (22)	1 (0)
		NB	Left	A (A)	0.22 (0.19)	29 (12)	14 7()
			Through / Right	A (B)	0.5 (0.61)	30 (18)	60 90()
		SB	Left	A (A)	0.25 (0.19)	24 (22)	18 (13)
			Through / Right	B (B)	0.64 (0.68)	32 (32)	82 (91)
		Overall Intersection		**B** (D)	**0.68** (0.84)	**25** (38)	**--** (--)
Holland Avenue at Wellington Street West	Signalized	EB	Left / Through	A (A)	0.43 (0.42)	24 (24)	54 (55)
			Right	A (A)	0.13 (0.19)	20 (21)	14 (17)
		WB	Left / Throuh	A (C)	0.4 (0.71)	29 (23)	50 (m53)
			Right	A (A)	0.08 (0.07)	26 (15)	13 (m5)
		NB	Left / Through	A (A)	0.47 (0.38)	24 (22)	49 (38)
			Through / Right	A (A)	0.47 (0.38)	24 (22)	49 (38)
		SB	Left / Through	A (A)	0.31 (0.54)	19 (20)	28 (49)

			Through / Right	A (A)	0.31 (0.54)	19 (20)	28 (49)
		Overall Intersection		**A (A)**	**0.42 (0.58)**	**23 (22)**	**-- (--)**
Parkdale Avenue at Wellington Street West	Signalized	EB	Left / Through	A (A)	0.44 (0.52)	19 (54)	22 (53)
			Right	A (A)	0.26 (0.33)	18 (53)	10 (m20)
		WB	Left / Through	A (C)	0.36 (0.76)	30 (50)	40 (#81)
			Right	A (A)	0.06 (0.17)	26 (32)	7 (11)
		NB	Left	A (A)	0.14 (0.27)	13 (11)	10 (16)
			Through / Right	A (A)	0.5 (0.48)	19 (13)	69 (67)
		SB	Left	A (A)	0.09 (0.07)	28 (12)	8 (m4)
			Through / Right	A (A)	0.41 (0.55)	30 (17)	44 (41)
		Overall Intersection		**A (B)**	**0.48 (0.61)**	**23 (27)**	**-- (--)**
Holland Avenue at Spencer Street	Signalized	EB	Left / Throuh / Right	A (A)	0.16 (0.12)	42 (33)	12 (13)
		WB	Left / Through / Right	A (C)	0.48 (0.76)	46 (50)	23 (53)
		NB	Through / Left	A (A)	0.33 (0.32)	2 (3)	10 (7)
			Right	A (A)	0.01 (0.02)	0 (0)	0 (0)
		SB	Left / Through	A (A)	0.1 (0.2)	2 (6)	8 (22)
			Through / Right	A (A)	0.1 (0.2)	2 (6)	8 (22)
		Overall Intersection		**A (A)**	**0.34 (0.42)**	**9 (15)**	**-- (--)**
Parkdale Avenue at Armstrong Street	Signalized	EB	Left / Through / Right	A (A)	0.28 (0.23)	35 (28)	27 (26)
		WB	Left / Through / Right	A (A)	0.15 (0.38)	33 (30)	17 (43)
		NB	Left / Through / Right	A (A)	0.31 (0.38)	2 (9)	4 (68)
		SB	Left / Through / Right	A (A)	0.32 (0.32)	4 (15)	16 (49)
		Overall Intersection		**A (A)**	**0.31 (0.38)**	**9 (17)**	**-- (--)**
Parkdale Avenue at Bullman Street	Minor Stop Controllefd	EB	Left / Through / Right	B (C)	0.14 (0.17)	14 (19)	3 (4)
		WB	Left / Through / Right	B (C)	0.02 (0.04)	12 (20)	1 (1)
		NB	Left / Through / Right	A (A)	0.01 (0.02)	0 (1)	0 (1)
		SB	Left / Through / Right	A (A)	0.01 (0)	0 (0)	0 (0)
		Overall Intersection		A (A)	0.44 (0.58)	2 (2)	-- (--)
Wellington Street West at Hamilton Avenue	Minor Stop Controlled	EB	Left / Through / Right	A (A)	0.01 (0.02)	1 (1)	0 (0)
		WB	Left / Through / Right	A (A)	0.01 (0.01)	0 (0)	0 (0)
		NB	Left / Through / Right	B (C)	0.07 (0.07)	15 (21)	2 (2)
		SB	Left / Through / Right	B (C)	0.08 (0.23)	13 (21)	2 (6)
		Overall Intersection		**A (A)**	**0.35 (0.39)**	**2 (3)**	**-- (--)**
Scott Street at North Site Access	Minor Stop Controlled	EB	Through / Right	A (A)	0.43 (0.42)	0 (0)	0 (0)
		WB	Left / Through	A (A)	0.08 (0)	2 (0)	2 (0)
		NB	Left / Right	C (A)	0.04 (0.23)	17 17()	1 (6)
		Overall Intersection		**A (A)**	**0.84 (0.55)**	**1 (1)**	**-- (--)**
Hamilton Avenue North at East Site Access	Minor Stop Controlled	EB	Left / Right	A (A)	0.02 (0.09)	9 (9)	0 (2)
		NB	Through	A (A)	0.04 (0.03)	0 (0)	0 (0)
		SB	Through	A (A)	0.06 (0.05)	0 (0)	0 (0)
		Overall Intersection		**A (A)**	**0.16 (0.17)**	**1 (3)**	**-- (--)**

Notes:
1. Table format: AM (PM)
2. v/c – represents the anticipated volume divided by the predicted capacity
3. # 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.

Appendix J – MMLOS Analyses

1560 Scott Street TIA Extracts

Multi-Modal Level of Service - Intersections Form

Consultant	**IBI Group**	**Project**	**1546 Scott Street**
Scenario	**Existing Conditions**	**Date**	**03-Mar-22**
Comments	**Update to analysis from 1560 Scott Street TIA (Stantec, 2020)**		

To add intersections
Select columns LMNO, right-click and *Copy;*
Then select column P, right-click and *Insert Copied Cells*

INTERSECTIONS		Scott & Holland				Intersection B				Intersection C			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	6	7	7								
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m								
	Conflicting Left Turns	No left turn / Prohib.	Permissive	Protected/ Permissive	Permissive								
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control								
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed								
	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes								
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel								
	Corner Radius	10-15m	5-10m	10-15m	5-10m								
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings								
	PETSI Score	**17**	**29**	**9**	**10**								
	Ped. Exposure to Traffic LoS	**F**	**F**	**F**	**F**	-	-	-	-	-	-	-	-
	Cycle Length	100	100	100	100								
	Effective Walk Time	25	25	7	19								
	Average Pedestrian Delay	**28**	**28**	**43**	**33**								
	Pedestrian Delay LoS	**C**	**C**	**E**	**D**	-	-	-	-	-	-	-	-
	Level of Service	**F**	**F**	**F**	**F**	-	-	-	-	-	-	-	-
		F				**-**				**-**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP								
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>	≤ 50 m	≤ 50 m	Not Applicable									
	Dedicated Right Turning Speed	≤ 25 km/h	≤ 25 km/h										
	Cyclist Through Movement	**D**	**D**	**Not Applicable**	**Not Applicable**	-	-	-	-	-	-	-	-
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	-	-	-	-	-	-	-	-
	Left Turn Approach	No lane crossed	No lane crossed	No lane crossed	No lane crossed								
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h								
	Left Turning Cyclist	**B**	**B**	**B**	**B**	-	-	-	-	-	-	-	-
	Level of Service	**D**	**D**	**B**	**B**	-	-	-	-	-	-	-	-
		D				**-**				**-**			
Transit	Average Signal Delay	≤ 30 sec	> 40 sec	≤ 10 sec	≤ 10 sec								
	Level of Service	**D**	**F**	**B**	**B**	-	-	-	-	-	-	-	-
		F				**-**				**-**			
Truck	Effective Corner Radius	10 - 15 m	< 10 m	10 - 15 m	< 10 m								
	Number of Receiving Lanes on Departure from Intersection	≥ 2		≥ 2	≥ 2								
	Level of Service	**B**	**-**	**B**	**D**	-	-	-	-	-	-	-	-
		D				**-**				**-**			
Auto	Volume to Capacity Ratio	> 1.00											
	Level of Service	**F**				**-**				**-**			

Scott Street Functional Design Study Extracts

Multi-Modal Level of Service - Intersections Form

Consultant	WSP	Project	19M-00206
Scenario	2031 Baseline AM	Date	01/14/2021
Comments	Scott Street Functional Design		

INTERSECTIONS		Scott Street and Parkdale Avenue				Scott Street and Carruthers Avenue				Scott Street / Albert Street and Bayview Road			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	3	6	6	3	0 - 2	5	5	4	5	6	5
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	No Channel
	Corner Radius	5-10m	5-10m	10-15m	5-10m	5-10m	No Right Turn	5-10m	3-5m	5-10m	10-15m	15-25m	10-15m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	**59**	**76**	**25**	**26**	**76**	**103**	**51**	**52**	**56**	**49**	**23**	**42**
	Ped. Exposure to Traffic LoS	**D**	**B**	**F**	**F**	**B**	**A**	**D**	**D**	**D**	**D**	**F**	**E**
	Cycle Length	100	100	100	100	100	100	100	100	100	100	100	100
	Effective Walk Time	19	19	29	29	53	53	9	9	39	39	11	11
	Average Pedestrian Delay	**33**	**33**	**25**	**25**	**11**	**11**	**41**	**41**	**19**	**19**	**40**	**40**
	Pedestrian Delay LoS	**D**	**D**	**C**	**C**	**B**	**B**	**E**	**E**	**B**	**B**	**E**	**E**
	Level of Service	**D**	**D**	**F**	**F**	**B**	**B**	**E**	**E**	**D**	**D**	**F**	**E**
		F				**E**				**F**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic		Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>											Not Applicable	Not Applicable
	Dedicated Right Turning Speed												
	Cyclist Through Movement			**Not Applicable**	**Not Applicable**		-	**Not Applicable**	**Not Applicable**			**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	-	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**
	Left Turn Approach	One lane crossed	No lane crossed	Other LT config	≥ 2 lanes crossed	One lane crossed		Other LT config	≥ 2 lanes crossed	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h		≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**F**	**C**	**F**	**F**	**D**	-	**F**	**F**	**F**	**F**	**F**	**F**
	Level of Service	**F**	**C**	**F**	**F**	**D**	-	**F**	**F**	**F**	**F**	**F**	**F**
		F				**F**				**F**			
Transit	Average Signal Delay	≤ 40 sec	> 40 sec	≤ 10 sec	≤ 10 sec			≤ 10 sec	≤ 10 sec			≤ 10 sec	≤ 10 sec
	Level of Service	**E**	**F**	**B**	**B**	**-**	**-**	**B**	**B**	**-**	**-**	**B**	**B**
		F				**B**				**B**			
Truck	Effective Corner Radius	10 - 15 m	10 - 15 m	10 - 15 m	< 10 m	> 15 m		< 10 m	< 10 m	10 - 15 m	10 - 15 m	> 15 m	10 - 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1	1		1	1	1	≥ 2	1	1
	Level of Service	**E**	**E**	**E**	**F**	**C**	-	**F**	**F**	**E**	**B**	**C**	**E**
		F				**F**				**E**			
Auto	Volume to Capacity Ratio	0.71 - 0.80				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**C**				**A**				**A**			

Multi-Modal Level of Service - Intersections Form

Consultant	**WSP**	**Project**	**19M-00206**
Scenario	**2031 Baseline PM**	**Date**	**01/14/2021**
Comments	**Scott Street Functional Design**		

INTERSECTIONS		Scott Street and Parkdale Avenue				Scott Street and Carruthers Avenue				Scott Street / Albert Street and Bayview Road			
Crossing Side		**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	4	3	6	6	3	0 - 2	5	5	4	5	6	5
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected/ Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	No Channel
	Corner Radius	5-10m	5-10m	10-15m	5-10m	5-10m	No Right Turn	5-10m	3-5m	5-10m	10-15m	15-25m	10-15m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	**59**	**76**	**25**	**26**	**76**	**103**	**48**	**52**	**56**	**49**	**23**	**42**
	Ped. Exposure to Traffic LoS	**D**	**B**	**F**	**F**	**B**	**A**	**D**	**D**	**D**	**D**	**F**	**E**
	Cycle Length	100	100	100	100	100	100	100	100	100	100	100	100
	Effective Walk Time	23	23	25	25	53	53	9	9	30	30	20	20
	Average Pedestrian Delay	**30**	**30**	**28**	**28**	**11**	**11**	**41**	**41**	**25**	**25**	**32**	**32**
	Pedestrian Delay LoS	**D**	**D**	**C**	**C**	**B**	**B**	**E**	**E**	**C**	**C**	**D**	**D**
	Level of Service	**D**	**D**	**F**	**F**	**B**	**B**	**E**	**E**	**D**	**D**	**F**	**E**
		F				**E**				**F**			
Approach From		**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic		Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>										≤ 50 m	Not Applicable	Not Applicable
	Dedicated Right Turning Speed										≤ 25 km/h		
	Cyclist Through Movement			**Not Applicable**	**Not Applicable**		**-**	**Not Applicable**	**Not Applicable**		**D**	**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**-**	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**
	Left Turn Approach	One lane crossed	No lane crossed	Other LT config	≥ 2 lanes crossed	One lane crossed		Other LT config	≥ 2 lanes crossed	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h		≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**F**	**C**	**F**	**F**	**D**	**-**	**F**	**F**	**F**	**F**	**F**	**F**
	Level of Service	**F**	**C**	**F**	**F**	**D**	**-**	**F**	**F**	**F**	**F**	**F**	**F**
		F				**F**				**F**			
Transit	Average Signal Delay	> 40 sec	> 40 sec	≤ 10 sec	≤ 10 sec			≤ 10 sec	≤ 10 sec			≤ 10 sec	≤ 10 sec
	Level of Service	**F**	**F**	**B**	**B**	**-**	**-**	**B**	**B**	**-**	**-**	**B**	**B**
		F				**B**				**B**			
Truck	Effective Corner Radius	10 - 15 m	10 - 15 m	10 - 15 m	< 10 m	> 15 m		< 10 m	< 10 m	10 - 15 m	10 - 15 m	> 15 m	10 - 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1	1		1	1	1	≥ 2	1	1
	Level of Service	**E**	**E**	**E**	**F**	**C**	**-**	**F**	**F**	**E**	**B**	**C**	**E**
		F				**F**				**E**			
Auto	Volume to Capacity Ratio	> 1.00				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**F**				**A**				**A**			

Multi-Modal Level of Service - Intersections Form

Consultant	**WSP**	**Project**	**19M-00206**
Scenario	**2031 Functional Design AM**	**Date**	**06/03/2021**
Comments	**Scott Street Functional Design**		

INTERSECTIONS		Scott Street & Parkdale Avenue				Scott Street and Carruthers Avenue				Scott Street-Albert Street and Bayview Station Road			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	3	4	4	4	0 - 2	3	3	5	4	4	4
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	No Channel
	Corner Radius	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	No Right Turn	5-10m	10-15m	10-15m	10-15m	5-10m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	**59**	**76**	**59**	**59**	**62**	**91**	**93**	**76**	**42**	**65**	**58**	**59**
	Ped. Exposure to Traffic LoS	**D**	**B**	**D**	**D**	**C**	**A**	**A**	**B**	**E**	**C**	**D**	**D**
	Cycle Length	100	100	100	100	100	100	100	100	100	100	100	100
	Effective Walk Time	23	23	28	28	51	51	10	10	38	38	17	17
	Average Pedestrian Delay	**30**	**30**	**26**	**26**	**12**	**12**	**41**	**41**	**19**	**19**	**34**	**34**
	Pedestrian Delay LoS	**D**	**D**	**C**	**C**	**B**	**B**	**E**	**E**	**B**	**B**	**D**	**D**
	Level of Service	**D**	**D**	**D**	**D**	**C**	**B**	**E**	**E**	**E**	**C**	**D**	**D**
		D				**E**				**E**			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>			Not Applicable									
	Dedicated Right Turning Speed			Not Applicable									
	Cyclist Through Movement	**Not Applicable**		**Not Applicable**	**Not Applicable**		**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**
	Left Turn Approach	2-stage, LT box	One lane crossed	2-stage, LT box	2-stage, LT box	No lane crossed	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
	Left Turning Cyclist	**A**	**D**	**A**	**A**	**B**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
	Level of Service	**A**	**D**	**A**	**A**	**B**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
		D				**B**				**A**			
Transit	Average Signal Delay	> 40 sec	> 40 sec	≤ 10 sec	≤ 30 sec			≤ 20 sec	≤ 10 sec			≤ 20 sec	≤ 20 sec
	Level of Service	**F**	**F**	**B**	**D**	**-**	**-**	**C**	**B**	**-**	**-**	**C**	**C**
		F				**C**				**C**			
Truck	Effective Corner Radius	< 10 m	< 10 m	< 10 m	< 10 m	< 10 m		< 10 m	< 10 m	< 10 m	10 - 15 m	10 - 15 m	10 - 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1	1		1	1	1	1	1	1
	Level of Service	**F**	**F**	**F**	**F**	**F**	**-**	**F**	**F**	**F**	**E**	**E**	**E**
		F				**F**				**F**			
Auto	Volume to Capacity Ratio	0.71 - 0.80				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**C**				**A**				**A**			

Multi-Modal Level of Service - Intersections Form

Consultant	**WSP**	**Project**	**19M-00206**
Scenario	**2031 Functional Design PM**	**Date**	**06/03/2021**
Comments	**Scott Street Functional Design**		

INTERSECTIONS		Scott Street & Parkdale Avenue				Scott Street and Carruthers Avenue				Scott Street-Albert Street and Bayview Station Road			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	3	4	4	4	0 - 2	3	3	5	4	4	4
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected/ Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	No Channel
	Corner Radius	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	No Right Turn	5-10m	10-15m	10-15m	10-15m	5-10m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	**59**	**76**	**59**	**59**	**62**	**91**	**90**	**76**	**42**	**65**	**58**	**59**
	Ped. Exposure to Traffic LoS	**D**	**B**	**D**	**D**	**C**	**A**	**A**	**B**	**E**	**C**	**D**	**D**
	Cycle Length	100	100	100	100	100	100	100	100	100	100	100	100
	Effective Walk Time	17	30	21	21	52	52	9	9	30	30	25	25
	Average Pedestrian Delay	**34**	**25**	**31**	**31**	**12**	**12**	**41**	**41**	**25**	**25**	**28**	**28**
	Pedestrian Delay LoS	**D**	**C**	**D**	**D**	**B**	**B**	**E**	**E**	**C**	**C**	**C**	**C**
	Level of Service	**D**	**C**	**D**	**D**	**C**	**B**	**E**	**E**	**E**	**C**	**D**	**D**
		D				**E**				**E**			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>												
	Dedicated Right Turning Speed												
	Cyclist Through Movement	**Not Applicable**		**Not Applicable**	**Not Applicable**		**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**
	Left Turn Approach	2-stage, LT box	One lane crossed	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
	Left Turning Cyclist	**A**	**D**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
	Level of Service	**A**	**D**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
		D				**A**				**A**			
Transit	Average Signal Delay	> 40 sec	> 40 sec	> 40 sec	≤ 30 sec			≤ 20 sec	≤ 20 sec			≤ 30 sec	≤ 10 sec
	Level of Service	**F**	**F**	**F**	**D**	**-**	**-**	**C**	**C**	**-**	**-**	**D**	**B**
		F				**C**				**D**			
Truck	Effective Corner Radius	10 - 15 m	10 - 15 m	< 10 m	< 10 m	< 10 m		< 10 m	< 10 m	< 10 m	10 - 15 m	10 - 15 m	10 - 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1	1		1	1	1	1	1	1
	Level of Service	**E**	**E**	**F**	**F**	**F**	**-**	**F**	**F**	**F**	**E**	**E**	**E**
		F				**F**				**F**			
Auto	Volume to Capacity Ratio	0.91 - 1.00				0.0 - 0.60				0.61 - 0.70			
	Level of Service	**E**				**A**				**B**			