Transportation Impact Assessment – Step 4: Analysis

4624 Spratt Road – Block 177

Prepared for Claridge Homes
by IBI Group
December 21, 2021

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 21st day of December, 2021.
(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

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Document Control Page

CLIENT:	Claridge Homes
PROJECT NAME:	4624 Spratt Road – Block 177
REPORT TITLE:	Transportation Impact Assessment
IBI REFERENCE:	135856
VERSION:	Draft
DIGITAL MASTER:	135856 4624 Spratt Road – EP2020-097 – Internal Documents\6.0 _Technical\6.23_Traffic\03_Tech-Reports\TTR_4624_Spratt_Road _TIA_MASTER_2021-08-26.docx
ORIGINATOR:	Isabel Loewen
REVIEWER:	David Hook/Ben Pascolo-Neveu
AUTHORIZATION:	David Hook
CIRCULATION LIST:	Neeti Paudel - City of Ottawa Transportation Project Manager Vincent Denomme – Claridge Homes
HISTORY:	TIA Step 1 & 2 Submitted for City Review – September 27, 2021 TIA Step 3 Submitted for City Review – November 10, 2021 TIA Step 4 Issued to Client for Submission to City – December 21, 2021

Executive Summary

IBI Group (IBI) was retained by Claridge Homes to undertake a Transportation Impact Assessment (TIA) in support of a Site Plan Control application for a proposed residential development to be located at 4624 Spratt Road, Ottawa and referred to as Block 177. The site occupies approximately 2.0 hectares of undeveloped greenfield land and is bound by Spratt Road to the east, an existing residential development to the north and west, and a future Bus Rapid Transit (BRT) corridor to the south.

The proposed development consists of 120 dwelling units evenly distributed between ten, three-storey buildings and will be accessed via two all-movement site access driveways on Spratt Road. The southern access driveway will align directly opposite Cambie Road and form the west leg of the existing Spratt & Cambie intersection. It is expected that the proposed development will be constructed and fully occupied in a single phase by 2025, therefore the horizon year for this study was taken as 2030.

Consistent with other recently conducted TIAs within the Riverside South Community, an extensive inventory of 19 existing and future potential developments was considered in the assembly of traffic volumes for this study. A site visit was conducted in August 2021 to document the approximate occupancy rates for each adjacent development.

Based on the trip generation exercise conducted as part of this study, the proposed development is expected to generate up to 96 and 108 person-trips during the weekday morning and afternoon peak hours, respectively. Mode share assumptions were developed with reference to the South Gloucester/Leitrim TAZ from the 2020 TRANS Trip Generation Manual and with further adjustments to account for a linear increase in the transit mode share to 32% by 2031, consistent with the Draft Riverside South Community Design Plan Transportation Update. The resulting vehicular traffic generation for the proposed development was determined to be 22 and 23 two-way trips during the weekday morning and afternoon peak hours, respectively. These vehicle trips were divided amongst the two site access driveways, further reducing their impacts on the adjacent road network. Transportation Demand Management (TDM) measures are being proposed to further offset the site-generated vehicular demand and support non-auto mode share targets proposed in this study.

In terms of site design, a network of strategically located on-site concrete sidewalks will be provided to facilitate access between building entrances and integrate with pedestrian facilities on Spratt Road, as well as abutting residential neighbourhoods to the north and west. The inclusion of pedestrian-only connections to adjacent neighbourhoods will encourage the use of sustainable modes of transportation by reducing the overall walking distance to Riverview Station, as well as other amenities on Earl Armstrong Road and align with the City's objective of establishing 15-minute neighbourhoods.

Based on the capacity analysis conducted for this study, both study area intersections are expected to operate acceptably beyond the 2030 horizon year. The performance of these intersections is anticipated to be largely unimpacted by the site-generated traffic. As indicated through queueing analysis, it was confirmed that the existing southbound left-turn auxiliary lane at the Spratt & Cambie intersection will provide adequate storage for vehicles and no additional auxiliary turn lanes are warranted at the study area intersections.

As the multi-modal impact of the proposed development on the study area intersections will be insignificant, no off-site modifications will be required and therefore the TIA does not include an RMA component. It should be noted that a Roadway Modification Application (RMA-2019-TPD-034) was previously approved to support the urbanization of Spratt Road from Cambie Road to just south of Borbridge Avenue which includes the remaining rural segment along the site's frontage. The urbanization of Spratt is slated for completion by mid-2022 and therefore is expected to be in place well in advance of the site's full build-out in 2025.

Similarly, due to the negligible increases in site-generated traffic forecasted 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.

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1 Introduction

IBI Group (IBI) was retained by Claridge Homes to undertake a Transportation Impact Assessment (TIA) in support of a Site Plan Control Application for a proposed residential development to be located at 4624 Spratt Road, Ottawa, and referred to as Block 177.

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 but 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. It also 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 policies and city-building objectives.

Throughout the development of a TIA report, each of the four study components above are submitted in draft form to the City of Ottawa and undergo a review by a designated Transportation Project Manager. Any comments received are addressed to the satisfaction of the City's Transportation Project Manager before proceeding with subsequent components of the study. All technical comments and responses are included in **Appendix A**.

A Roadway Modification Application (RMA-2019-TPD-034) was previously approved to support the urbanization of Spratt Road from Cambie Road to just south of Borbridge Avenue. As such, it is not expected that an RMA will be required as part of this study. The submission may require a post-development Monitoring Plan to track performance of the planned TIA Strategy, however the need for a Monitoring Plan will be confirmed through the analysis undertaken for this report, or at the discretion of City staff.

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 residential dwelling units, the minimum development size threshold has been exceeded and therefore the Trip Generation Trigger is satisfied. It should be noted, however, that preliminary trip generation calculations indicate that the proposed development is expected to generate a relatively low volume of traffic in the order of 25 vehicle trips during the weekday morning and afternoon peak hours.
- **Location**: The proposed development is located immediately adjacent to a planned rapid transit station and will be accessed from Spratt Road, which is identified as a "Primary Cycling Route" in the Riverside South Community Design Plan. 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 to the site. Based on the conditions assessed, the northern site access driveway is located within the tail of the southbound left-turn auxiliary lane serving the Cambie & Spratt Road intersection. As such, the Safety Trigger is satisfied.

As the proposed development meets all three of the above noted triggers, the need to undertake a Transportation Impact Assessment is confirmed.

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

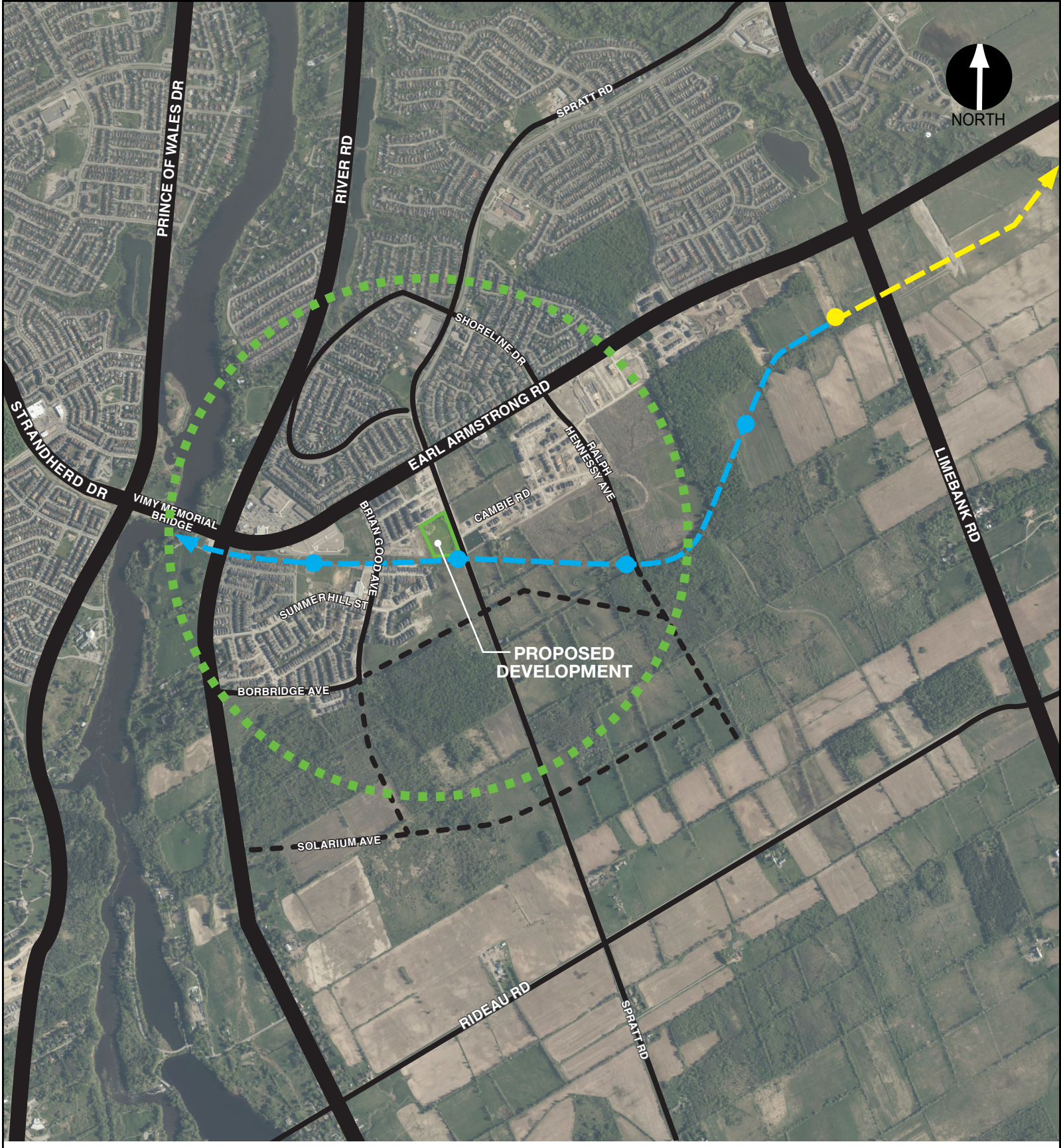
3 Project Scoping

3.1 Description of Proposed Development

3.1.1 Site Location

The proposed development is located at 4624 Spratt Road in the community of Riverside South, approximately 200 metres south of Earl Armstrong Road. The site occupies approximately 2.0 hectares of undeveloped greenfield land and is bound by Spratt Road to the east, an existing residential development to the north and west, and a future Bus Rapid Transit (BRT) corridor to the south.

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



ARTERIALS
COLLECTORS
FUTURE ROAD
CONTEXT AREA - 1 KM RADIUS
FUTURE BRT
FUTURE BRT STATION
FUTURE LRT
FUTURE LRT STATION

IBI

4624 Spratt Road - Block 177
Transportation Impact Assessment

EXHIBIT 1: Site Location

Project No: 135856
Scale:
0m 100m

3.1.2 Land Use Details

Table 1 below summarizes the proposed land use statistics.

Table 1 - Land Use Statistics

LAND USE	SIZE (APPROX. # OF UNITS)
Mid-Rise Residential Units	120

The proposed development is illustrated in **Exhibit 2**.

Direct vehicular access to Spratt Road will be provided by two full-movement site access driveways, referred to herein as Site Access #1 (northern access) and Site Access #2 (southern access). Site Access #2 will form the west leg of the Spratt & Cambie intersection.

In terms of parking, a total of 168 vehicle stalls are proposed, along with 60 bike parking stalls. Details relating to the appropriateness of this parking supply will be further discussed in the Analysis section of this report.

The subject site is currently an undeveloped greenfield site and, according to GeoOttawa, is zoned GM – General Mixed-Use.

3.1.3 Development Phasing & Date of Occupancy

The proposed development is anticipated to be fully built out in a single phase by 2025.

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4624 Spratt Road - Block 177
Transportation Impact Assessment

Exhibit 2:
Proposed Development

PROJECT No. 135856

SCALE: 0m 20m 40m

3.2 Existing Conditions

3.2.1 Existing Road Network

3.2.1.1 Roadways

The proposed development is bound by the following street:

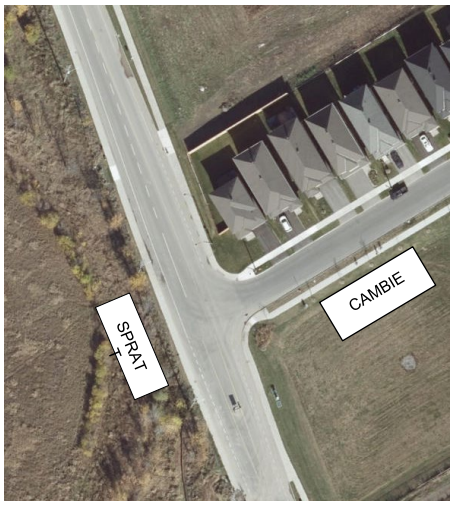
- **Spratt Road** is a major collector road under the jurisdiction of the City of Ottawa that extends from Limebank Road in the north to Mitch Owens Road in the south and has a 26m ROW through the context area. Spratt Road has an urban cross-section with a posted speed limit of 60 km/h north of Cambie Road and becomes a rural road with a posted speed limit of 80 km/h further south.

Other streets within the vicinity of the proposed development are as follows:

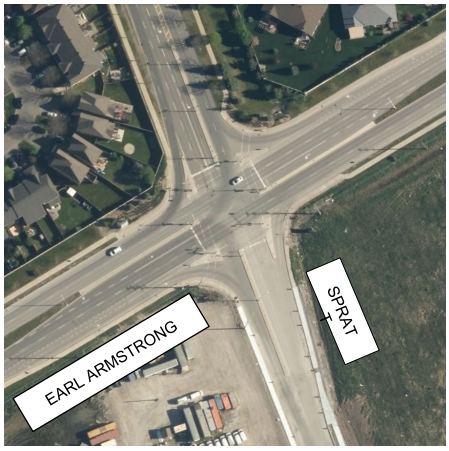
- **Cambie Road** is an east-west, two-lane urban local road under the jurisdiction of the City of Ottawa with a ROW of 20m that provides access to the Riverside South Phase 8/13 communities and has an unposted speed limit of 50km/h.
- **Earl Armstrong Road** is an urban arterial road under the jurisdiction of the City of Ottawa with a 44.5m ROW in the City of Ottawa Official Plan. Earl Armstrong Road is oriented east-west and extends from River Road in the west to High Road in the east. Further west, across the Vimy Memorial Bridge, Earl Armstrong Road becomes Strandherd Drive, which is also designated as an urban arterial road with a similar ROW. Through the context area of this study, Earl Armstrong Road has a four-lane, divided urban cross-section with a posted speed limit of 80km/h.
- **Borbridge Avenue** is an urban major collector road under the jurisdiction of the City of Ottawa that is presently open to general traffic from River Road to Spratt Road and will ultimately extend further east to Bowesville Road as development proceeds in the area. The existing portion of Borbridge Avenue has a two-lane cross-section with a 26m ROW and an unposted speed limit of 50 km/h.

3.2.1.2 Intersections

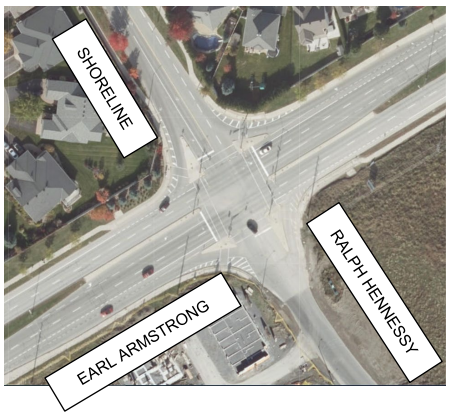
The following existing intersection is located within closest proximity to the proposed development:



- **Spratt Road & Cambie Road** is a three-legged, unsignalized intersection with a stop-controlled westbound approach and free-flow in the north-south directions. The intersection is configured with a shared westbound approach, an auxiliary left-turn lane on the southbound approach and a single through-right-turn lane on the northbound approach. Bicycle lanes are provided on Spratt Road through this intersection.

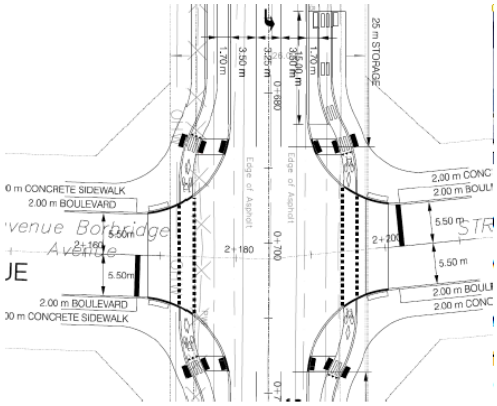


- **Earl Armstrong Road & Spratt Road** is a four-legged signalized intersection with left-turn lanes on all approaches, channelized right-turn auxiliary lanes on the eastbound and westbound approaches and a channelized right-turn taper on the northbound approach. It should be noted that the aerial image to the left is outdated and on the southbound approach there is now only one through lane and the second through lane now transitions to a channelized right-turn lane. Bicycle lanes are provided on Earl Armstrong Road through this intersection.



- **Earl Armstrong Road & Shoreline Drive/Ralph Hennessy Avenue** is a four-legged, signalized intersection with auxiliary left-turn lanes on all approaches, channelized right-turn auxiliary lanes on the eastbound and westbound approaches and channelized right-turn tapers on the northbound and southbound approaches. Bicycle lanes are provided on Earl Armstrong Road through this intersection.

- **Earl Armstrong Road & Brian Good Avenue** is a three-legged, unsignalized intersection with a channelized auxiliary right-turn lane on the eastbound approach. Both the east and westbound approaches include two dedicated through lanes and the westbound approach also consists of an auxiliary left-turn lane. The northbound approach is stop-controlled with a single shared right-left lane. Bicycle lanes are provided on Earl Armstrong Road through this intersection.



- **Spratt Road and Borbridge Avenue** is a four-legged intersection that is currently under construction. The intersection will provide cycle tracks and auxiliary left-turn lanes along Spratt Road, with stop-control on Borbridge Avenue. The intersection design provisions for future conversion to All-Way Stop Control as the lands to the east of Spratt Road are developed.

3.2.1.3 Driveways Adjacent to Development Access

There are no existing private approaches within 200m of either proposed site access driveway.

3.2.1.4 Traffic Management Measures

There are currently no existing traffic management or traffic calming measures on the boundary streets within the vicinity of the proposed development.

3.2.2 Existing Bicycle and Pedestrian Facilities

Exclusive bike lanes and concrete sidewalks are currently provided on both sides of Earl Armstrong Road within the limits of the context area, as well as on Spratt Road from Earl Armstrong to just south of Cambie.

3.2.3 Existing Transit Facilities and Service

The following transit routes, operated by OC Transpo, exist within the vicinity of the site:

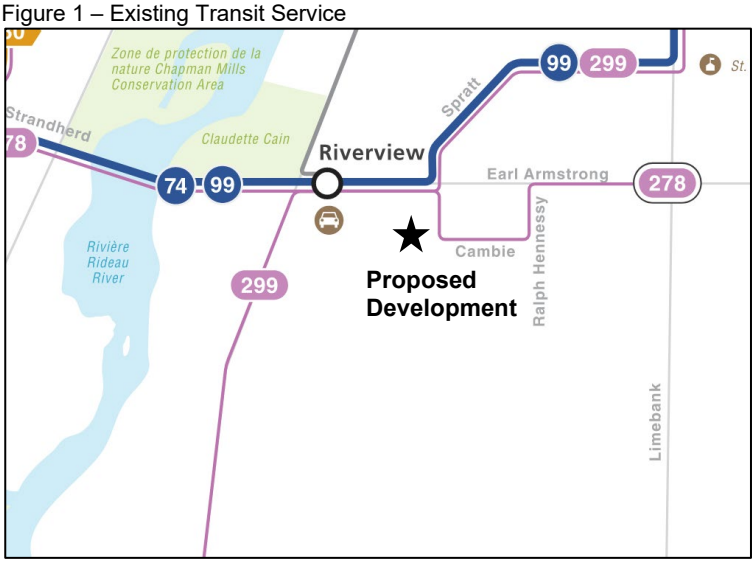
- **Route #74** provides regular, all-day service between Tunney's Pasture Station and the Riverview Park & Ride and operates on a 15-minute headway. On weekends, service frequency is reduced to every 30 minutes.
- **Route #99** provides regular, all-day service between Greenboro Station and Barrhaven Centre. During weekday peak periods, service is extended to Hurdman Station and the route operates on a 15-minute headway. On weekends, frequency is reduced to 30 minutes.
- **Route #278** provides weekday peak period service between Earl Armstrong/ Limebank and Tunney's Pasture Station and operates on a 15-minute headway.

- **Route #299** provides weekday peak period service between the village of Manotick and Hurdman Station.

The nearest bus stops to the proposed development are presently located at the intersection of Spratt & Cambie, immediately east of the proposed development, providing access to Route #278. All other routes in the context area are accessed via bus stops at the intersection of Spratt & Earl Armstrong, approximately 350m north of the site or via the Riverside Park & Ride, approximately 450m west of the site.

The existing transit network within the vicinity of the proposed development is illustrated in **Figure 1**. Transit service maps for the individual routes above are provided in **Appendix C**.

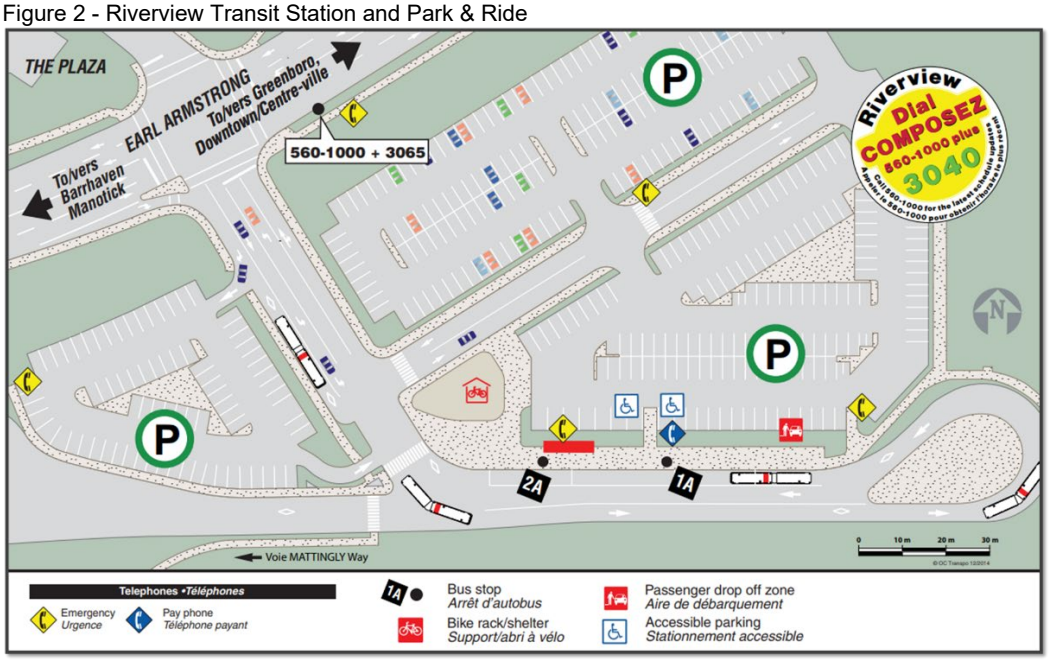
Figure 1 – Existing Transit Service



Source: OC-Transpo

The Riverview Park & Ride contains approximately 400 parking spaces. Each of the transit routes described above can be accessed via this station. Exclusive transit lanes are provided on Earl Armstrong Road between the Riverview Park & Ride and the adjacent community of Barrhaven via the Vimy Memorial Bridge. The Riverview Park & Ride station is shown below in **Figure 2** below.

Figure 2 - Riverview Transit Station and Park & Ride



Source: OC Transpo

3.2.4 Collision History

A review of historical collision data has been conducted for the road network surrounding the proposed development. The TIA Guidelines require a safety review if at least six collisions for any one movement or of a discernible pattern, over a five-year period have occurred. **Table 2** summarizes all reported collisions between January 1, 2014 and January 1, 2019.

Table 2 – Reported Collisions within Vicinity of Proposed Development

LOCATION	# OF REPORTED COLLISIONS
INTERSECTIONS	
Spratt & Cambie	0[1]
Earl Armstrong & Spratt	30
Earl Armstrong & Ralph Hennessy	9
Earl Armstrong & Brian Good	4
SEGMENTS	
Spratt Road - Earl Armstrong to Rideau	5

Notes: This intersection was constructed in 2016, therefore less than 5 years of collision data exists.

Based on the collision history noted above, intersections or road segments with more than six collisions over the five-year period may require further review.

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. Daily intersection volumes are based on the Average 24-hour Traffic volumes provided with City turning movement counts.

The above noted intersections are therefore calculated as having average collision frequencies per MVE values:

- Earl Armstrong Road & Spratt Road – 0.58
- Earl Armstrong Road & Ralph Hennessy Avenue – 0.22
- Earl Armstrong Road & Brian Good Avenue – 0.08

None of the intersections evaluated above have frequencies in excess of 1.0 and therefore are not considered significant.

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

3.3 Planned Conditions

3.3.1 Transportation Network

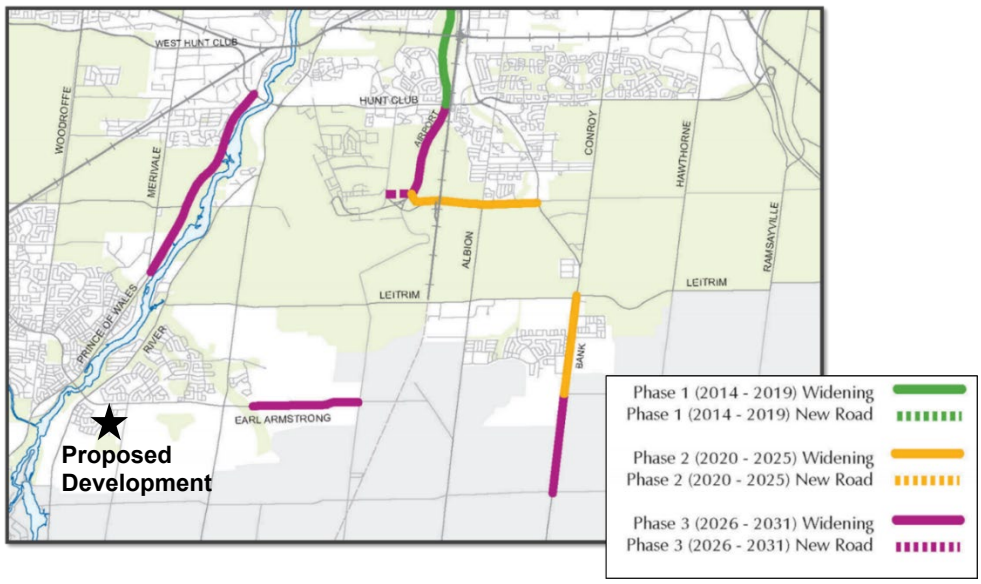
3.3.1.1 Future Road Network Projects

The 2013 Transportation Master Plan (TMP) outlines future road network modifications required in the 2031 'Affordable Network'. The following projects were noted that may have an impact on area traffic within the vicinity of the site:

- **Earl Armstrong Road** – Planned widening from two to four lanes between Limebank Road and Bowesville Road (Phase 3: 2026-2031)
- **Prince of Wales Drive** – Planned widening from two to four lanes between Merivale Road and West Hunt Club Road (Phase 3: 2026-2031)

Figure 3 below illustrates the planned changes to the arterial road network projects in the broader area, as per the TMP 'Affordable Network'. It should also be noted that Prince of Wales Drive underwent intersection and coordinated network modifications from approximately 480m north of Strandherd Drive to West Hunt Club Road in 2017.

Figure 3 - Future Road Network Projects



Source: 2013 Transportation Master Plan – Map 11 '2031 Affordable Network'

Development Charges Background Study

The Development Charges (DC) Amendment Background Study (March 2019), published well after the 2013 TMP, indicates the following refined timelines or additional transportation network projects are expected within the context area:

- **Earl Armstrong Road:** Widening is now planned for implementation between 2030 and 2031, according to the DC study.
- **Prince of Wales Drive:** Widening in the DC study identifies a consistent timeline with the TMP (i.e. 2026-2031), however more recent correspondence from City technical staff now indicates the implementation of this widening is not expected to occur until after 2031.
- **Spratt Road:** The DC study indicates that this road is planned for urbanization between Cambie Road and the Urban Boundary, although the timing provided is beyond the 2031 horizon.

Spratt Road Urbanization

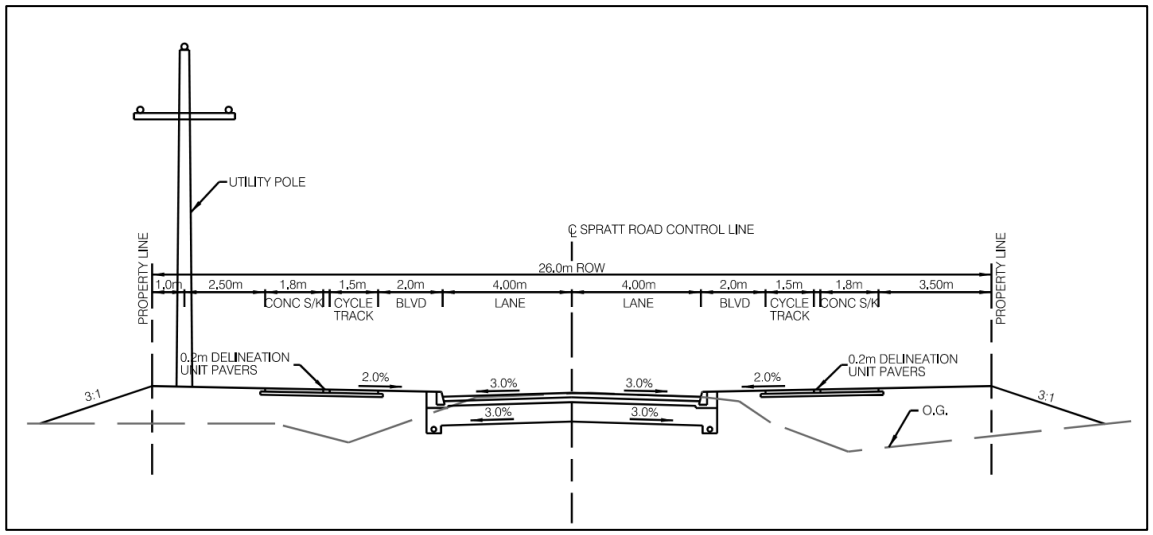
Despite the 2019 DC Background Study indicating an implementation timeline that is beyond 2031, the urbanization of Spratt Road is slated to occur in mid-2022 from Cambie Road to south of the future Borbridge Avenue intersection to support ongoing development in Riverside South. In 2019, a Roadway Modification Application (RMA) was undertaken for the redesign of Spratt Road from Cambie to just south of Borbridge Avenue in accordance with the City's Complete Streets Framework (October, 2015). The functional design was divided into two phases. This RMA was subsequently approved by the City. The surface work associated with Phase 1 of the Spratt Road urbanization is expected to be constructed in summer 2022.

Typical cross-section plans for the Spratt Road RMA are shown in **Figure 4** below.

As the Spratt Road urbanization includes a Complete Streets design, Module 4.3 of the TIA Guidelines indicates that the following 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.

Figure 4 - Typical Cross-section Plan - Spratt Road Urbanization RMA (Cambie to Solarium)



Source: City of Ottawa

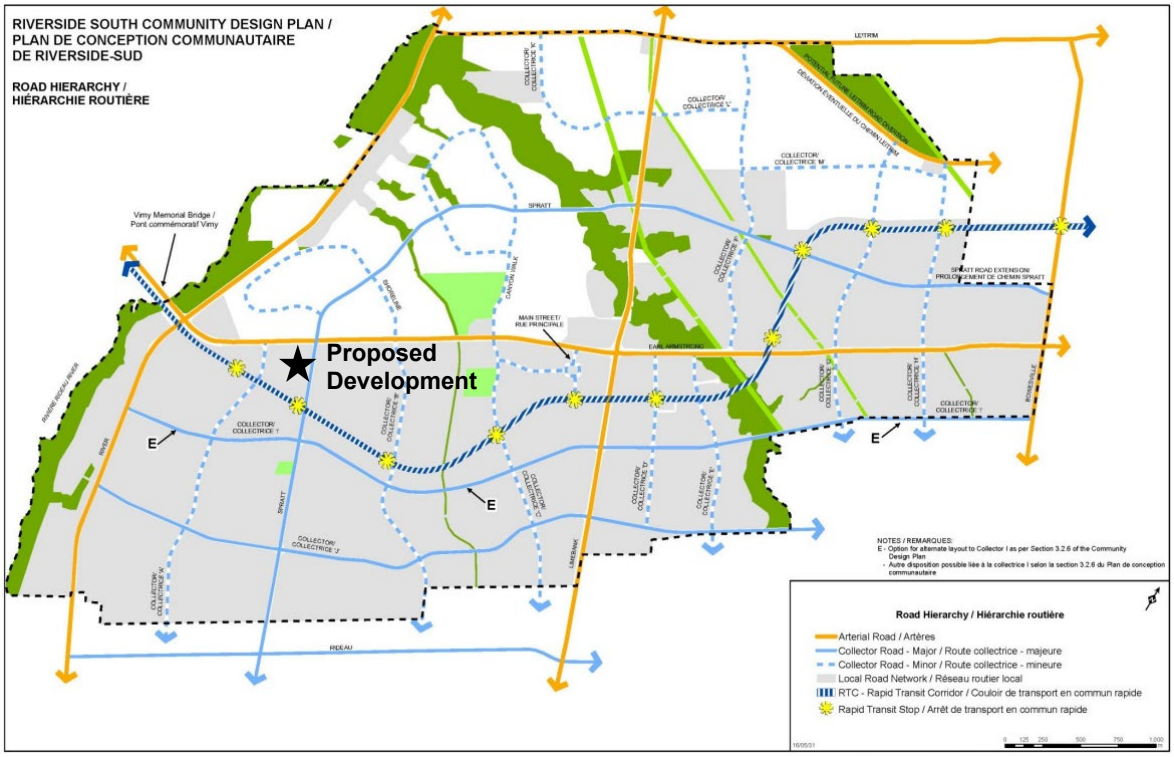
It should be noted that both of the proposed site access driveways are located outside of the RMA limits and therefore do not impact the approved design.

Riverside South CDP

The Riverside South Community Design Plan (CDP) identifies two major east-west collector roads to the south of the planned rapid transit corridor. As indicated in **Figure 5** below, Collector 'I' represents Borbridge Avenue which will ultimately extend from River Road to Bowesville Road. Further to the south, Collector 'J' represents Solarium Avenue and will provide a connection between River Road and Limebank Road. The CDP also indicates that Ralph Hennessy Avenue will be extended south towards Rideau Road. Further, the eventual construction of a Rapid Transit Corridor immediately south of the proposed development, connecting the Riverside Park and Ride with the future O-Train terminus at Limebank Road, is identified in the CDP plans and will include a station at Spratt Road. The implementation of rapid transit along this corridor, however, is presently not expected within the City's 2031 planning horizon year.

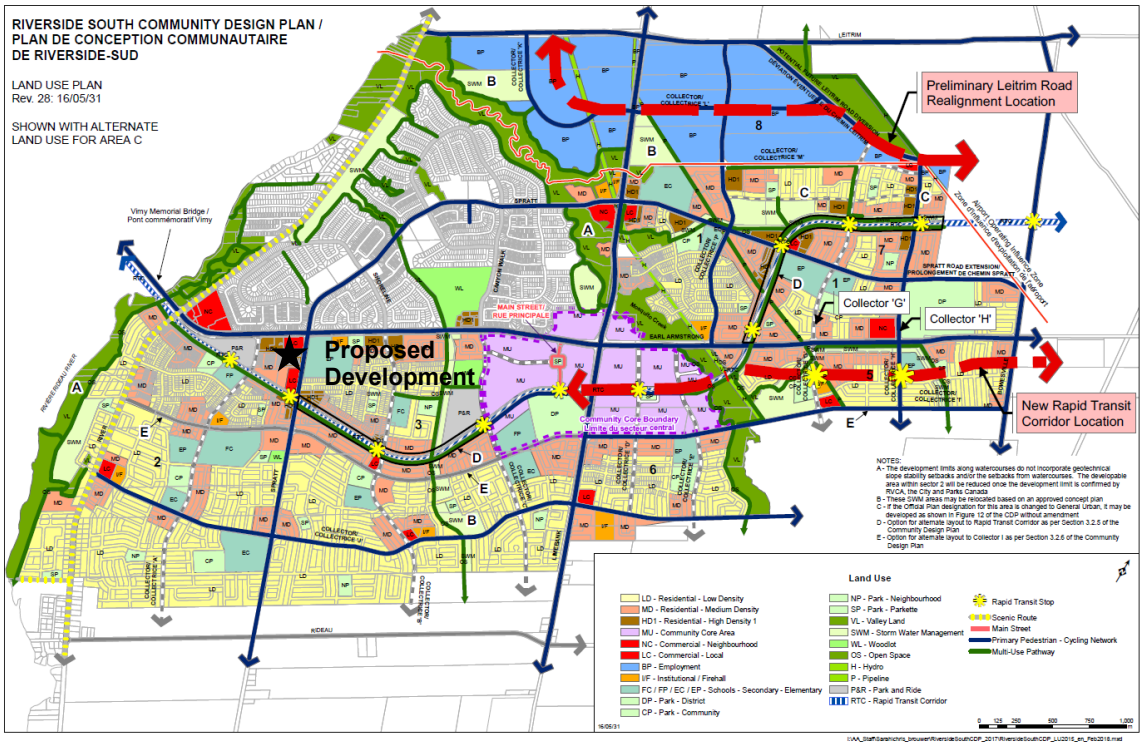
Since the CDP was originally approved in 2016, an update has been initiated by Council to further guide the development in Riverside South, primarily around the future Limebank LRT Station. An updated network concept plan is provided in **Figure 6** below.

Figure 5 - Riverside South Community Design Plan - Network Concept



Source: Riverside South Community Design Plan

Figure 6 – Draft Riverside South Community Design Plan Update - Network Concept



Source: Draft Riverside South Community Design Plan Update

3.3.1.2 Future Transit Facilities and Services

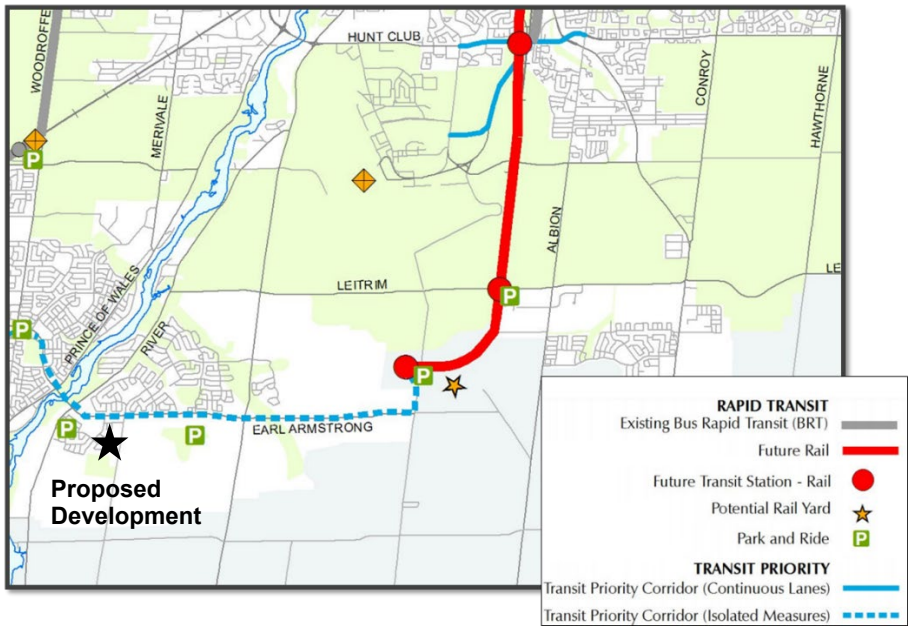
The 2013 TMP outlines the future rapid transit and transit priority (RTTP) network. The following projects were noted in the 'Affordable RTTP Network' that may have a future impact on study area traffic:

- **Trillium Line Extension** – Extension of the Trillium Line from its current terminus at Greenboro Station to Bowesville Station. The *Trillium Line Extension Planning and Environmental Assessment (EA) Study (January 2016)* and the *Trillium Line Light Rail Transit Extension Addendum (September 2018)* both expand upon the TMP. The Trillium Line will now extend to Limebank Road with a spur line to the Ottawa International Airport. Based on the official City of Ottawa Stage 2 LRT website, the Trillium Line South Extension is expected to begin revenue service by the end of 2022.
- **Chapman Mills/ Strandherd Drive/ Earl Armstrong Road Transit Priority Corridor** - The corridor is expected to be upgraded with transit signal priority and queue jump lanes between the Barrhaven Town Centre Station and Bowesville Station. There is presently no specific timing available for the implementation of this project.

Figure 7 below shows the transit infrastructure projects in the vicinity of the proposed development that are part of the 2031 Affordable Network. The proposed Trillium Line South Extension, including the recommendations from the EA study and the Addendum, are illustrated in **Figure 8** below.

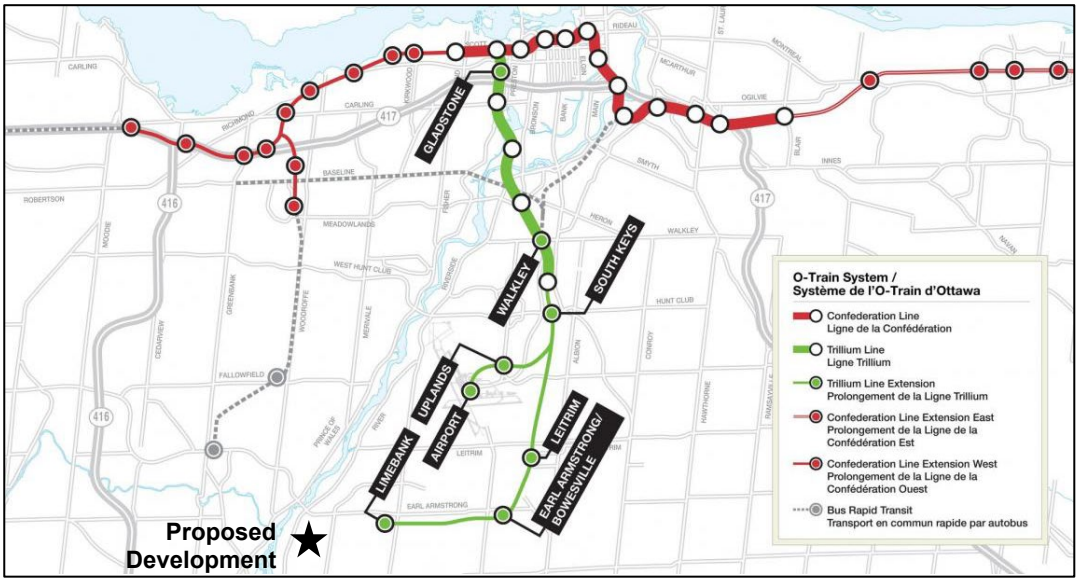
As shown previously in **Figure 5**, the Riverside South CDP identifies the eventual construction of a Rapid Transit Corridor to the north of the proposed development, connecting the Riverside Park and Ride with the future O-Train terminus at Limebank Road. The implementation of this corridor, however, is presently not expected to occur within the City's 2031 planning horizon.

Figure 7 - Future 'Affordable RTTP Network Projects'



Source: 2013 Transportation Master Plan – Map 5 '2031 Affordable Network'

Figure 8 - Stage 2 LRT - Trillium Line Extension



Source: City of Ottawa Stage 2 LRT Project Website – Trillium Line South Extension

3.3.1.3 Future Cycling and Pedestrian Facilities

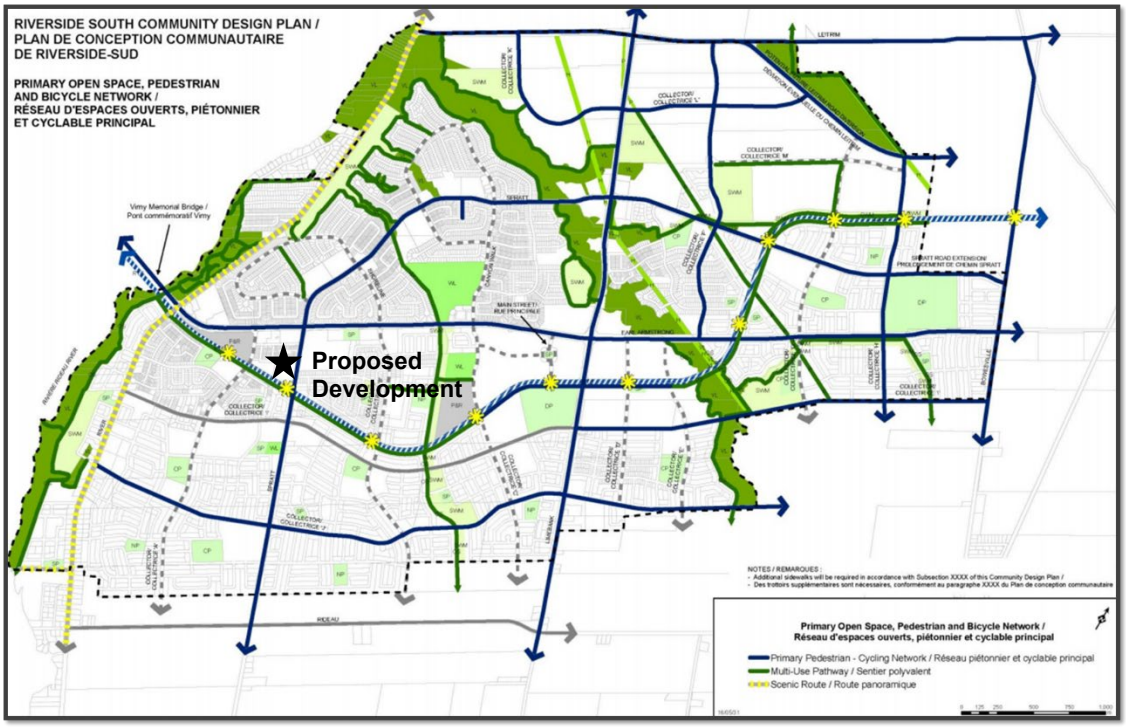
The Transportation Master Plan (TMP) designates Earl Armstrong Road as a 'Spine' or City-wide Cycling Route, which forms part of a system linking the commercial, employment, institutional, residential and educational nodes throughout the City of Ottawa. Spratt Road is identified as a "Local Route" in the Ultimate Cycling Network.

The Riverside South CDP provides guidance on future active transportation facilities within the area, including a multi-use pathway along the proposed Rapid Transit corridor. Furthermore, it describes Earl Armstrong Road and Spratt Road each as being part of the 'Primary Pedestrian – Cycling Network'.

As indicated previously, the redesign of Spratt Road includes a narrowed, 8-metre pavement width and segregated bicycle and pedestrian facilities. Bicycle facilities are in the form of uni-directional cycle tracks on either side of Spratt Road which will transition to the existing on-road bike lanes in the vicinity of Cambie Road.

The planned cycling and pedestrian network indicated in the CDP is shown below in **Figure 9** below.

Figure 9 - Riverside South Community Design Plan - Cycling and Pedestrian Network



Source: Riverside South Community Design Plan

3.3.2 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.

There are 19 known developments of significance in the vicinity of the proposed development that are either in the development application approval process, are in pre-construction or are in varying stages of construction. For these developments, all unoccupied units are accounted for in the development of background traffic volumes using consistent trip generation assumptions. Traffic generated by occupied units is assumed to have been captured in the existing traffic data, based on a site visit conducted by IBI staff on August 26, 2021.

All current development applications adjacent to the site are summarized in **Table 3**, while future potential developments that have no official status are summarized in **Table 4**. Build-out assumptions for future potential developments will be discussed further in the Forecasting section of this TIA. The approximate locations of all current adjacent development applications and future potential developments are shown in **Exhibit 3** below.

Table 3 - Adjacent Developments (Current Development Applications)

DEVELOPMENT	LAND USE	SIZE	BUILT & OCCUPIED	% BUILT & OCCUPIED	BUILD-OUT
River's Edge Phase 1 (Claridge)	Single Family Residential	268 units	134 units	50%	2022
	Townhome	172 units	86 units	50%	2022
River's Edge Phase 2 (Claridge)	Single Family Residential	78 units	0 units	0%	2024
	Townhome	237 units	0 units	0%	2024
Phase 8 (RSDC)	Single Family Residential	176 units	176 units	100%	Completed
	Townhome	256 units	256 units	100%	Completed
	Stacked Townhomes	169 units	66 units	39%	2022
Phase 9 South (RSDC)	Single Family Residential	414 units	414 units	100%	Completed
	Townhome	760 units	760 units	100%	Completed
	Stacked Townhome	181 units	181 units	100%	Completed
Phase 9 North (RSDC)	Shopping Centre	101,000 sqft	0 sqft	0%	2022
	Stacked Townhome	94 units	94 units	100%	Completed
Phase 13 (RSDC)	Single Family Residential	282 units	282 units	100%	Completed
	Townhome	190 units	190 units	100%	Completed
Phase 15-1 (RSDC)	Single Family Residential	168 units	160 units	95%	2021
	Townhome	342 units	325 units	95%	2021
Phases 15-2 (RSDC)	Single Family Residential	151 units	15 units	10%	2023
	Townhome	99 units	10 units	10%	2023
Phase 15-3 (RSDC)	Single Family Residential	260 units	0 units	0%	2025
	Townhome	158 units	0 units	0%	2025
Phase 15-4	Single Family Residential	22 units	4 units	20%	2026

DEVELOPMENT	LAND USE	SIZE	BUILT & OCCUPIED	% BUILT & OCCUPIED	BUILD-OUT
(RSDC)	Townhome	114 units	23 units	20%	2026
879 River Road (Richcraft)	Townhome	117 units	0 units	0%	2023
673 River Road (Cardel Homes)	Single Family Residential	234 units	0 units	0%	2029
	Townhome	260 units	0 units	0%	2029
708 River Road (Urbandale)	Single Family Residential	80 units	0 units	0%	2023
	Condominium	110 units	0 units	0%	2024
750 River Road (Urbandale)	Townhome	55 units	0 units	0%	2023
760 River Road (Claridge)	Single Family Residential	55 units	0 units	0%	2023
4725 Spratt Road (Claridge)	Townhome	275 units	0 units	0%	2023
Block K - Residential (Claridge)	Stacked Townhomes	43 units	43 units	100%	Completed
Phase 17-1 (RSDC)	Single Family Residential	351 units	0 units	0%	2024
	Townhome	173 units	0 units	0%	
Phases 17-2 & 17-3 (RSDC)	Single Family Residential	79 units	0 units	0%	2026
	Townhome	418 units	0 units	0%	
	Stacked Townhome	138 units	0 units	0%	

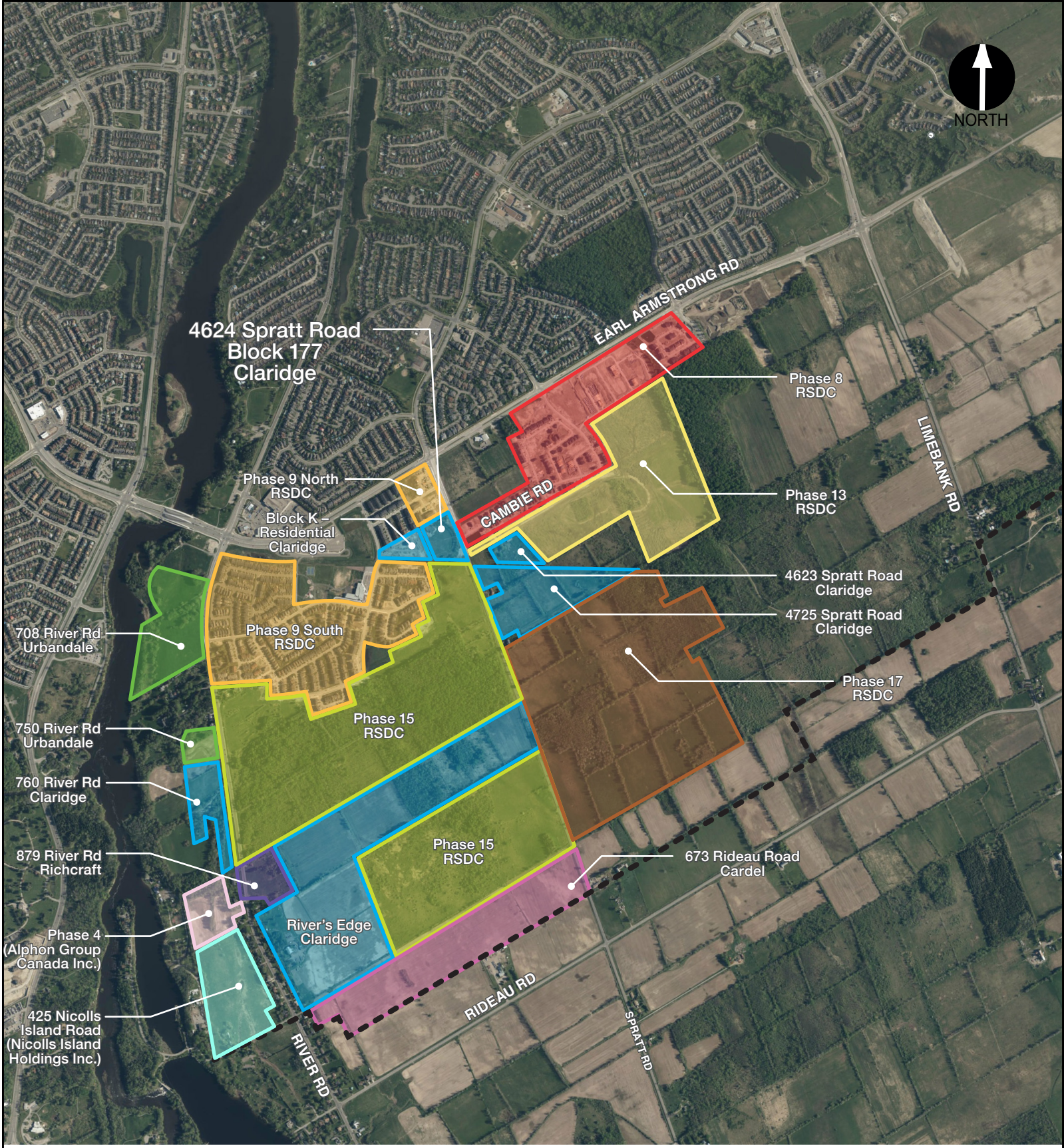
Notes:
Approximate occupancy rates and build outs are based on a survey conducted by IBI staff on August 26, 2021.
RSDC = Riverside South Development Corporation (RSDC).

Table 4 - Future Potential Developments

DEVELOPMENT	LAND USE	SIZE
Phase 4 (Nicolls Island Road Holdings Inc.)	Single Family Residential	24 units
	Townhome	31 units
425 Nicolls Island Road (Alphon Group Canada Inc.)	Single Family Residential	118 units
	Townhome	23 units

Notes:

Build-out years are not known for these developments and construction has not started. Assumptions regarding the build-out of developments in Table 4 are provided in the Forecasting section of this TIA.



Riverside South Development Corporation (RSDC) – Phase 8
Riverside South Development Corporation (RSDC) – Phase 13
Riverside South Development Corporation (RSDC) – Phase 15
Riverside South Development Corporation (RSDC) – Phase 17
Cardel
Alphon Group Canada Inc.
Nicolls Island Holdings Inc.
Urban Boundary
Richcraft
Urbandale
Claridge

3.3.3 Network Concept Screenline

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

3.4 Study Area

As discussed previously, the site-generated impacts associated with the proposed development are expected to be marginal, with preliminary estimates indicating that two-way trip generation is not expected to exceed 25 vehicles during either the weekday morning or afternoon peak hours. The proposed development will therefore focus on site-specific impacts, with intersection capacity analysis limited to the following intersections:

- Spratt & Site Access #1
- Spratt & Cambie/Site Access #2

The Spratt & Earl Armstrong intersection was excluded from the study area, as this intersection has already been evaluated extensively in numerous TIAs (most recently for the Riverside South Development Corporation's 'Phase 17' subdivision at 4775 & 4875 Spratt Road) which considered an extensive inventory of both existing and future potential developments. Further, in comparison with other larger-scale developments proposed, site-generated traffic contributions associated with the proposed development are not expected to significantly impact operations at Spratt & Earl Armstrong.

Based on the global distributions of traffic assumed for adjacent developments, it is expected that the vast majority of site-generated traffic will continue north on Spratt Road, therefore the overall impact of the proposed development is expected to be nominal. It should be noted that the proposed northern site access driveway will overlap with the tail of the southbound left-turn lane for the Spratt & Cambie intersection and the proposed southern access will form the fourth leg to this intersection. As such, potential impacts to the intersection will be reviewed as part of the intersection capacity analysis.

An intersection Multi-Modal Level of Service (MMLOS) analysis is only required for signalized intersections. It is not anticipated that either site access driveway will require signalization, therefore intersection MMLOS will not be required as part of this study. As specified in the TIA Guidelines, since a Complete Street concept exists for the development's only boundary street (i.e. Spratt Road) along the site's frontage, segment-based MMLOS will not be required as part of this study either.

3.5 Time Periods

As the proposed development will consist of residential land uses, traffic generated during the weekday morning and afternoon peak hours is expected to result in the most significant impact to traffic operations on the adjacent network.

3.6 Existing Lane Configurations & Traffic Volumes

The intersection of Spratt Road and Cambie Road consists of three approaches and the westbound approach is stop-controlled with a single shared left-right lane. The northbound approach includes one shared through-right lane while the southbound approach consists of one designated through lane and an auxiliary left-turn lane with 25m of storage.

In order to approximate traffic volumes along the site's frontage, weekday morning and afternoon peak hour turning movement counts were conducted by the City of Ottawa and supplemented with turning movement counts conducted by IBI:

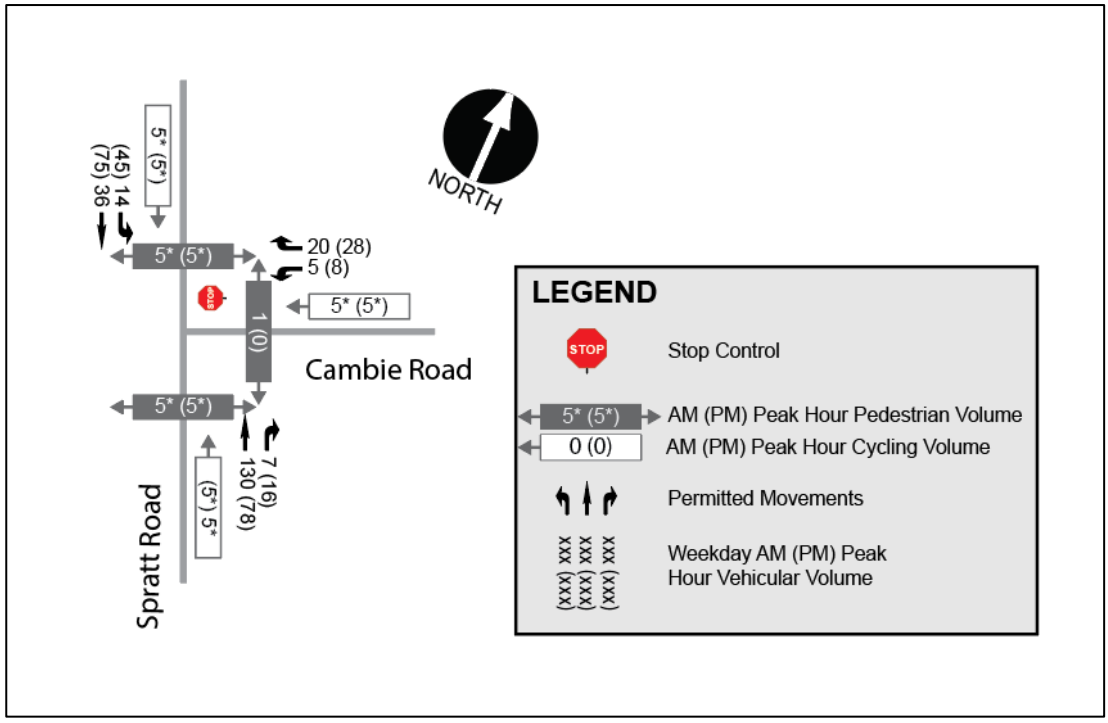
- Earl Armstrong Road & Spratt Road (City of Ottawa, November 2019)
- Spratt Road & Cambie Road (IBI, August 2017)

It is acknowledged that traffic data collected at the Spratt & Cambie intersection was conducted more than 3 years ago, however due to the COVID-19 pandemic it was not possible to collect updated counts representative of typical weekday conditions for this study. Growth in traffic volumes since 2017 were estimated based on progress of adjacent development determined through field investigations conducted by IBI in 2017 and 2021, as well as north-south through volumes associated with the more recent Spratt & Earl Armstrong count.

Traffic count data is provided in **Appendix E**.

Peak hour vehicular, pedestrian and cyclist traffic volumes representative of Existing (2021) conditions are shown in **Figure 10**.

Figure 10: Existing (2021) Traffic



3.7 Study Horizon Year

The following future analysis years will be assessed in this study:

- Year 2025 – Full Build-out/Occupancy
- Year 2030 – 5 Years Beyond Full Build-out/Occupancy

3.8 Exemptions Review

The TIA Guidelines provide exemption considerations for elements of the Design Review and Network Impact components. **Table 5** summarizes the TIA modules that are not applicable to this study.

Table 5 - 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 were developed 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 these 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 South Gloucester/Leitrim TAZ, which has been referenced for this study.

4.1.2 Trip Generation Results

4.1.2.1 Peak Period Person-Trip Generation

Peak period person-trip volumes associated with the 4624 Spratt Road development were derived using trip generation rates from the 2020 TRANS Trip Generation Manual.

The peak period person-trip generation results for the proposed development have been summarized in **Table 6** below. Relevant sections of the 2020 TRANS Trip Generation Manual are included in **Appendix F**.

Table 6 – Peak Period Person-Trip Generation Results

LAND USE	SIZE	PERIOD	GENERATED TRIPS		
			IN	OUT	TOTAL
Multi-Unit (High-Rise) Residential [1]	120 units	AM	30	66	96
		PM	63	45	108

Notes: [1] Defined as 3 storeys or higher in the 2020 TRANS Trip Generation Manual.

4.1.2.2 Mode Share Proportions

The 2020 TRANS Trip Generation Manual provides approximations of the existing modal share within the South Gloucester/Leitrim Traffic Assessment Zone (TAZ).

With respect to future transit mode share, the 2013 Transportation Master Plan (TMP) indicates that between Riverside South/Leitrim and all other areas of the City, the 2031 target was 16% during the weekday peak periods. Since the 2013 TMP, there have been significant changes to transit infrastructure planned within the Riverside South Community. A report entitled the Trillium Line LRT Extension Addendum (September 2018) outlined key changes to the TMP's conceptual alignment, including the relocation of the planned terminus station from its original location at

Bowesville to within the Riverside South Community Core. The Southern Extension is planned as part of the Light Rail Transit (LRT) Phase 2 project. As such, the 2020 TRANS transit mode share percentages of 25% and 21% were applied as starting existing conditions for the weekday morning and peak hours in the South Gloucester/Leitrim TAZ, respectively. These starting points were higher than previously established in the TMP based on the additional improvements to the transit system outlined below.

Further to the planned LRT realignment, the latest evaluation of mode share targets from the Draft Riverside South Community Design Plan Transportation Update (IBI, March 2020) indicates that an overall 32% transit mode share target is now expected by 2031. The impacts to travel behaviour associated with locating a major light rail transit hub within the community are not accounted for in the City's 2031 TMP projections.

Interim transit modal targets for the 2025 and 2030 study horizon years were derived through interpolation between the 2020 TRANS rates and the 2031 CDP targets. The increases in the transit mode share were offset by proportional decreases in auto driver and auto passenger mode share targets, maintaining the existing auto occupancy rate. Further explanation of these adjustments is provided in Section 4.3.2 of this report. No adjustments were made to other sustainable modes of transportation such as walking and cycling for future analysis years in this study.

The existing mode share and proposed mode share targets for each analysis year are identified for the South Gloucester/Leitrim TAZ in **Table 7** below. Relevant extracts from 2020 TRANS Trip Generation Manual and the 2011 O-D Survey are provided in **Appendix F**.

Table 7 - Existing Mode Share and Proposed Mode Share Targets

TRAVEL MODE	EXISTING MODE SHARE		MODE SHARE TARGETS			
	2020[1]		2025		2030	
	AM	PM	AM	PM	AM	PM
Auto Driver	50%	53%	48%	48%	45%	45%
Auto Passenger	15%	17%	14%	16%	14%	14%
Transit	25%	21%	28%	26%	31%	31%
Cycling	1%	1%	1%	1%	1%	1%
Walking	9%	9%	9%	9%	9%	9%

Notes:
[1] – 2020 TRANS Trip Generation Manual

4.1.2.3 Trip Generation by Mode

The 2025 and 2030 mode share targets (**Table 7**) were segregated by travel mode for the peak periods, as summarized in **Table 8** below.

Table 8 – Peak Period Person-Trips by Mode

MODE	2025				2030			
	AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Auto Driver	14	32	30	22	13	30	28	20
Auto Passenger	4	9	10	7	4	9	9	6
Transit	8	19	16	12	9	21	19	14
Cycling	0	1	1	0	0	1	1	0
Walking	3	6	6	4	3	6	6	4
Total	**96**		**108**		**96**		**108**	

4.1.2.4 Peak Hour Trip Generation

The peak period to peak hour conversion factors for TRANS trip generation rates vary by trip type and are applied to the peak period trips resulting from the mode share distribution. The conversion factors utilized are indicated in **Appendix F**.

The results after applying the appropriate conversion factors have been summarized in **Table 9** below.

Table 9 – Peak Hour Person-Trips by Mode

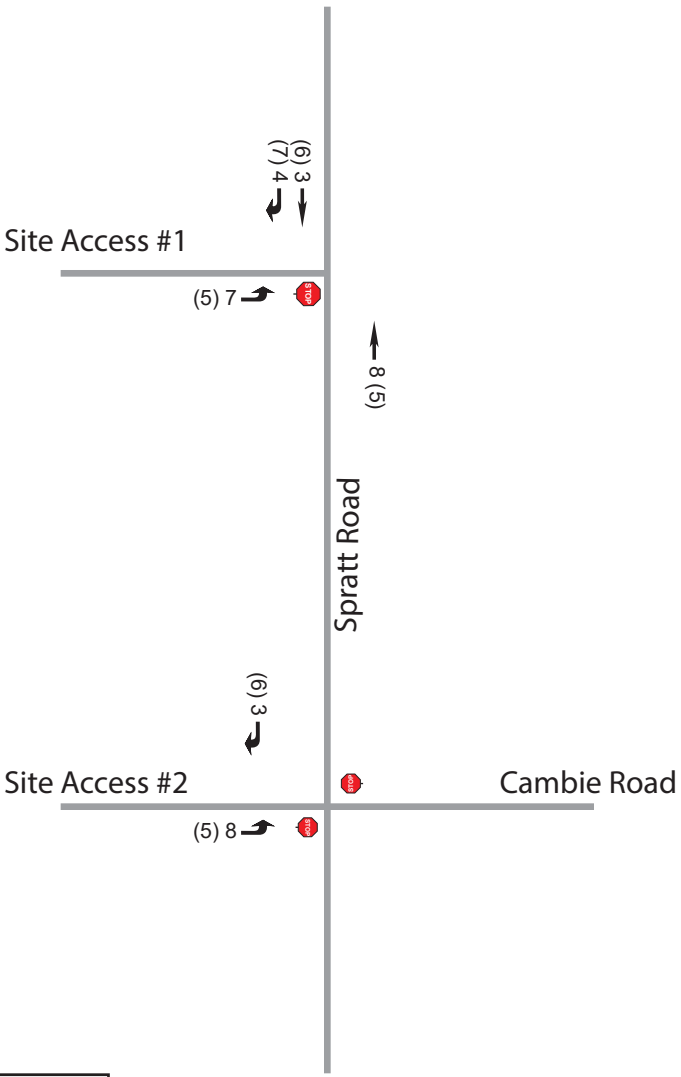
MODE	2025				2030			
	AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Auto Driver	7	15	13	10	6	14	12	9
Auto Passenger	2	4	4	3	2	4	4	3
Transit	5	10	8	6	5	11	9	7
Cycling	0	1	0	0	0	1	0	0
Walking	2	3	3	2	2	3	3	2
Total	**49**		**49**		**49**		**49**	

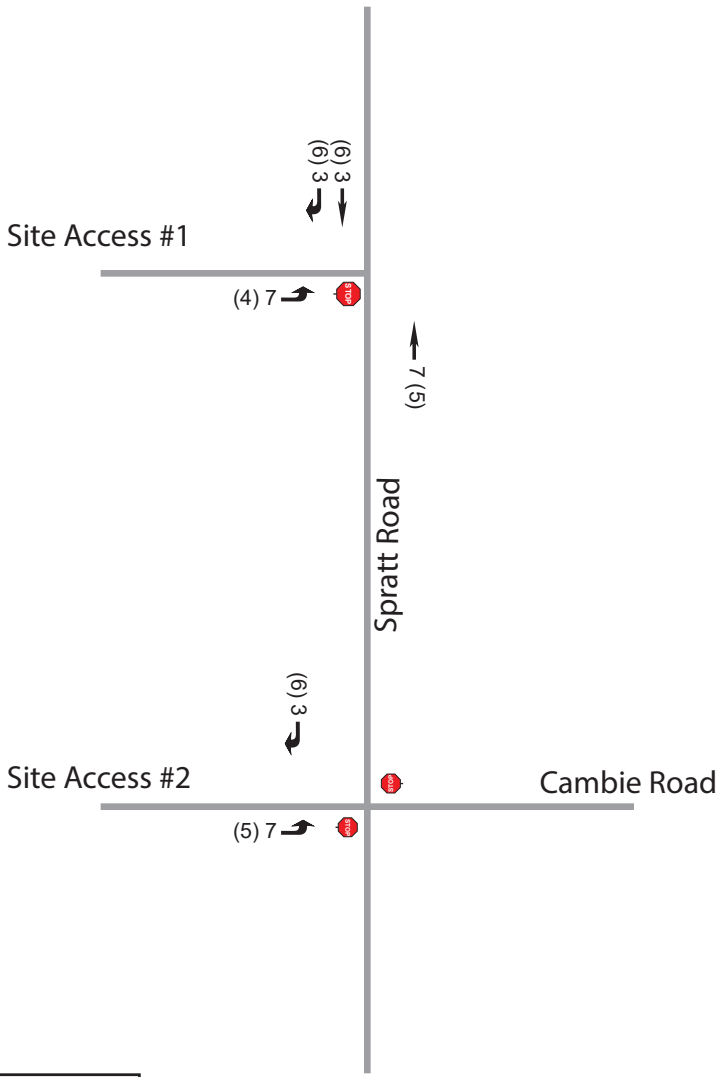
4.1.3 Trip Distribution and Assignment

With consideration that the proposed development will consist of residential land uses, it is anticipated that the distribution of site-generated traffic aligns with the AM Peak commuter flow based on the South Gloucester/Leitrim TAZ from the 2011 O-D Survey. Assignment of site-generated traffic along logical routes is based on the configuration of the adjacent road network, as well as engineering judgement:

- 95% to/from North
- 5% to/from South

Utilizing the estimated number of new auto trips and applying the above distribution, future site-generated traffic volumes for the 2025 and 2030 analysis years are illustrated for both study area intersections in **Exhibit 4** and **Exhibit 5**, respectively.


NORTH
Site Access #1
(7) 4
(6) 3
(5) 7
(5) 8
Spratt Road
(6) 3
Site Access #2
Cambie Road
(5) 8
LEGEND
Stop Sign
Permitted Movements
XXX
(XXX)
Weekday AM (PM) Site Generated Vehicular Volume



IBI

4624 Spratt Road - Block 177
Traffic Impact Assessment

Exhibit 5 - 2030 Site Generated Traffic

PROJECT No. 135856

SCALE: N.T.S.

4.2 Background Network Traffic

4.2.1 Changes to the Background Transportation Network

To properly assess future traffic conditions, planned modifications to the transportation network that may impact travel patterns or demand within the study area have been considered. The Scoping section of this TIA reviewed the anticipated changes to the study area transportation network based on the Transportation Master Plan (TMP) and the 2019 Development Charges (DC) Amendment Background Study. Based on a review of these planning policy documents, it was determined that there are no major road network modifications planned within the study area and 2031 horizon year.

There are, however, transportation network changes triggered by development in the surrounding Riverside South Community.

- Spratt Road will be urbanized from south of Cambie Road to the southern limits of Riverside South Phase 17 (RSDC). These works will be completed incrementally in two distinct phases, with Phase 1 planned for construction in 2022 from just south of Cambie Road to south of Borbridge Avenue. Phase 2 is expected to follow full build-out of the subject site and would extend the urbanization of Spratt further south to just beyond Solarium Avenue.

4.2.2 General Background Growth Rates

The background growth rate is generally intended to represent regional growth from outside the study area that will travel along the adjacent road network. Consistent with approved TIAs completed in the broader study area, a general background growth rate has not been applied to collector and local roadways within the study area, as traffic generation relating to all known future adjacent developments has been explicitly accounted for in the analysis.

4.2.3 Other Area Development

All current adjacent development applications and future potential developments within the study area were previously identified in **Table 3** and **Table 4**, respectively. These developments represent specific areas of growth within the study area and are therefore considered in addition to the general background growth rate discussed previously, with the exception of the residential development at 4623 Spratt Road which did not trigger a TIA based on the screening criteria. All other developments have been accounted for explicitly in the estimation of future background volumes.

A site visit was conducted in August 2021 to document the approximate occupancy rates for each adjacent development, and these rates were considered in the development of Existing (2021) Traffic volumes. Any remaining units deemed not built out or occupied at the time of the survey were accounted for separately in the development of future background traffic volumes, according to the phasing assumptions outlined in **Table 10** below.

Table 10 – Riverside South Area Developments – Estimated Phasing

Development (with Status)	Total Units/ GLA	Expected Full Build-out/ Occupancy	Year & Units Expected Built & Occupied												Total
			Already Built	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
River's Edge Phase 1 (Claridge)	440	2022 (50% Complete)	220	110	110										440
River's Edge Phase 2 (Claridge)	315	2024				158	158								315
Phase 8 (RSDC)	432	Complete	432												0
Phase 8 (RSDC)	169	2022 (~40% Complete)	66	52	51										169
Phase 9 South (RSDC)	1,355	Complete	1,355												0
Phase 9 North (RSDC)	101,000 sqft	2022													0
Phase 9 North (RSDC)	94	Complete	94												0
Phase 13 (RSDC)	472	Complete	472												0
Phase 15-1 (RSDC)	510	2022 (~95% Complete)	485	25											510
Phase 15-2 (RSDC)	250	2023 (~10% Complete)	25		115	110									250
Phase 15-3 (RSDC)	418	2025					209	209							418
Phase 15-4 (RSDC)	136	2026 (~20% Complete)	27					55	54						136
Phase 17-1 (RSDC)	524	2024			175	175	174								524
Phase 17-2 (RSDC)	337	2026						169	168						337
Phase 17-3 (RSDC)	298	2026						149	149						297
879 River Road (Richcraft)	117	2023			59	58									117
673 River Road (Cardel Homes)	494	2029								165	165	165			494
708 River Road (Urbandale) - Single Family	80	2023			40	40									80
708 River Road (Urbandale) - Condominiums	110	2024				55	55								110
750 River Road (Urbandale)	55	2023			28	28									55
760 River Road (Claridge)	55	2023			28	28									55
4725 Spratt Road (Claridge)	275	2023			138	137									275
Block K - Residential (Claridge)	43	Complete	43												0
Phase 4 (Nicolls Island Road Holdings Inc.)	55	No Status [2]							55						55
425 Nicolls Island Road (Alphon Group Canada Inc.)	141	No Status [2]							141						141
Total Units	**7,175**		**3,219**	**187**	**744**	**787**	**595**	**582**	**567**	**165**	**165**	**164**	**0**	**0**	**3,956**

Notes:
Approximate occupancy rates are based on a site visit conducted by IBI Group staff on August 26, 2021
RSDC = Riverside South Development Corporation (RSDC).

4.3 Demand Rationalization

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 absorb the additional demand generated by a new development.

4.3.1 Description of Capacity Issues

There are currently no capacity issues identified within the study area.

4.3.2 Adjustment to Development Generated Demands

As prescribed in the TIA Guidelines, the effects of peak-hour spreading have been considered in in future analysis years of this study. It is anticipated that as traffic volumes continue to gradually increase, trips will have a natural tendency to be more evenly distributed across the peak hour (PHF = 1.0) and eventually increase demands in the shoulders of the peak as well. The impacts of peak hour spreading are accounted for in the Synchro modelling, completed as part of the Analysis component of this study.

Development generated demand and mode share can vary over time to reflect changes to the transportation network. In collaboration with developers, the City continues to invest in transit and active transportation infrastructure in order to meet the mode share targets set in the Community Design Plan (CDP). Transit is expected to play a significant role and will have an impact on travel behaviour within the study area.

Although pedestrian and cycling facilities have expanded within the Riverside South Community, the impact on development generated traffic demand is not expected to result in any significant changes to the target mode share assumed for this study during the weekday commuter periods. As a conservative approach, the active transportation mode share values derived from 2020 TRANS Trip Generation Manual were therefore assumed to remain unchanged within the timeframe of this study, however the expansion of active transportation infrastructure in the region will likely result in a gradual shift to more sustainable modes of transportation.

4.3.2.1 Transit Modal Share

As discussed previously, the trip generation results presented in **Table 9** above have been adjusted to account for future increases in transit mode share which are anticipated based on the 2020 TRANS Trip Generation Manual and Riverside South CDP Update. Adjustments to the transit mode share were applied with consideration of the Trillium Line LRT Extension Addendum (September 2018) and the Draft Riverside South Community Design Plan Transportation Update (IBI, March 2020). Upon reviewing these key policy documents, a transit mode share target of 32% was applied in 2031 to align with the CDP update, while the existing 2020 mode share targets were conservatively assumed for existing conditions despite the introduction of LRT to Riverside South planned for 2022. Interim targets at the 2025 and 2030 analysis years were derived through interpolation between the 2020 and 2031 targets. These increases in the transit mode share described above were offset by proportional decreases in auto driver and auto passenger mode share targets to retain the existing auto occupancy rate.

Additional ridership resulting from the shift in transit mode share from 28% and 26% in 2025 to 31% in 2030 is expected to be in the order of 1 and 3 trips during the weekday morning and afternoon peak hours, respectively. It is expected that these trips will be accommodated through a combination of Transportation Demand Management (TDM) measures and strengthening of the local transit network, as discussed in subsequent sections of this TIA.

4.3.3 Adjustment to Background Network Demands

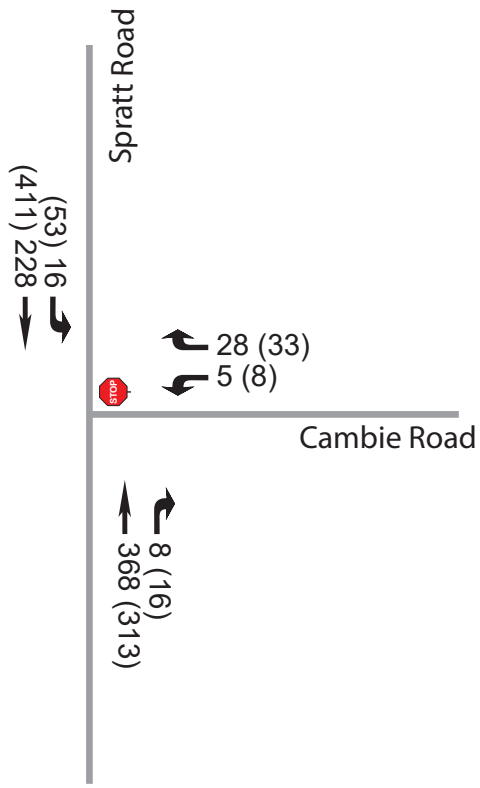
As a conservative measure, the mode share adjustments described above were limited to site-generated traffic volumes and therefore were not applied to existing and future adjacent development volumes. It is important to note that many of the background developments referenced in this study have likely assumed a lower transit modal share based on the 2013 TMP target and did not account for the presence of LRT service to Riverside South in the near-term. Background traffic volumes are therefore likely to represent a conservative estimate of future conditions are expected to be ameliorated with higher transit usage.

4.4 Traffic Volume Summary

4.4.1 Future Background Traffic Volumes

Future background traffic volume projections have been established by combining the adjacent development traffic and superimposing it onto Existing (2021) Traffic, as discussed previously.

Exhibit 6 and **Exhibit 7** present the future background traffic volumes anticipated for the 2025 and 2030 analysis years, respectively.



LEGEND

STOP — Stop Sign

Permitted Movements

xxx xxx xxx
(xxx) (xx) (xx) — Weekday AM (PM) Peak Hour Traffic Volume

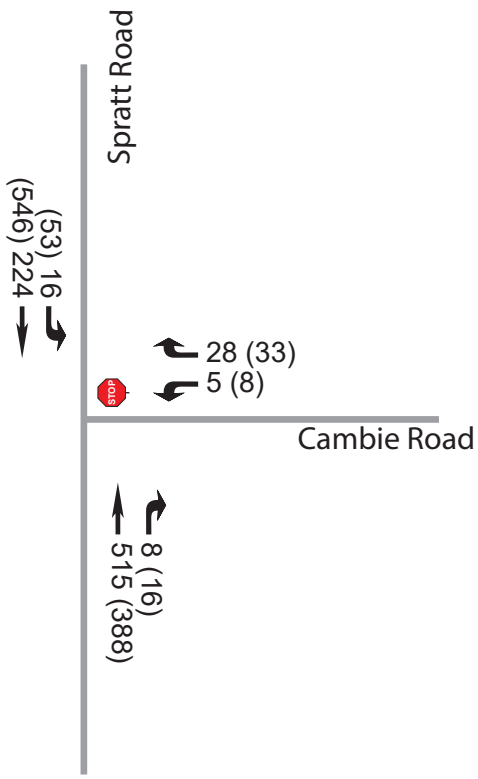
IBI

4624 Spratt Road - Block 177
Traffic Impact Assessment

Exhibit 6 - Future (2025)
Background Traffic

PROJECT No. 135856

SCALE: N.T.S.



LEGEND

- Stop Sign
- Permitted Movements
- Weekday AM (PM) Peak Hour Traffic Volume

IBI

4624 Spratt Road - Block 177
Traffic Impact Assessment

Exhibit 7 - Future (2030)
Background Traffic

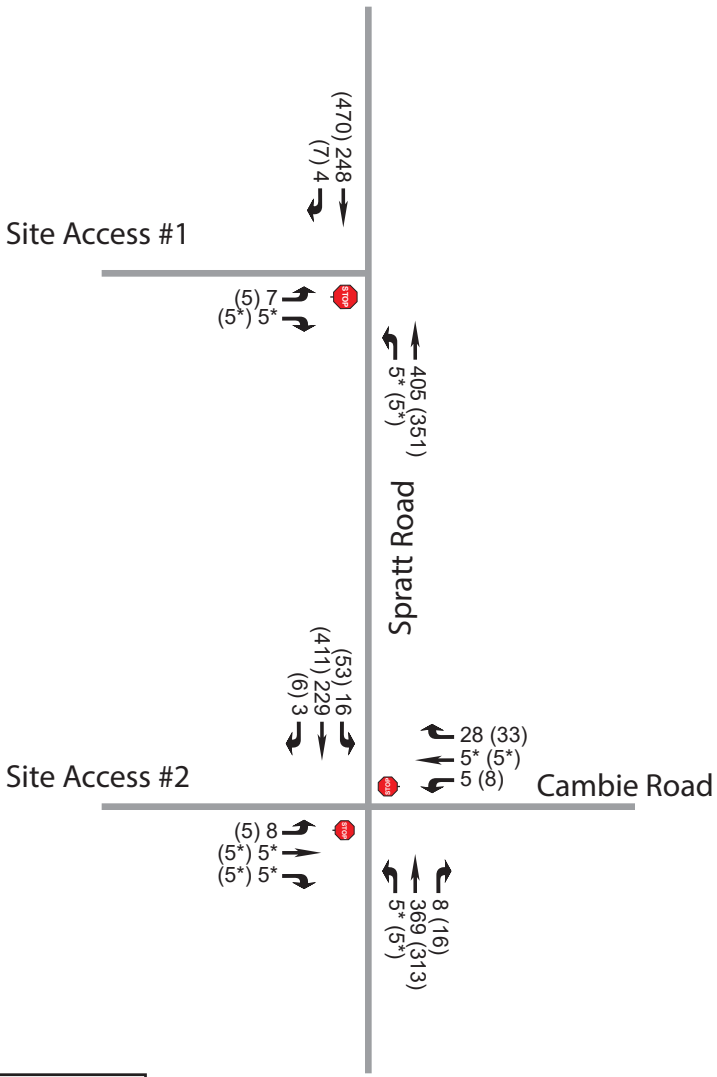
PROJECT No. 135856

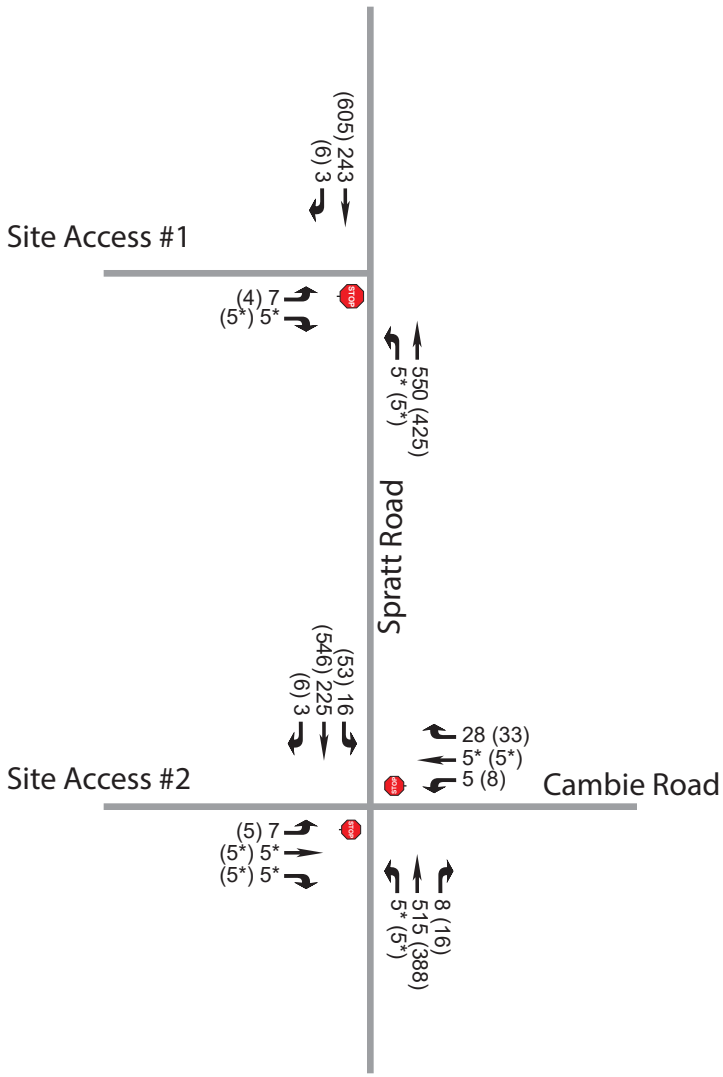
SCALE: N.T.S.

4.4.2 Future Total Traffic Volumes

Future total volumes have been derived by combining the site-generated traffic volumes with future background volumes.

Exhibit 8 and **Exhibit 9** present the future total traffic volumes anticipated for the 2025 and 2030 analysis years, respectively.


NORTH
Site Access #1
(470) 248
(7) 4
(5) 7
(5*) 5*
5* (5*)
405 (351)
Spratt Road
(53) 16
(411) 229
(6) 3
28 (33)
5* (5*)
5 (8)
Site Access #2
Cambie Road
(5) 8
(5*) 5*
(5*) 5*
5* (5*)
369 (313)
8 (16)
LEGEND
Stop Sign
Permitted Movements
Weekday AM (PM) Peak Hour Traffic Volume
*Nominal Volumes added to indicate Non-Zero values



LEGEND

- Stop Sign
- Permitted Movements
- Weekday AM (PM) Peak Hour Traffic Volume

*Nominal Volumes added to indicate Non-Zero values

IBI

4624 Spratt Road - Block 177
Traffic Impact Assessment

Exhibit 9 - Future (2030)
Total Traffic

PROJECT No. 135856

SCALE: N.T.S.

5 Analysis

5.1 Development Design

5.1.1 Design for Sustainable Modes

For consistency 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 an approximate 450 metres southeast of Riverview Station and is therefore within the Transit-oriented Development (TOD) zone of this existing suburban rapid transit station. The site is also immediately adjacent to a future rapid transit station on Spratt Road.

A network of strategically located 1.8-metre-wide concrete sidewalks will be provided across the site to facilitate access between building entrances and integrate with pedestrian facilities on Spratt Road, as well as abutting residential neighbourhoods to the north and west. There will be curb depressions at select locations in accordance with Accessibility for Ontarians with Disabilities Act (AODA) standards. The inclusion of pedestrian-only connections to adjacent neighbourhoods will encourage the use of sustainable modes of transportation by reducing the overall walking distance to Riverview Station as well as other amenities on Earl Armstrong Road and aligns with the City's objective of establishing 15-minute neighbourhoods.

There are currently concrete sidewalks and on-road cycling facilities along both sides of Spratt Road along the majority of the site's frontage. Once the southern portion of Spratt is urbanized, formalized facilities will be provided along this segment as well to accommodate active transportation modes, including concrete sidewalks and grade-separated cycle tracks, as indicated in the Spratt Road RMA.

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 safe, direct and attractive walking routes from building entrances to nearby transit stops;
- Locate building close to street entrance with no vehicular parking areas between the street and building entrances;
- Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; and
- Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible.

5.1.2 Circulation and Access

All site-generated traffic will access the proposed development via two all movement access driveways on Spratt Road. Both access driveways and drive aisles will provide the required clear width of 6.0 to 6.7 metres, as prescribed in the Zoning By-law. The internal roadways have a curb radius of 12m and the curb radii at the site access driveways have been reduced to 5m along with areas of the site that are not required for the fire route.

A swept-path analysis was undertaken which confirms the ability of the two design vehicles including a fire truck and a front-loading waste collection vehicle to access the site, circulate within

the internal drive aisle and egress back onto Spratt Road. Swept path analyses for each design vehicle is provided in **Appendix H**.

5.1.3 New Street Networks

Not Applicable: As defined in the study scope, this element of the TIA Guidelines is not required for Site Plan Control applications.

5.2 Parking

5.2.1 Parking Supply

Based on the size of the proposed residential development, a minimum of 168 vehicle parking spaces are required to comply with the Zoning By-law, including 144 resident and 24 visitor spaces. The subject development meets these requirements, therefore the proposed vehicular parking supply is deemed acceptable.

The Zoning By-law also requires a minimum number of bicycle parking spaces to support the proposed development. A total of 60 bicycle parking spaces will be provided, achieving the by-law requirement. As indicated on the site plan, these bike parking stalls will be provided immediately adjacent to building entrances and pedestrian facilities proposed within the subject development.

5.2.2 Spillover Parking

The minimum parking supply requirements specified in the Zoning By-law have been met, therefore no further review of parking is necessary for the purposes of this study.

5.3 Boundary Streets

5.3.1 Mobility

As specified in the TIA Guidelines, since a Complete Street concept exists for the development's only boundary street (i.e. Spratt Road) within the site's frontage, segment-based MMLOS will not be required as part of this study.

The proposed development will not impact the Spratt Road RMA design along the site's frontage. The two proposed site access driveways are outside the limits of the RMA and will be designed in accordance with City Standard SC7.1 to provide continuous sidewalks and curbs depressed across each access.

5.3.2 Road Safety

A summary of all reported collisions within the study period over the past 5 years was presented in the Scoping section of this report. The City requires a safety review if at least six collisions for any one movement or a discernible pattern, over a five-year period have occurred. Based on a review of re-occurring events, none of the intersections or road segments within the study area require further review.

5.4 Access Intersections

5.4.1 Location and Design of Access

Both Site Access #1 and Site Access #2 are in conformance with the City of Ottawa Private Approach, with particular confirmation of the following items:

- Width: The Zoning By-law states that in the case of a two-way driveway for a stacked dwelling 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 and Site Access #2 will provide 6.7 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 will be located approximately 150 metres and 80 metres from the Poplin Street and Cambie Road streetlines, respectively, and is therefore in conformance with the by-law. Site Access #2 will be located directly opposite Cambie Road and will form the west leg of the Spratt & Cambie intersection. ✓
- Quantity and Spacing of Private Approaches: For sites with frontage between 46 and 150 metres, one (2) two-way and two (2) one-way private approaches or two (2) two-way approaches are permitted. For each additional 90 meters of site frontage, one (1) 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 Spratt Road is approximately 195 metres and therefore the proposed two (2) two-way private approaches are 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.
    - Site Access #1 will be located approximately 35 metres from the northern property line and Site Access #2 will be located approximately 70 metres from the southern property line, both along Spratt Road. ✓

The Transportation Association of Canada (TAC) recommends a minimum throat length of 25 metres for a site access driveway serving an apartment use with between 100 and 200 dwelling units accessing an arterial road. Site Access #1 and Site Access #2 will consist of an approximate 40 and 43-metre throat length, respectively. As such, the throat lengths proposed at either site access driveway are deemed to be acceptable.

5.4.2 Access Intersection Design

Both proposed site access driveways will be configured as two-way stop-controlled intersections and therefore no further review of traffic control at either location is required as part of this study. It was confirmed through intersection capacity analysis presented in subsequent sections of this study that both intersections will operate acceptably with two-way stop control and therefore no

further consideration of alternative forms of traffic control, including traffic signals or a roundabout were required as part of this study.

5.4.3 Intersection Design (MMLOS)

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

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

The proposed development aligns with the objectives of the Riverside South Community Design Plan (CDP) and Building Better and Smarter Suburbs (BBSS) policy documents, which promote sustainable and compact growth. The site is located within close proximity to an existing Park and Ride facility and a future BRT station, therefore a mid-rise residential development provides an appropriate level of density in this suburban context.

5.5.2 Need and Opportunity

Riverside South is presently an auto-oriented suburb with a single transit hub, Riverview Station, however the planned implementation of a light rail station within the Town Centre and the future extension of the BRT corridor to the south of the site provide opportunities to increase transit modal share and more effectively utilize existing transit infrastructure. Improving transit connectivity between residential areas and nearby transit hubs as the community grows will help to maximize the use of the transit system.

5.5.3 TDM Program

The proposed development conforms to the City's TDM principles by providing convenient and direct connections to adjacent pedestrian, cycling and transit facilities. The internal road network has been configured with appropriate pedestrian facilities to provide maximum connectivity and direct connections to future rapid transit stations, local amenities and the adjacent road network.

The City of Ottawa's TDM Measures Checklist was completed for the proposed development, and the results are provided in **Appendix G**. A Multi-Modal Information Package will provided to new homeowners and will include information about how to get around the area by modes other than private automobile. This package may include information about local walking trails, available bicycle infrastructure, nearby services or amenities, nearby bus stops/routes/schedules, schools, local taxi companies, etc. The intent of this package is to provide new residents with options to get around their new community without reliance on a private automobile for at least some of their daily needs.

The above noted measure will help encourage the use of existing and planned active transportation infrastructure in the area and inform new residents of the transit services available within close proximity to the site.

5.6 Neighbourhood Traffic Management

5.6.1 Adjacent Neighbourhoods

Not Applicable: Although both proposed site access driveways are reliant on a major collector for access, this facility effectively functions as a higher-order road with very limited vehicular access connections and direct frontage within the study area. Given that there are no direct vehicular connections to adjacent residential neighbourhoods proposed as part of the subject development, site-generated traffic infiltration within existing neighbourhoods will be negligible.

5.7 Transit

5.7.1 Route Capacity

The estimated Future (2030) Total transit passenger demand within the study area was provided previously in the Forecasting component of this study. The results have been summarized in **Table 11** below.

Table 11 - 2030 Development Generated Transit Demand

PERIOD	PEAK HOUR DEMAND		
	IN	OUT	TOTAL
AM	5	11	16
PM	9	7	16

The existing transit network within the vicinity of the site is expected to accommodate the nominal increase in transit ridership associated with the proposed development, as indicated in **Table 11** above. As the capacity of a typical OC Transpo bus is approximately 100 passengers, the proposed development will have a negligible impact on overall transit ridership.

5.7.1 Transit Priority Measures

There are no transit priority measures required within the study area to support the nominal transit ridership projections for the subject development.

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

The following sections summarize the methodology and results of the multi-modal intersection capacity analysis conducted within the study area:

5.9.1 Intersection Analysis Criteria (Automobile)

The following section outlines the City of Ottawa's methodology for determining motor vehicle Level of Service (LOS) for unsignalized intersections.

5.9.1.1 Unsignalized Intersections

In qualitative terms, the Level-of-Service (LOS) defines operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of such factors as delay, speed and travel time, freedom to manoeuvre, traffic interruptions, safety, comfort and convenience. LOS can also be related to the ratio of the volume to capacity (v/c) which is simply the relationship of the traffic volume (either measured or forecast) to the capability of the intersection or road section to accommodate a given traffic volume. This capability varies depending on the factors described above. LOS are given letter designations from 'A' to 'F'. LOS 'A' represents the best operating conditions and LOS 'E' represents the level at which the intersection or an approach to the intersection is carrying the maximum traffic volume that can, practicably, be accommodated. LOS 'F' indicates that the intersection is operating beyond its theoretical capacity.

The Level of Service calculation is based on locally-specific parameters as described in the TIA Guidelines and incorporates existing signal timing plans obtained from the City of Ottawa. The analysis existing conditions utilized a Peak Hour Factor (PHF) of 0.90, while future conditions consider optimized signal timing plans and use of a Peak Hour Factor (PHF) of 1.0 to recognize peak spreading beyond a 15-minute period in congested conditions.

The capacity of an unsignalized intersection can be expressed in terms of the LOS it provides. For an unsignalized intersection, the Level of Service is defined in terms of the average movement delays at the intersection. This is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position. The average delay for any particular minor movement at the un-signalized intersection is a function of the capacity of the approach and the degree of saturation.

The Highway Capacity Manual 2010 (HCM), prepared by the Transportation Research Board, includes the following Levels of Service criteria for un-signalized intersections, related to average movement delays at the intersection, as indicated in **Table 12** below.

Table 12 - LOS Criteria for Unsignalized Intersections

LOS	DELAY (seconds)
A	<10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

The unsignalized intersection capacity analysis technique included in the HCM and used in the current study provides an indication of the Level of Service for each movement of the intersection under consideration. By this technique, the performance of the unsignalized intersection can be compared under varying traffic scenarios, using the Level of Service concept in a qualitative sense. One unsignalized intersection can be compared with another unsignalized intersection using this concept. Level of Service 'E' represents the capacity of the movement under consideration and generally, in large urban areas, Level of Service 'D' is considered to represent an acceptable operating condition (Level of Service 'E' is considered an acceptable operating condition for planning purposes for intersections located within Ottawa's Urban Core the

downtown and its vicinity). Level of Service 'F' indicates that the movement is operating beyond its design capacity.

The Level of Service calculation is based on locally-specific parameters as described in the TIA Guidelines and incorporates existing signal timing plans obtained from the City of Ottawa. The existing conditions analysis utilized a Peak Hour Factor (PHF) of 0.90, while future conditions consider optimized signal timing plans and use of a Peak Hour Factor (PHF) of 1.0 to recognize peak spreading beyond a 15-minute period in congested conditions.

5.9.2 Intersection Capacity Analysis

Following the established intersection capacity analysis criteria described above, the existing and future conditions are analyzed during the weekday peak hour traffic volumes derived in this study.

The following section presents the results of the intersection capacity analysis. All tables summarize study area intersection LOS results during the weekday morning and afternoon peak hour periods. The Synchro output files have been provided in **Appendix I**.

5.9.2.1 Existing (2021) Traffic

An intersection capacity analysis has been undertaken using the Existing (2021) Traffic volumes presented in **Figure 10**, yielding the following results:

Table 13 - Intersection Capacity Analysis: Existing (2021) Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)
Spratt & Cambie	Unsignalized	**A** (9.3s)	WBRL (9.3s)	**A** (9.3s)	WBRL (9.3s)

5.9.2.2 Future (2025) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2024) Background Traffic volumes presented in **Exhibit 6**, yielding the following results:

Table 14 - Intersection Capacity Analysis: 2025 Background Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)
Spratt & Cambie	Unsignalized	**B** (11.3s)	WBRL (11.3s)	**B** (12.1s)	WBRL (12.1s)

5.9.2.3 Future (2030) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2030) Background Traffic volumes presented in **Exhibit 7**, yielding the following results:

Table 15 - Intersection Capacity Analysis: 2030 Background Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)
Spratt & Cambie	Unsignalized	**B** (12.7s)	WBRL (12.7s)	**B** (13.7s)	WBRL (13.7s)

5.9.2.4 Future (2025) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2025) Total Traffic volumes presented in **Exhibit 8**, yielding the following results:

Table 16 - Intersection Capacity Analysis: 2025 Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT (V/C OR DELAY)
Spratt & Site Access 1	Unsignalized	**B** (13.0s)	EBRL (13.0s)	**C** (15.3s)	EBRL (15.3s)
Spratt & Cambie/Site Access 2	Unsignalized	**C** (15.1s)	EBTRL (15.1s)	**C** (19.2s)	EBTRL (19.2s)

5.9.2.5 Future (2030) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2030) Total Traffic volumes presented in **Exhibit 9**, yielding the following results:

Table 17 - Intersection Capacity Analysis: 2030 Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	MOST DEFICIENT MOVEMENT(S) (V/C OR DELAY)
Spratt & Site Access 1	Unsignalized	**B** (14.5s)	EBRL (14.5s)	**C** (19.3s)	EBRL (19.3s)
Spratt & Cambie/Site Access 2	Unsignalized	**C** (17.7s)	EBTRL (17.7s)	**C** (25.0s)	EBTRL (25.0s)

As indicated above in **Table 17** above, it is expected that all study area intersections will continue to operate at an overall acceptable levels of service (i.e. LOS 'D' or better) under 2030 Total Traffic conditions.

5.9.3 Intersection Design (MMLOS)

Not Applicable – Both study area intersections will be unsignalized with no anticipated capacity issues expected within the timeframe of this study, therefore an intersection MMLOS evaluation is not required for this TIA.

5.10 Geometric Review

The following section reviews all geometric requirements for the study area intersections. Relevant excerpts from referenced technical standards have been provided in **Appendix J**.

5.10.1 Sight Distance and Corner Clearances

Both site access driveways are proposed along a straight section of Spratt Road with no significant horizontal or vertical alignment constraints. In terms of corner clearances, there are no signalized or stop-controlled approaches on Spratt Road within the study area. As such, sight distance and corner clearances are not expected to be a concern at either location.

5.10.2 Auxiliary Lane Analysis

Auxiliary turning lane requirements for both intersections within the study area are described as follows:

5.10.2.1 Unsignalized Auxiliary Left-Turn Lane Requirements

Auxiliary left-turn lane analyses for all unsignalized study area intersections were completed under 2030 Total Traffic conditions.

The MTO Geometric Design Standards for Ontario Highways left-turn warrant was applied to mainstreet approaches at the Spratt & Cambie unsignalized intersection using the highest left-turn volume from either the weekday morning or afternoon peak hour. The results have been summarized below in **Table 18** below.

Table 18 - Auxiliary Left-Turn Lane Analysis at Unsignalized Intersections

INTERSECTION	APPROACH	VOLUME ADVANCING (V_A)	VOLUME OPPOSING (V_O)	% LEFT TURN IN V_A	EXISTING PARALLEL LENGTH (M)	STORAGE DEFICIENCY (M)
Spratt & Cambie	SB	605	405	9%	25	Existing Storage Adequate

Based on the analysis presented above, the existing 25m southbound left-turn storage lane at the intersection of Spratt & Cambie is of sufficient parallel length to accommodate projected traffic volumes beyond the 2030 study horizon year.

The northbound left-turn volumes for both the Spratt & Cambie/Site Access #2 and Spratt & Site Access #1 intersections are expected to be nominal, as indicated in **Exhibit 8** and **Exhibit 9** above, therefore no left-turn warrants were completed for these movements.

5.10.2.2 Unsignalized Auxiliary Right-Turn Lane Requirements

There is currently no formal City of Ottawa or MTO warrant procedure governing the application of auxiliary right-turn lanes at unsignalized intersections. Referring to TAC Geometric Design Guide for Canadian Roads, an auxiliary right-turn lane be considered “when the volume of

decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard" and the volume of right-turning traffic exceeds 60 vehicles or 10% of the approach volume.

The two study area intersections do not satisfy the criteria outlined above and therefore no right-turn auxiliary lanes are recommended for implementation based on the traffic volumes developed for this study.

5.11 Summary of Improvements Indicated and Modification Options

The proposed Spratt & Site Access #1 intersection is anticipated to operate at acceptable levels of service (i.e. LOS 'D' or better) under 2030 Total Traffic conditions, based on the results of the previous analysis. As such, no additional auxiliary lanes are required on the north and southbound approaches on Spratt Road.

The results of the analysis indicate that the Spratt & Cambie intersection is expected to operate at acceptable levels of service (i.e. LOS 'D' or better) under 2030 Total Traffic conditions with its existing configuration. Based on the queuing analysis, no additional auxiliary lanes are required at this intersection to accommodate projected turning vehicle volumes.

6 Conclusion

The proposed mid-rise residential development at 4624 Spratt Road is expected to generate up to 22 and 23 two-way vehicular trips during the weekday morning and afternoon peak hours, respectively, which represents a nominal increase in traffic volumes on the adjacent road network. Site-generated travel demands were stratified by mode share and distributed amongst the two proposed site access driveway connections with the adjacent road network. Mode share assumptions were developed with reference to the South Gloucester/Leitrim TAZ from the 2020 TRANS Trip Generation Manual and with further adjustments to account for a linear increase in the transit mode share to 32% by 2031, consistent with the Draft Riverside South Community Design Plan Transportation Update. Both the low site-generated traffic and the increasing transit mode share target are expected to reduce the overall impacts of the proposed development on the adjacent road network. Further, Transportation Demand Management (TDM) measures are being proposed to offset the site-generated vehicular demand and support non-auto mode share targets proposed in this study.

Based on the capacity analysis conducted for this study, both study area intersections are expected to operate acceptably beyond the 2030 horizon year. The performance of these intersections is anticipated to be largely unimpacted by the site-generated traffic. As indicated through queueing analysis, it was confirmed that the existing southbound left-turn auxiliary lane at the Spratt & Cambie intersection will provide adequate storage for vehicles and no additional auxiliary turn lanes are warranted at the study area intersections.

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

Similarly, due to the negligible increases in site-generated traffic forecasted 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) – Preconsultation Notes

Meeting Held: September 29, 2020
Comments Received: October 8, 2020

Note: The following represent only relevant transportation comments and do not constitute the complete set of comments resulting from the pre-application consultation meeting.

Transportation

- Follow Traffic Impact Assessment Guidelines
    - TIA will be required.
    - Start this process as soon as possible.
    - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
    - Request base mapping asap if RMA is required. Contact Engineering Services.
- Noise Impact Studies required for the following:
    - Road (The proposed BRT corridor south of the development should be considered).
- On site plan:
    - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, access and/or sidewalks.
    - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for interval movements and all access (entering and exiting and going in both directions).
    - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
    - Show lane/aisle widths.
    - Sidewalk is to be continuous across access as per City Specification 7.1.
- The City recommends development on private property be in accordance with the Accessibility Design Standards (AODA legislation). As the site proposed is residential, it is suggested that the design conforms to the Site Plan Checklist, which summarizes AODA requirements.
- The south east corner (fronting Spratt Road) is currently rural. Ensure this section is urbanized to match the existing conditions.
- It is recommended that the concept plan/development plan for the corner of the BRT address this facility (not turn back to it) and also show ped/cycling connections to/from the station onto the site. Note also that a MUP is planned for along the south side of the BRT corridor in this part of the community.
- ROW protection on Spratt Road is 26m.

Planning

- Consider connecting a street through from Nutting Crescent. An off-set grid pattern would further mitigate the desire for vehicles to travel quickly through the development. Cut through traffic will likely not be an issue.
- Improve pedestrian connections from surrounding areas; from Nutting as well as Stockholm. The street connections are there already (via Malmo and Gothenburg), and should be used.

- Consider a more urban grid pattern, to build in speed management at the on-set rather than retrofitting and will aid in achieving higher shares of active transportation, not only within this development but also as residents in the general area are able to move through this site to neighbourhood facilities.

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

Report Submitted: September 27, 2021
Comments Received: October 6, 2021
Transportation Project Manager: Neeti Paudel

Scoping Comment(s)

As far as I'm aware, the urbanization of Spratt Road from south of Cambie to Solarium has been delayed indefinitely. Considering there is no timeline, the rural section along Spratt fronting the development will have to be urbanized to match the existing conditions. Please update the report accordingly and proceed to forecasting.

- **IBI Response: It is our understanding that the Spratt Road surface works for the Phase 1, which would extend the urbanization to just south of Borbridge Avenue, are expected to be constructed in summer 2022. As such, these upgrades should be in place well in advance of the 2025 target build-out for the subject site.**

Step 3 Submission (Forecasting) – Circulation Comments & Response

Report Submitted: November 10, 2021
Comments Received: November 30, 2021
Transportation Project Manager: Neeti Paudel

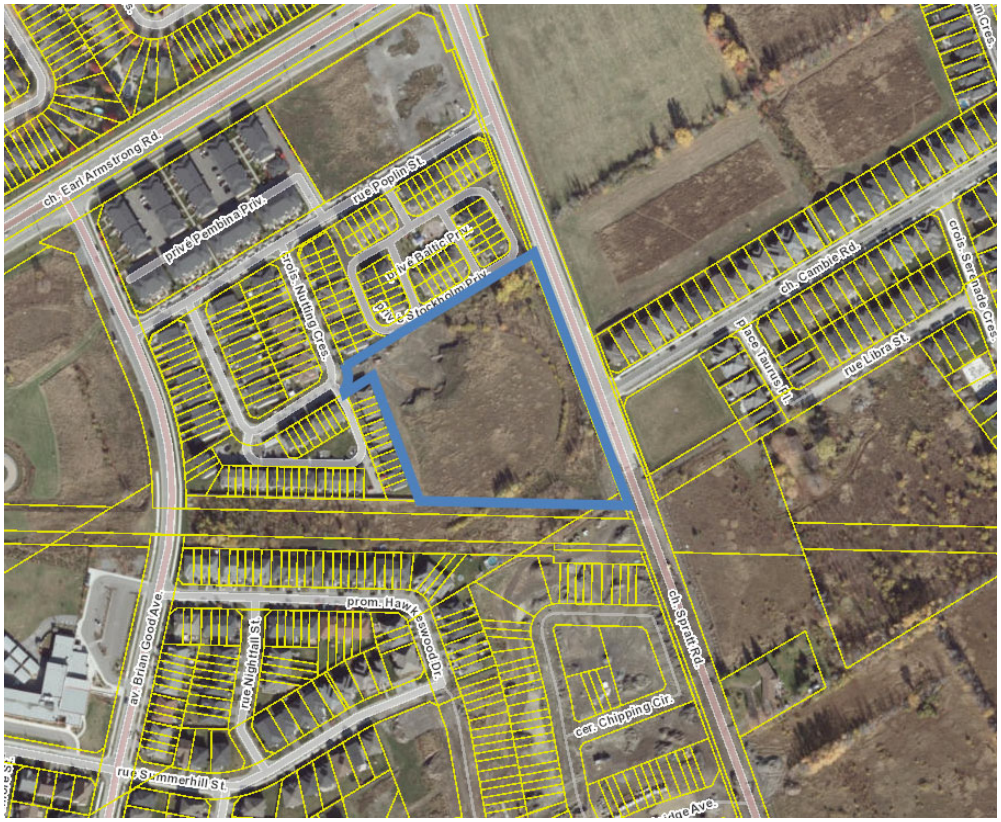
Forecasting Comment(s)

Please proceed to Step 4 (Analysis).

Appendix B – Screening Form

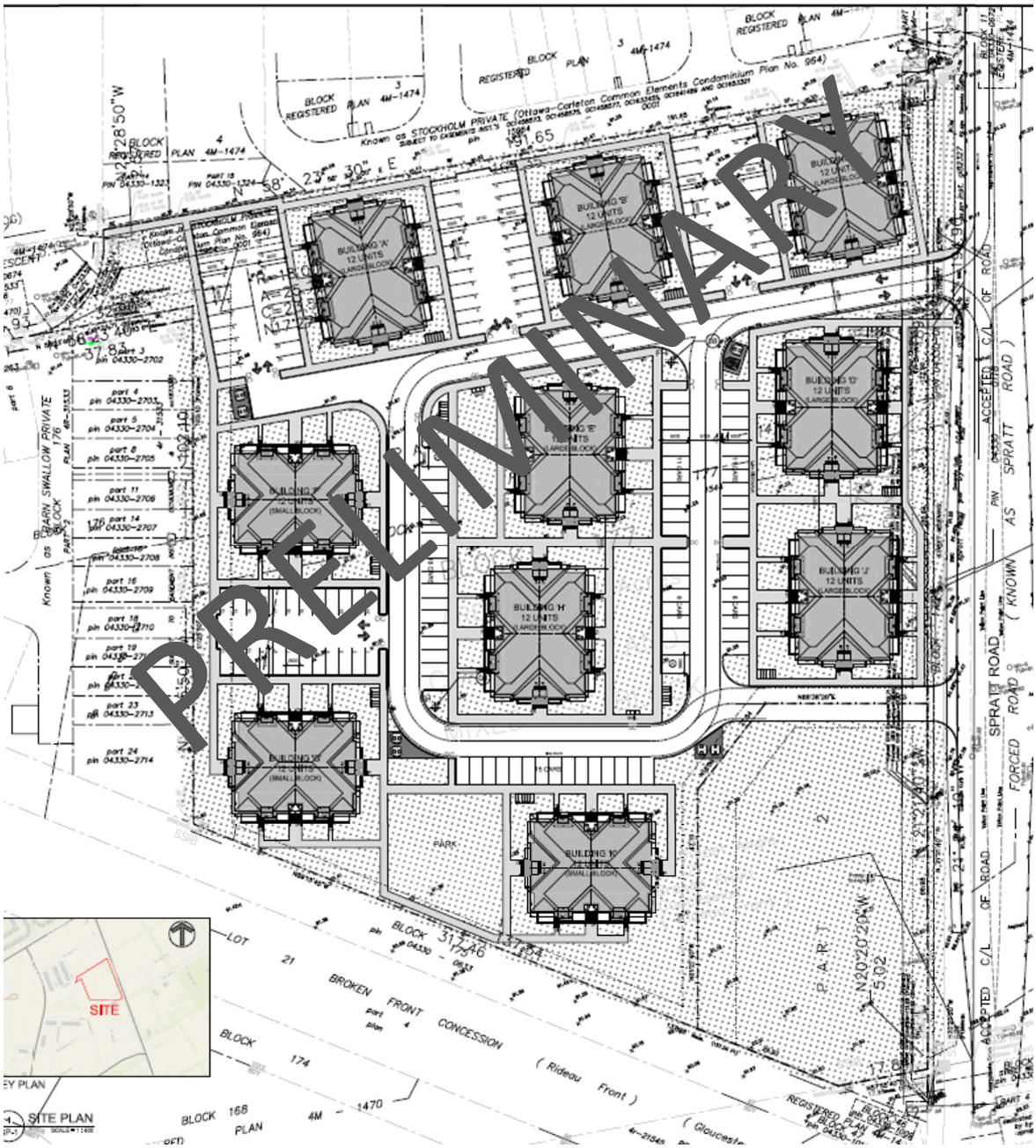
City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	4624 Spratt Road, Ottawa ON
Description of Location	The site is situated south of Earl Armstrong Road with direct frontage on Spratt Road. It is adjacent to the stop-controlled intersection of Spratt Road and Cambie Road. 
Land Use Classification	Residential
Development Size (units)	120 Stacked Townhome Units
Development Size (m^2)	N/A

Number of Accesses and Locations	• Spratt Road ○ Two (2) new all-movements site access driveways
Phase of Development	Single Phase
Buildout Year	2025

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



2. Trip Generation Trigger

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

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units ✓
Office	3,500 m^2
Industrial	5,000 m^2
Fast-food restaurant or coffee shop	100 m^2
Destination retail	1,000 m^2
Gas station or convenience market	75 m^2

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

Based on the above, the Trip Generation Trigger is satisfied.

3. Location Triggers

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

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

The Riverside South Community Design Plan indicates a planned rapid transit station immediately south of the proposed development. Based on the above, 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 northern site access driveway will be located slightly within the taper of the southbound left-turn auxiliary lane for the Spratt & Cambie intersection. 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?	✓	

Based on the results of the TIA Screening Form, the Trip Generation, Location and Safety Triggers are satisfied. As such, a TIA is required for the proposed 4624 Spratt Road – Block 177 development.

Appendix C – OC Transpo Maps

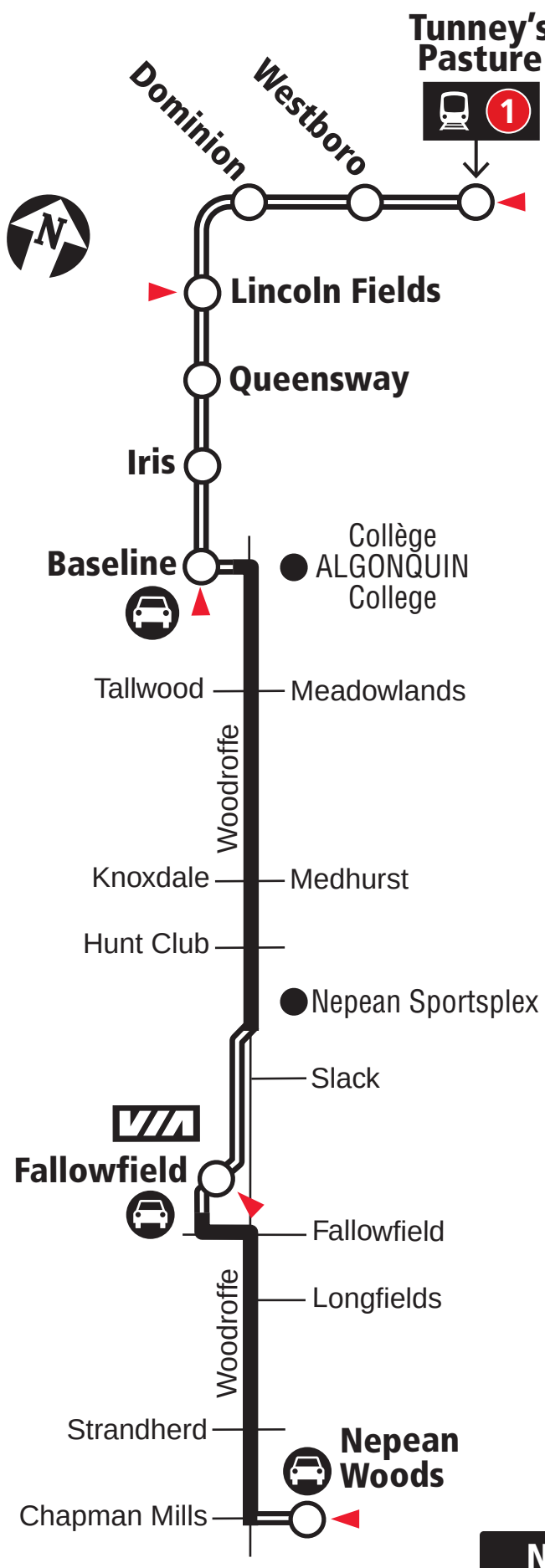
74 Rapide

NEPEAN WOODS
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service
Service toute la journée

TUNNEY'S PASTURE



NEPEAN WOODS

Transitway & Station

Park & Ride / Parc-o-bus

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 **613-560-5000**

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

Security / Sécurité **613-741-2478**

Effective June 20, 2021
En vigueur 20 juin 2021

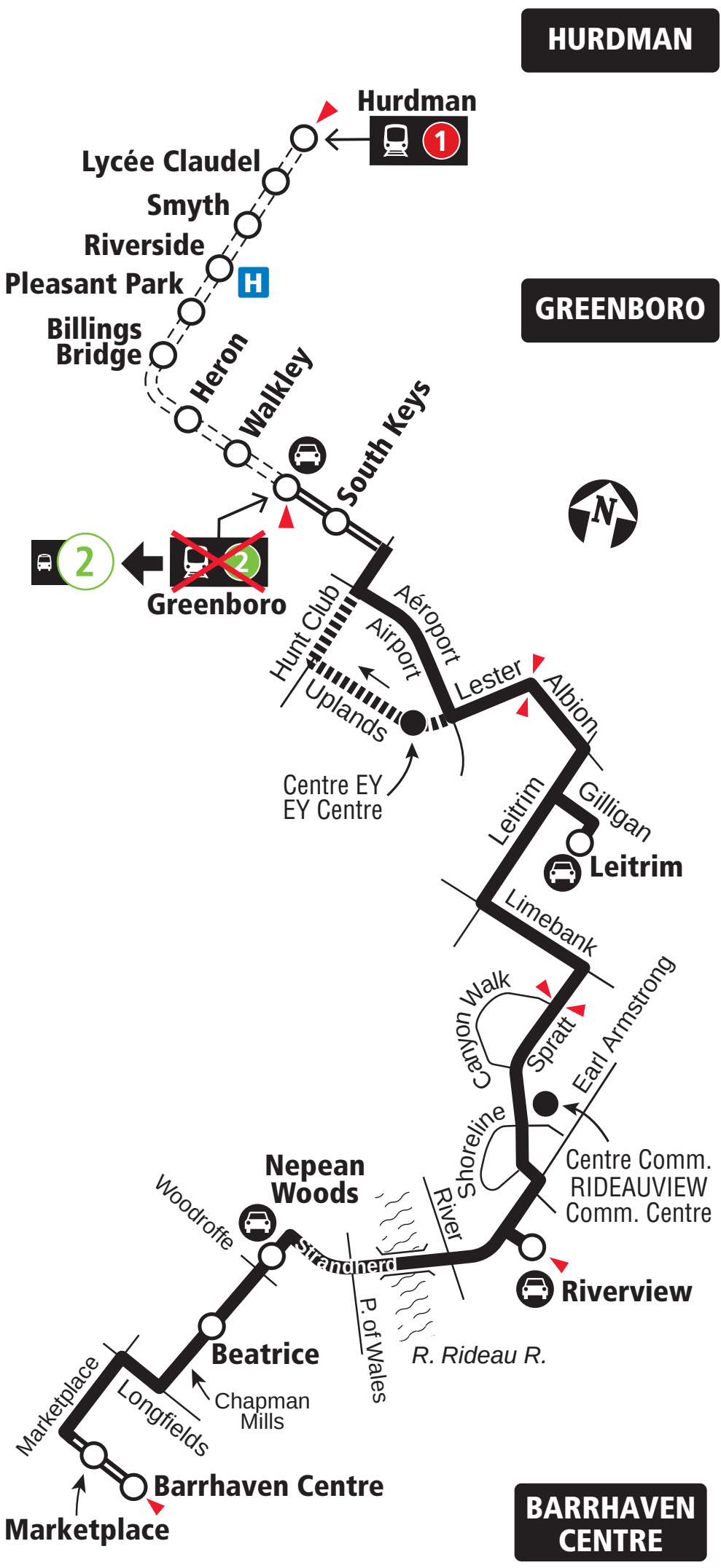
OC Transpo

INFO 613-560-5000
octranspo.com

99 Rapide

BARRHAVEN CENTRE
HURDMAN
GREENBORO

7 days a week / 7 jours par semaine



	Transitway & Station
	Transitway & Station Peak period / Période de pointe
	Saturday & Sunday only / Sam. et dim. seulement
	Park & Ride / Parc-o-bus
	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

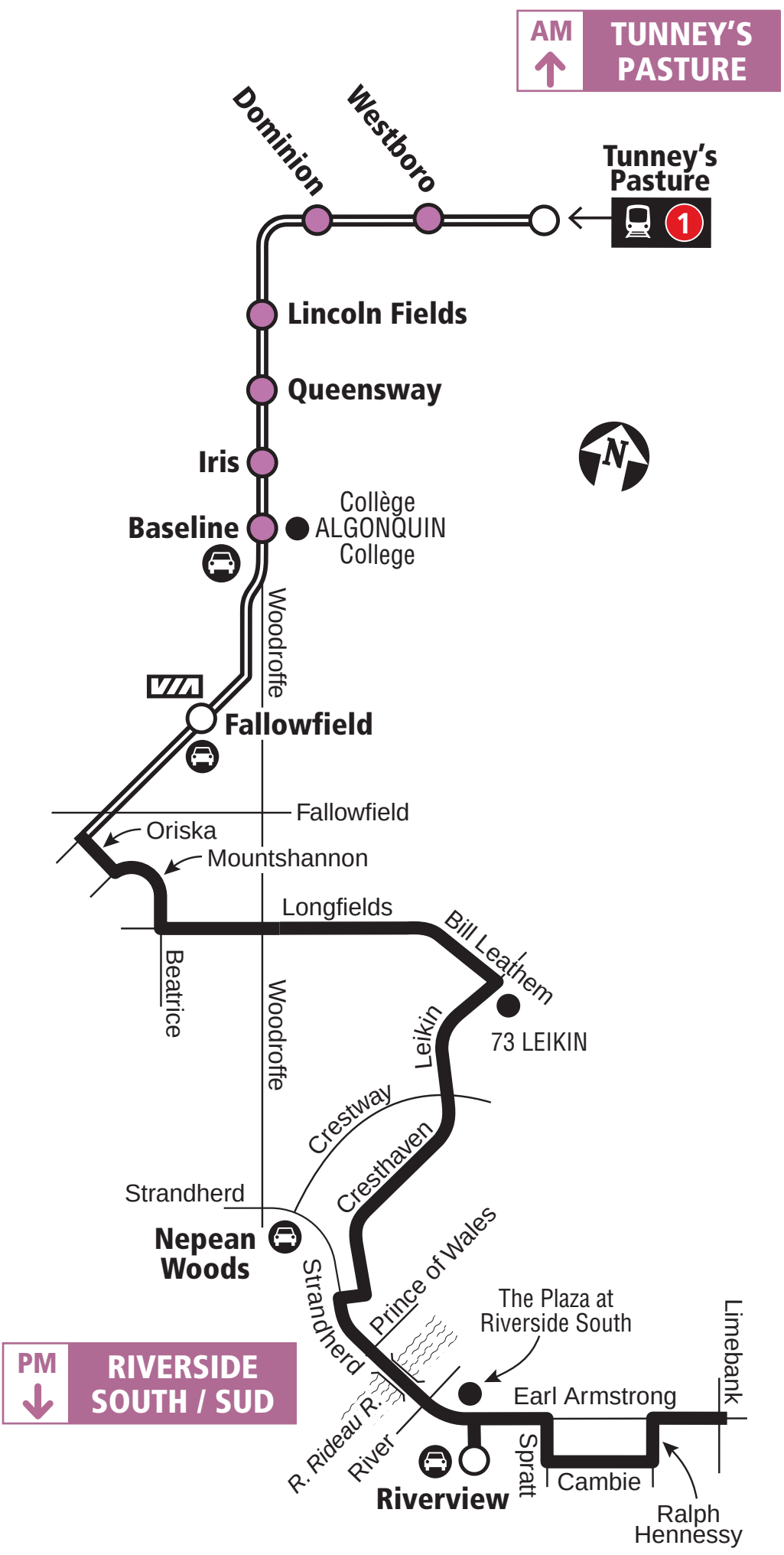
INFO 613-741-4390
octranspo.com

278 RIVERSIDE SOUTH / SUD
TUNNEY'S PASTURE

Connexion

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



Transitway & Station

Limited stops: Off only in AM / No stop in PM
Arrêts limités : Débarquement en AM seulement / Aucun arrêt en PM

Park & Ride / Parc-o-bus

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 December 2, 2018
En vigueur 2 décembre 2018

OC Transpo

INFO 613-741-4390
octranspo.com

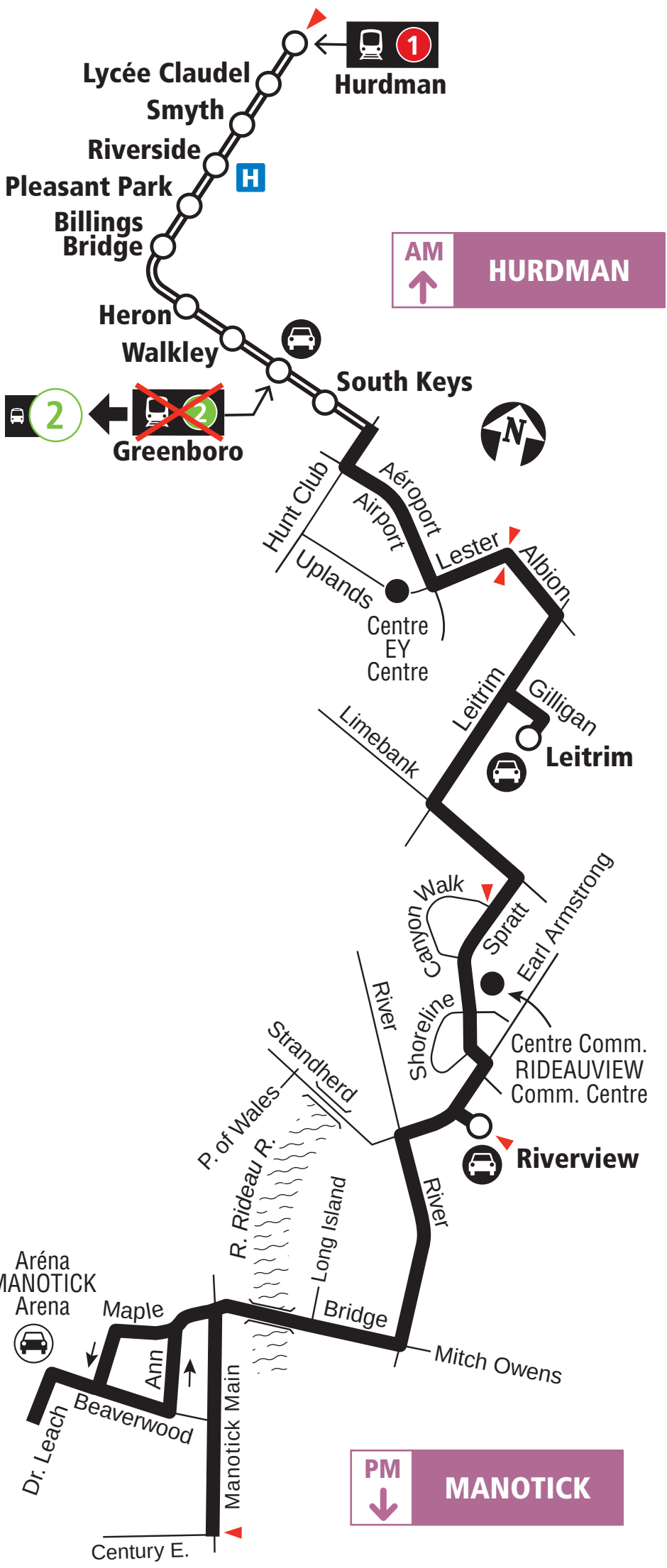
299

MANOTICK
HURDMAN

Connexion

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



Transitway & Station

Park & Ride / Parc-o-bus

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

Appendix D – Collision Data

City Operations - Transportation Services

Collision Details Report - Public Version

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

Location: EARL ARMSTRONG RD @ SHORELINE DR

Traffic Control: Traffic signal **Total Collisions:** 9

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-02, Mon,15:46	Snow	Other	Non-fatal injury	Loose snow	North	Reversing	Snow plow	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jan-05, Mon,07:52	Clear	Angle	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Aug-31, Wed,15:49	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Pole (utility, power)	
2016-Jun-09, Thu,10:20	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Curb	
2015-Nov-16, Mon,16:23	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Passenger van	Other motor vehicle	
2017-Feb-11, Sat,09:08	Clear	SMV other	P.D. only	Slush	West	Turning right	Automobile, station wagon	Skidding/sliding	
2018-May-05, Sat,08:02	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	School bus	Other motor vehicle	

					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-22, Mon,07:45	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-23, Fri,09:46	Clear	Angle	Non-fatal injury	Ice	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: EARL ARMSTRONG RD @ SPRATT RD

Traffic Control: Traffic signal **Total Collisions:** 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Apr-04, Fri,10:30	Clear	SMV other	P.D. only	Dry	East	Turning left	Pick-up truck	Ran off road	
2014-Oct-30, Thu,18:39	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	
					South	Turning right	Pick-up truck	Other motor vehicle	
2014-Jan-03, Fri,11:15	Snow	Turning movement	P.D. only	Ice	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
2014-May-27, Tue,09:20	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	
					South	Turning right	Passenger van	Other motor vehicle	

2015-Feb-12, Thu,20:30	Clear	Angle	P.D. only	Loose snow	South	Turning right	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Dec-16, Tue,08:54	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jul-04, Fri,18:09	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-19, Tue,16:21	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					East	Turning left	Passenger van	Other motor vehicle
2015-May-28, Thu,08:30	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Passenger van	Other motor vehicle
2015-Sep-17, Thu,14:25	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Passenger van	Other motor vehicle
2016-Feb-18, Thu,13:46	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Truck - open	Other motor vehicle

2016-May-10, Tue,07:30	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Delivery van	Other motor vehicle
2016-Oct-26, Wed,20:00	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-05, Thu,15:55	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Nov-09, Wed,08:03	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Dec-21, Wed,17:45	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-26, Thu,07:40	Rain	Rear end	Non-fatal injury	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2017-Mar-21, Tue,18:44	Clear	Turning movement	P.D. only	Dry	East	Turning left	Unknown	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2017-Apr-06, Thu,08:00	Clear	Rear end	Non-fatal injury	Wet	South	Turning right	Pick-up truck	Other motor vehicle
					South	Turning right	Passenger van	Other motor vehicle
2017-Oct-28, Sat,22:05	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Aug-01, Tue,16:55	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Aug-09, Wed,18:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2017-Nov-24, Fri,18:25	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-15, Fri,17:30	Snow	Rear end	P.D. only	Loose snow	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2018-Feb-01, Thu,17:46	Snow	Turning movement	P.D. only	Loose snow	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2018-Jun-30, Sat,01:00	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2018-Dec-13, Thu,16:26	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Nov-14, Wed,08:02	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2018-Nov-13, Tue,16:25	Clear	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Nov-09, Fri,21:07	Snow	Turning movement	Non-fatal injury	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle

Location: EARL ARMSTRONG RD btwn SPRATT RD & SHORELINE DR

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Aug-28, Fri,15:45	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-06, Mon,16:06	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

					East	Slowing or stopping	Pick-up truck	Other motor vehicle	

Location: POPLIN ST @ SPRATT RD

Traffic Control: Stop sign **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Dec-08, Fri,10:00	Clear	Other	P.D. only	Dry	West	Reversing	Unknown	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	

Location: RIDEAU RD @ SPRATT RD

Traffic Control: Stop sign **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-01, Thu,13:00	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Ran off road	

Location: SPRATT RD btwn EARL ARMSTRONG RD & RIDEAU RD

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Sep-03, Wed,19:30	Clear	SMV other	P.D. only	Dry	North	Going ahead	Pick-up truck	Animal - wild	
2015-Jul-25, Sat,06:40	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Ditch	
2018-Mar-31, Sat,17:23	Clear	Rear end	P.D. only	Dry	North	Going ahead	Delivery van	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-30, Sun,01:50	Clear	SMV other	P.D. only	Dry	North	Going ahead	Pick-up truck	Animal - wild	

2018-Dec-14, Fri,17:21	Freezing Rain	SMV other	P.D. only	Ice	South	Going ahead	Pick-up truck	Skidding/sliding

Appendix E – Traffic Data

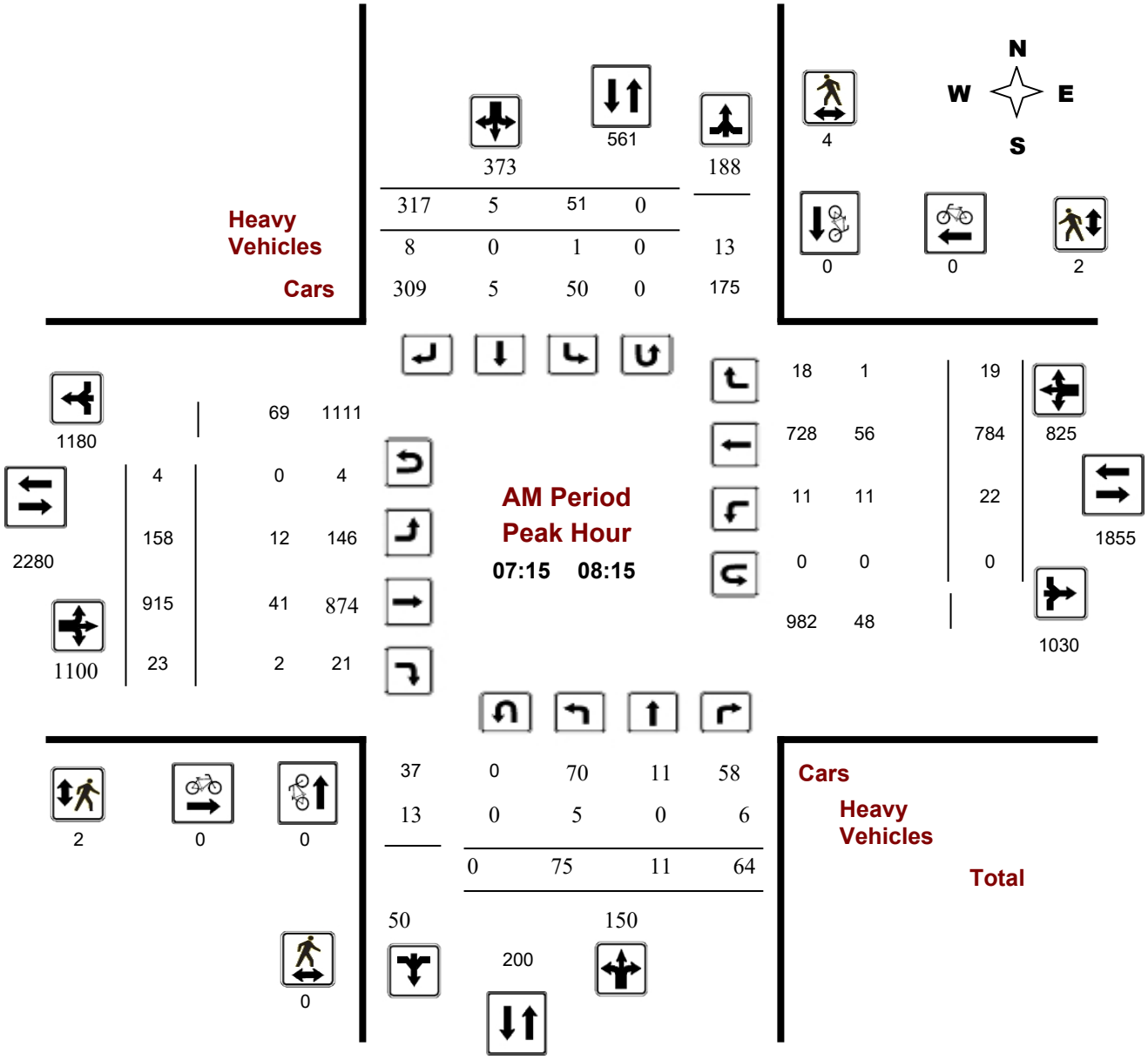
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

EARL ARMSTRONG RD @ SPRATT RD

Survey Date: Tuesday, November 26, 2019 **WO No:** 39110

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



Comments

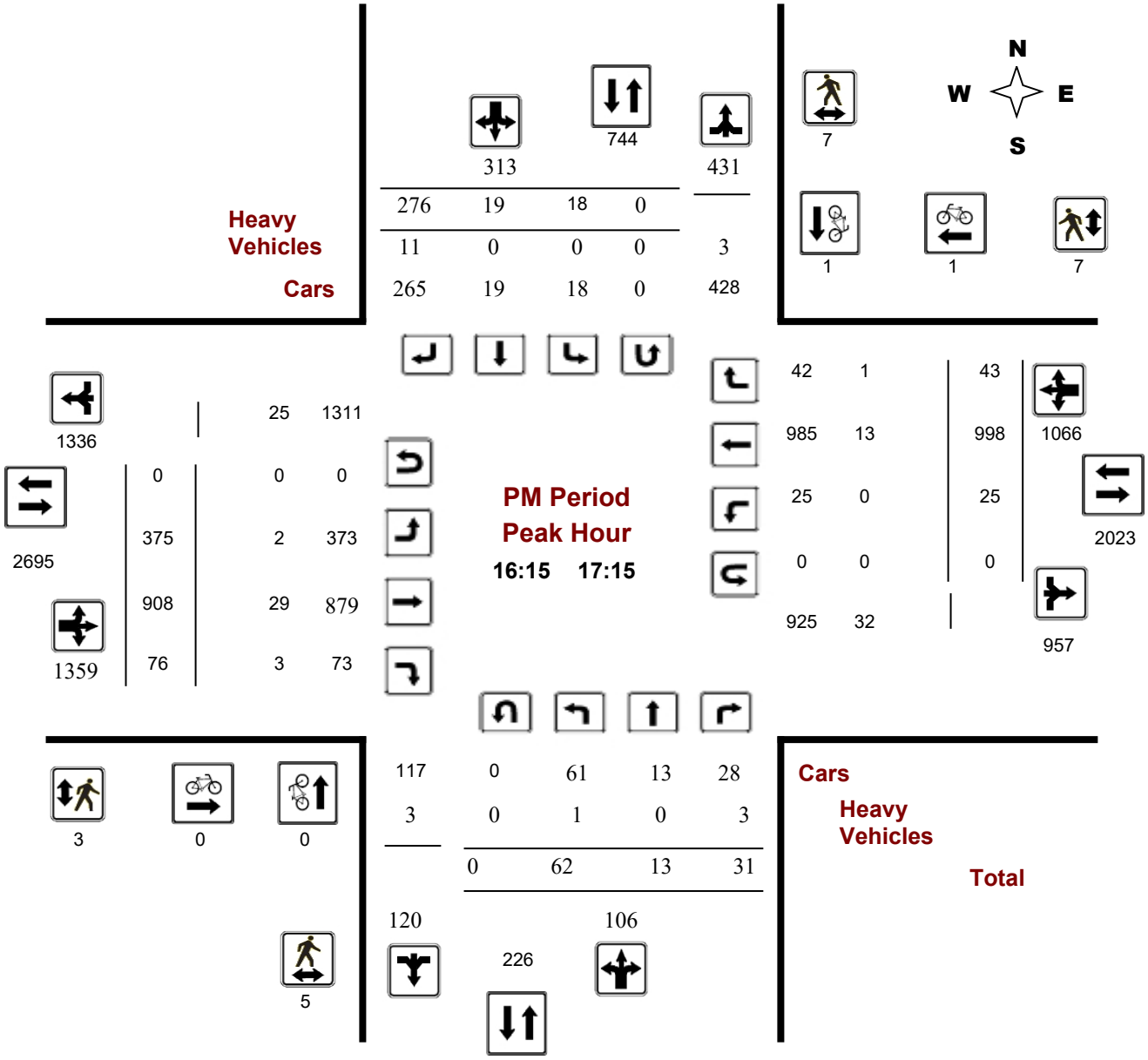
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

EARL ARMSTRONG RD @ SPRATT RD

Survey Date: Tuesday, November 26, 2019 **WO No:** 39110

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



Comments

Survey Date: Thursday August 17 2017
Weather: Dry

NB (South Leg) Street Name: Spratt
SB (North Leg) Street Name: Spratt
EB (West Leg) Street Name:
WB (East Leg) Street Name: Cambie

Start Time (AM Peak): 7:00
End Time (AM Peak): 10:00

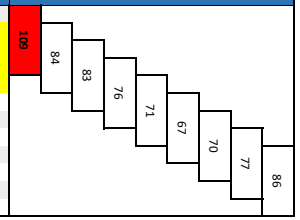
The AM Peak Hour is from 7:00 AM to 8:00 AM

AADT Factor: 0.9

In this case, AM Peak Hour is based on the AM Peak Hour from the Earl Armstrong & River Road intersection, as this is the critical within the study area

Turning Movement Count - 15 Minute Vehicle Summary Report (AM Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STREET TOTAL	0 Eastbound					Cambie Westbound					E/W STREET TOTAL	Grand TOTAL	1 Hour Traffic Volumes (All Scenarios)
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL			
7:00	7:15			2		2	22				22	24					0			19		19	19	43	
7:15	7:30			1		1	13				13	14					0			5		5	5	19	
7:30	7:45			1		1	22				22	23					0			6		6	6	29	
7:45	8:00			1		1	10				10	11					0			7		7	7	18	
8:00	8:15			1		1	8				8	9					0			9		9	9	18	
8:15	8:30			2		2	7				7	9					0			9		9	9	18	
8:30	8:45					0	5				5	5					0			17		17	17	22	
8:45	9:00			1		1	6				6	7					0	1		5		6	6	13	
9:00	9:15					0	7				7	7					0			7		7	7	14	
9:15	9:30			1		1	15				15	16					0			5		5	5	21	
9:30	9:45					0	11				11	11					0	3		15		18	18	29	
9:45	10:00			2		2	9				9	11					0			11		11	11	22	
Total AM Pk Hr		0	0	4	0	4	53	0	0	0	53	57	0	0	0	0	0	0	0	27	0	27	27	84	

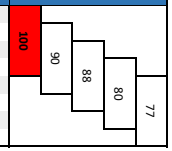


Start Time (MD Peak): 11:30
End Time (MD Peak): 13:30

The Mid-day Peak Hour is from 11:30 AM to 12:30 PM

Turning Movement Count - 15 Minute Vehicle Summary Report (Mid-Day Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STREET TOTAL	0 Eastbound					Cambie Westbound					E/W STREET TOTAL	Grand TOTAL	1 Hour Traffic Volumes (All Scenarios)
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL			
11:30	11:45					0	14				14	14					0			12		12	12	26	
11:45	12:00					0	11				11	11					0	1		11		12	12	23	
12:00	12:15					0	14				14	14					0			19		19	19	33	
12:15	12:30			2		2	7				7	9					0			9		9	9	18	
12:30	12:45					0	10				10	10					0			6		6	6	16	
12:45	13:00			1		1	8				8	9					0	2		10		12	12	21	
13:00	13:15					0	14				14	14					0	1		10		11	11	25	
13:15	13:30					0	11				11	11					0			4		4	4	15	
Total Mid Pk Hr		0	0	2	0	2	46	0	0	0	46	48	0	0	0	0	0	1	0	51	0	52	52	100	

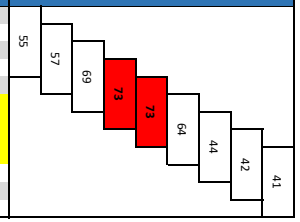


Start Time (PM Peak): 15:00
End Time (PM Peak): 18:00

The PM Peak Hour is from 3:45 PM to 4:45 PM

Turning Movement Count - 15 Minute Vehicle Summary Report (PM Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STR TOTAL	0 Eastbound					Cambie Westbound					E/W STR TOTAL	Grand TOTAL	1 Hour Traffic Volumes (All Scenarios)
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL			
15:00	15:15					0	8				8	8					0			8		8	8	16	
15:15	15:30			1		1	3				3	4					0			11		11	11	15	
15:30	15:45			2		2	5				5	7					0			3		3	3	10	
15:45	16:00					0	6				6	6					0	1		7		8	8	14	
16:00	16:15					0	4				4	4					0	1		13		14	14	18	
16:15	16:30			1		1	11				11	12					0	1		14		15	15	27	
16:30	16:45			1		1	4				4	5					0	1		8		9	9	14	
16:45	17:00					0	7				7	7					0	1		6		7	7	14	
17:00	17:15			1		1	5				5	6					0			3		3	3	9	
17:15	17:30					0	5				5	5					0			2		2	2	7	
17:30	17:45					0	8				8	8					0			4		4	4	12	
17:45	18:00					0	6				6	6					0	2		5		7	7	13	
Total PM Pk Hr		0	0	3	0	3	27	0	0	0	27	30	0	0	0	0	0	3	0	31	0	34	34	64	



Survey Date: Thursday August 17 2017
Weather: Dry

NB (South Leg) Street Name: Spratt
SB (North Leg) Street Name: Spratt

EB (West Leg) Street Name: 0
WB (East Leg) Street Name: Cambie

Start Time (AM Peak): 7:00
End Time (AM Peak): 10:00

Turning Movement Count - 15 Minute Pedestrian Volume Report (AM Peak)

Time Period	Spratt	Spratt	N/S STREET TOTAL	0	Cambie	E/W STREET TOTAL	Grand TOTAL
	NB Approach (East or West Crossing)	SB Approach (East or West Crossing)		EB Approach (North or South Crossing)	WB Approach (North or South Crossing)		
7:00 7:15			0			0	0
7:15 7:30			0		1	1	1
7:30 7:45			0			0	0
7:45 8:00			0			0	0
8:00 8:15			0			0	0
8:15 8:30			0			0	0
8:30 8:45			0		1	1	1
8:45 9:00			0	1		1	1
9:00 9:15			0			0	0
9:15 9:30			0	1	1	2	2
9:30 9:45			0	1		1	1
9:45 10:00			0			0	0
Total AM Pk Hr	0	0	0	0	1	1	1

Start Time (MD Peak): 11:30
End Time (MD Peak): 13:30

Turning Movement Count - 15 Minute Pedestrian Volume Report (Mid-Day Peak)

Time Period	Spratt	Spratt	N/S STREET TOTAL	0	Cambie	E/W STREET TOTAL	Grand TOTAL
	NB Approach (East or West Crossing)	SB Approach (East or West Crossing)		EB Approach (North or South Crossing)	WB Approach (North or South Crossing)		
11:30 11:45			0		1	1	1
11:45 12:00			0			0	0
12:00 12:15			0		1	1	1
12:15 12:30			0			0	0
12:30 12:45			0			0	0
12:45 13:00			0	1		1	1
13:00 13:15			0			0	0
13:15 13:30			0		1	1	1
TOTAL Mid Pk Hr:	0	0	0	0	1	1	1

Start Time (PM Peak): 15:00
End Time (PM Peak): 18:00

Turning Movement Count - 15 Minute Pedestrian Volume Report (PM Peak)

Time Period	Spratt	Spratt	N/S STREET TOTAL	0	Cambie	E/W STREET TOTAL	Grand TOTAL
	NB Approach (East or West Crossing)	SB Approach (East or West Crossing)		EB Approach (North or South Crossing)	WB Approach (North or South Crossing)		
15:00 15:15			0			0	0
15:15 15:30			0			0	0
15:30 15:45			0			0	0
15:45 16:00			0			0	0
16:00 16:15			0			0	0
16:15 16:30			0			0	0
16:30 16:45			0			0	0
16:45 17:00			0			0	0
17:00 17:15			0			0	0
17:15 17:30			0			0	0
17:30 17:45			0			0	0
17:45 18:00			0			0	0
Total PM Pk Hr	0	0	0	0	0	0	0

Survey Date: Thursday August 17 2017
Weather: Dry

NB (South Leg) Street Name: Spratt
SB (North Leg) Street Name: Spratt

0
Cambie

Start Time (AM Peak): 7:00
End Time (AM Peak): 10:00

Turning Movement Count - 15 Minute Cyclist Volume Report (AM Peak)

Time Period	Spratt Northbound	Spratt Southbound	N/S STREET Total	0 Eastbound	Cambie Westbound	E/W STREET TOTAL	Grand TOTAL
7:00 7:15			0			0	0
7:15 7:30			0			0	0
7:30 7:45			0			0	0
7:45 8:00			0			0	0
8:00 8:15			0			0	0
8:15 8:30			0			0	0
8:30 8:45			0			0	0
8:45 9:00			0			0	0
9:00 9:15			0			0	0
9:15 9:30		1	1			0	1
9:30 9:45		1	1			0	1
9:45 10:00	1	1	2			0	2
Total AM Pk Hr	1	3	4	0	0	0	4

Start Time (MD Peak): 11:30
End Time (MD Peak): 13:30

Turning Movement Count - 15 Minute Cyclist Volume Report (Mid-Day Peak)

Time Period	Spratt Northbound	Spratt Southbound	N/S STREET Total	0 Eastbound	Cambie Westbound	E/W STREET TOTAL	Grand TOTAL
11:30 11:45			0			0	0
11:45 12:00	3	1	4			0	4
12:00 12:15			0			0	0
12:15 12:30			0			0	0
12:30 12:45			0			0	0
12:45 13:00			0			0	0
13:00 13:15	1		1			0	1
13:15 13:30	1		1			0	1
Total Mid Pk Hr	5	1	6	0	0	0	6

Start Time (PM Peak): 15:00
End Time (PM Peak): 18:00

Turning Movement Count - 15 Minute Cyclist Volume Report (PM Peak)

Time Period	Spratt Northbound	Spratt Southbound	N/S STREET Total	0 Eastbound	Cambie Westbound	E/W STREET TOTAL	Grand TOTAL
15:00 15:15			0			0	0
15:15 15:30			0			0	0
15:30 15:45			0			0	0
15:45 16:00			0			0	0
16:00 16:15			0			0	0
16:15 16:30			0			0	0
16:30 16:45			0			0	0
16:45 17:00			0			0	0
17:00 17:15			0			0	0
17:15 17:30			0			0	0
17:30 17:45			0			0	0
17:45 18:00			0			0	0
Total PM Pk Hr	0	0	0	0	0	0	0

Survey Date: Thursday August 17 2017
Weather: Dry

NB (South Leg) Street Name: Spratt
SB (North Leg) Street Name: Spratt
EB (West Leg) Street Name: 0
WB (East Leg) Street Name: Cambie

Start Time (AM Peak): 7:00
End Time (AM Peak): 10:00

Turning Movement Count - 15 Minute Heavy Vehicle Report (AM Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STREET Total	0 Eastbound					Cambie Westbound					E/W STREET TOTAL	Grand TOTAL
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL		
7:00	7:15					0	3				3	3					0					0	0	3
7:15	7:30					0	1				1	1					0			2		2	2	3
7:30	7:45			1		1					0	1					0			2		2	2	3
7:45	8:00					0					0	0					0			2		2	2	2
8:00	8:15					0					0	0					0			1		1	1	1
8:15	8:30					0					0	0					0					0	0	0
8:30	8:45					0					0	0					0			2		2	2	2
8:45	9:00			1		1					0	1					0			1		1	1	2
9:00	9:15					0	1				1	1					0					0	0	1
9:15	9:30					0	1				1	1					0					0	0	1
9:30	9:45					0					0	0					0					0	0	0
9:45	10:00					0					0	0					0					0	0	0
Total AM Pk Hr		**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**7**	**9**

Start Time (MD Peak): 11:30
End Time (MD Peak): 13:30

Turning Movement Count - 15 Minute Heavy Vehicle Report (Mid-Day Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STREET Total	0 Eastbound					Cambie Westbound					E/W STREET TOTAL	Grand TOTAL
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL		
11:30	11:45					0					0	0					0			2		2	2	2
11:45	12:00					0	1				1	1					0			1		1	1	2
12:00	12:15					0	2				2	2					0					0	0	2
12:15	12:30					0					0	0					0					0	0	0
12:30	12:45					0					0	0					0					0	0	0
12:45	13:00					0	1				1	1					0					0	0	1
13:00	13:15					0	1				1	1					0					0	0	1
13:15	13:30					0					0	0					0					0	0	0
Total Mid Pk Hr		0	0	0	0	**0**	5	0	0	0	**5**	**5**	0	0	0	0	0	0	0	3	0	**3**	**3**	**8**

Start Time (PM Peak): 15:00
End Time (PM Peak): 18:00

Turning Movement Count - 15 Minute Heavy Vehicle Report (PM Peak)

Time Period		Spratt Northbound					Spratt Southbound					N/S STREET TOTAL	0 Eastbound					Cambie Westbound					E/W STREET TOTAL	Grand TOTAL
		LT	ST	RT	U-Turns	NB TOTAL	LT	ST	RT	U-Turns	SB TOTAL		LT	ST	RT	U-Turns	EB TOTAL	LT	ST	RT	U-Turns	WB TOTAL		
15:00	15:15					0	1				1	1					0					0	0	1
15:15	15:30			1		1	1				1	2					0			1		1	1	3
15:30	15:45			1		1	1				1	2					0					0	0	2
15:45	16:00					0					0	0					0			1		1	1	1
16:00	16:15					0					0	0					0			1		1	1	1
16:15	16:30					0					0	0					0			1		1	1	1
16:30	16:45					0					0	0					0			1		1	1	1
16:45	17:00					0					0	0					0					0	0	0
17:00	17:15			1		1					0	1					0			1		1	1	2
17:15	17:30					0					0	0					0					0	0	0
17:30	17:45					0	2				2	2					0					0	0	2
17:45	18:00					0					0	0					0					0	0	0
Total PM Pk Hr		**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**3**	**4**

Appendix F – Trip 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%

South Gloucester / Leitrim

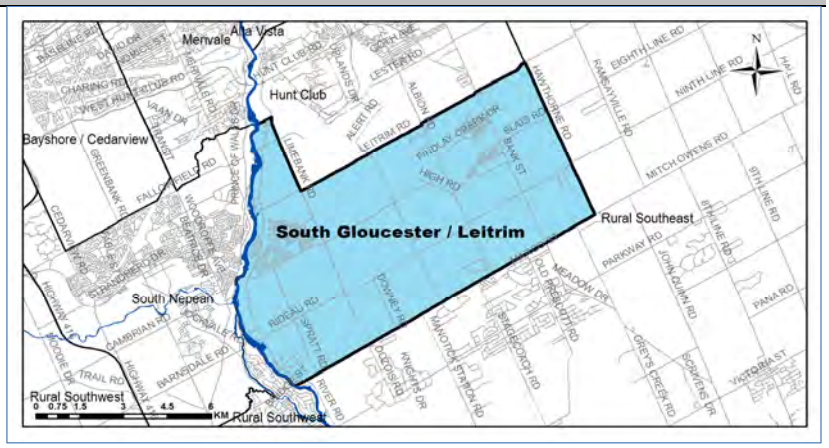
Demographic Characteristics

Population	17,600	Actively Travelled	14,190
Employed Population	8,910	Number of Vehicles	11,080
Households	6,240	Area (km^2)	78.9

Occupation Status (age 5+)	Male	Female	Total
Full Time Employed	4,550	3,630	8,180
Part Time Employed	130	590	730
Student	2,160	2,130	4,290
Retiree	720	770	1,490
Unemployed	90	220	320
Homemaker	20	540	560
Other	80	120	200
Total:	7,750	8,010	15,760

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	790	1,070	1,850
Licensed Drivers	5,790	5,940	11,730
Telecommuters	60	10	70
Trips made by residents	20,810	24,430	45,240

Selected Indicators	
Daily Trips per Person (age 5+)	2.87
Vehicles per Person	0.63
Number of Persons per Household	2.82
Daily Trips per Household	7.25
Vehicles per Household	1.78
Workers per Household	1.43
Population Density (Pop/km2)	220

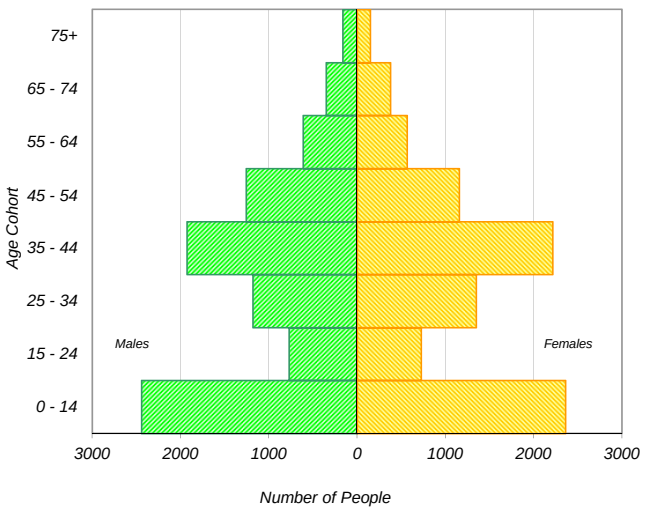


Household Size		
1 person	880	14%
2 persons	1,870	30%
3 persons	1,170	19%
4 persons	1,630	26%
5+ persons	690	11%
Total:	6,240	100%

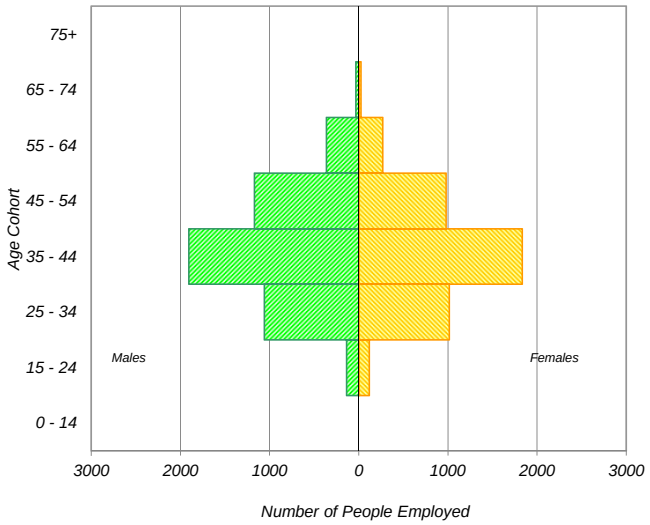
Households by Vehicle Availability		
0 vehicles	40	1%
1 vehicle	2,080	33%
2 vehicles	3,510	56%
3 vehicles	510	8%
4+ vehicles	100	2%
Total:	6,240	100%

Households by Dwelling Type		
Single-detached	3,300	53%
Semi-detached	770	12%
Townhouse	2,010	32%
Apartment/Condo	150	2%
Total:	6,240	100%

Population



Employed Population

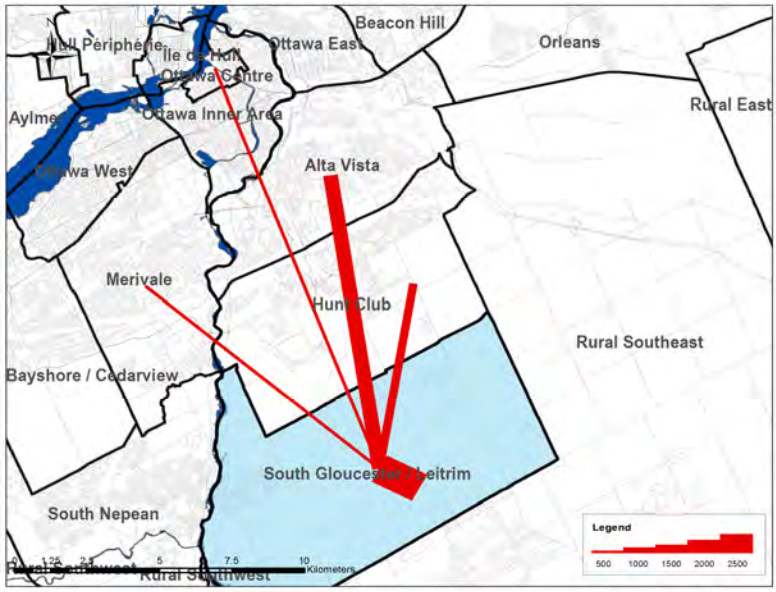


* In 2005 data was only collected for household members aged 11$^+$ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Destinations of Trips from South Gloucester / Leitrim

AM Peak Period



Summary of Trips to and from South Gloucester / Leitrim

AM Peak Period (6:30 - 8:59) Districts	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Ottawa Centre	930	9%	0	0%
Ottawa Inner Area	530	5%	250	4%
Ottawa East	240	2%	40	1%
Beacon Hill	240	2%	30	0%
Alta Vista	1,970	18%	160	2%
Hunt Club	1,100	10%	870	13%
Merivale	770	7%	340	5%
Ottawa West	290	3%	0	0%
Bayshore / Cedarview	170	2%	70	1%
Orléans	50	0%	170	3%
Rural East	0	0%	10	0%
Rural Southeast	210	2%	570	8%
South Gloucester / Leitrim	3,680	34%	3,680	55%
South Nepean	310	3%	100	1%
Rural Southwest	120	1%	220	3%
Kanata / Stittsvile	140	1%	60	1%
Rural West	40	0%	60	1%
Île de Hull	90	1%	0	0%
Hull Périphérie	10	0%	20	0%
Plateau	0	0%	20	0%
Aylmer	0	0%	0	0%
Rural Northwest	20	0%	10	0%
Pointe Gatineau	10	0%	30	0%
Gatineau Est	0	0%	0	0%
Rural Northeast	20	0%	0	0%
Buckingham / Masson-Angers	0	0%	20	0%
Ontario Sub-Total:	10,790	99%	6,630	99%
Québec Sub-Total:	150	1%	100	1%
Total:	10,940	100%	6,730	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	6,300	29%	3,270	15%	700	6%
School	1,640	8%	840	4%	1,930	16%
Shopping	1,830	8%	720	3%	700	6%
Leisure	2,730	13%	1,990	9%	660	6%
Medical	440	2%	120	1%	120	1%
Pick-up / drive passenger	1,610	7%	970	4%	1,720	14%
Return Home	6,020	28%	13,110	60%	5,320	44%
Other	1,160	5%	680	3%	850	7%
Total:	21,730	100%	21,700	100%	12,000	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	4,650	64%	1,740	57%	420	11%
School	1,310	18%	810	27%	1,580	43%
Shopping	60	1%	40	1%	10	0%
Leisure	140	2%	50	2%	0	0%
Medical	80	1%	0	0%	0	0%
Pick-up / drive passenger	780	11%	180	6%	900	25%
Return Home	100	1%	120	4%	330	9%
Other	150	2%	110	4%	430	12%
Total:	7,270	100%	3,050	100%	3,670	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	140	3%	150	2%	40	1%
School	30	1%	0	0%	80	2%
Shopping	270	6%	170	2%	210	6%
Leisure	840	19%	420	6%	140	4%
Medical	50	1%	0	0%	30	1%
Pick-up / drive passenger	310	7%	360	5%	400	12%
Return Home	2,400	54%	5,990	82%	2,350	69%
Other	400	9%	200	3%	150	4%
Total:	4,440	100%	7,290	100%	3,400	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	55,430		22%
AM Peak Period	13,990	25%	26%
PM Peak Period	15,130	27%	22%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	14,990	69%	14,970	69%	5,210	43%
Auto Passenger	3,870	18%	3,650	17%	3,120	26%
Transit	1,630	8%	1,740	8%	200	2%
Bicycle	90	0%	100	0%	20	0%
Walk	40	0%	40	0%	2,680	22%
Other	1,110	5%	1,200	6%	770	6%
Total:	21,730	100%	21,700	100%	12,000	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	4,640	64%	2,070	68%	1,540	42%
Auto Passenger	1,260	17%	210	7%	1,140	31%
Transit	860	12%	100	3%	60	2%
Bicycle	70	1%	20	1%	10	0%
Walk	20	0%	0	0%	620	17%
Other	420	6%	640	21%	300	8%
Total:	7,270	100%	3,040	100%	3,670	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	3,100	70%	4,920	67%	1,510	44%
Auto Passenger	1,020	23%	1,120	15%	860	25%
Transit	150	3%	790	11%	50	1%
Bicycle	20	0%	80	1%	0	0%
Walk	10	0%	0	0%	850	25%
Other	130	3%	390	5%	130	4%
Total:	4,430	100%	7,300	100%	3,400	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.26	1.24	1.60
AM Peak Period	1.27	1.10	1.74
PM Peak Period	1.33	1.23	1.57

Transit Modal Split	From District	To District	Within District
24 Hours	8%	9%	2%
AM Peak Period	13%	4%	2%
PM Peak Period	4%	12%	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)*	☑ provide pedestrian connection(s) to neighbouring communities to north/ west
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

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

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑ Provide bike parking in highly visible and well-lit areas
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)*	☐ N/A - subject development consists of multiple buildings
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ N/A - site plan
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐ N/A - site plan

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐ N/A
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)	☐

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	☐
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
	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)*	☐
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

			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)*	☐
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		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)*	☐
		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)*	☐
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	☐
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)*	☐

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	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

Appendix H – Swept Path Analyses

BUILDING 'A'
12 UNITS
(LARGE BLOCK)

BUILDING 'B'
12 UNITS
(LARGE BLOCK)

BUILDING 'C'
12 UNITS
(LARGE BLOCK)

BUILDING 'D'
12 UNITS
(LARGE BLOCK)

BUILDING 'E'
12 UNITS
(LARGE BLOCK)

BUILDING 'F'
12 UNITS
(SMALL BLOCK)

BUILDING 'G'
12 UNITS
(SMALL BLOCK)

BUILDING 'H'
12 UNITS
(LARGE BLOCK)

BUILDING 'J'
12 UNITS
(LARGE BLOCK)

BUILDING 'K'

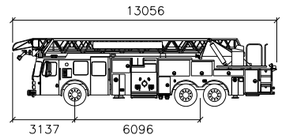
PARK

SPRATT ROAD

FIRE ROUTE

Site Benchmark #2
Fire Hydrant
Top of Spindle
Elevation=92.45

Site Benchmark #1
Fire Hydrant
Top of Spindle
Elevation=92.39



Smeal Aerial RM 105ft

mm

Width	: 2540
Track	: 2413
Lock to Lock Time	: 6.0
Steering Angle	: 32.0

SUBJECT TO EASEMENTS INST.'S OC1458573, OC1458575, OC1458577, OC1633455, OC1641489 AND OC1653321

PART 15 PIN 04330-1324

PIN 04330-1323

BUILDING 'A' 12 UNITS (LARGE BLOCK)

BUILDING 'B' 12 UNITS (LARGE BLOCK)

BUILDING 'C' 12 UNITS (LARGE BLOCK)

BUILDING 'D' 12 UNITS (LARGE BLOCK)

BUILDING 'E' 12 UNITS (LARGE BLOCK)

BUILDING 'F' 12 UNITS (SMALL BLOCK)

BUILDING 'G' 12 UNITS (SMALL BLOCK)

BUILDING 'H' 12 UNITS (LARGE BLOCK)

BUILDING 'J' 12 UNITS (LARGE BLOCK)

BUILDING 'K'

PARK

MIXED USE BLOCK

AREA 6.08 Acres

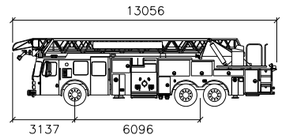
COMMERCIAL AND

FIRE ROUTE

SPRATT ROAD

Site Benchmark #2
Fire Hydrant
Top of Spindle
Elevation=92.45

Site Benchmark #1
Fire Hydrant
Top of Spindle
Elevation=92.39



Smeal Aerial RM 105ft

mm

Width	: 2540
Track	: 2413
Lock to Lock Time	: 6.0
Steering Angle	: 32.0

BUILDING 'A'
12 UNITS
(LARGE BLOCK)

BUILDING 'B'
12 UNITS
(LARGE BLOCK)

BUILDING 'C'
12 UNITS
(LARGE BLOCK)

BUILDING 'D'
12 UNITS
(LARGE BLOCK)

BUILDING 'E'
12 UNITS
(LARGE BLOCK)

BUILDING 'F'
12 UNITS
(SMALL BLOCK)

BUILDING 'G'
12 UNITS
(SMALL BLOCK)

BUILDING 'H'
12 UNITS
(LARGE BLOCK)

BUILDING 'J'
12 UNITS
(LARGE BLOCK)

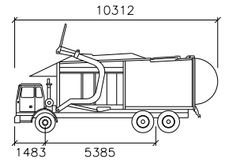
BUILDING 'K'
12 UNITS
(SMALL BLOCK)

PARK

SPRATT ROAD

Site Benchmark #1
Fire Hydrant
Top of Spindle
Elevation=92.39

10312



Wayne Titan

	mm
Width	: 2578
Track	: 2438
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

BUILDING 'A'
12 UNITS
(LARGE BLOCK)
BUILDING 'B'
12 UNITS
(LARGE BLOCK)
BUILDING 'C'
12 UNITS
(LARGE BLOCK)
BUILDING 'E'
12 UNITS
(LARGE BLOCK)
BUILDING 'D'
12 UNITS
(LARGE BLOCK)
BUILDING 'F'
12 UNITS
(SMALL BLOCK)
BUILDING 'H'
12 UNITS
(LARGE BLOCK)
BUILDING 'J'
12 UNITS
(LARGE BLOCK)
BUILDING 'K'
12 UNITS
(SMALL BLOCK)
PARK
FIRE ROUTE
18 CARS
11 CARS
11 CARS
9 CARS
8 CARS
15 CARS
5200
6700
5200
3660
2600
MAIL
HYDRO LINE CLEARANCE
N68°38'20"E
SPRATT ROAD
Yellow Paint Line
Yellow Paint Line
Asphalt
MH-S
T\G=91.20
MH-S
T\G=91.55
MH-S
T\G=91.63
CB
T\G=91.37
MH-S
T\G=91.49
CBI
T\G=91.30
CBI
T\G=91.51
Site Benchmark #1
Fire Hydrant
Top of Spindle
Elevation=92.39
Concrete Curb
R5000
R6000
Wayne Titan
CITY - REFUSE
10312
1483
5385
Wayne Titan
mm
Width : 2578
Track : 2438
Lock to Lock Time : 6.0
Steering Angle : 45.0
Southeast Angle
Lot 21
Broken Front
Concession
(Rideau Front)

Appendix I – Intersection Capacity Analyses

Existing (2021) Traffic

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	150	50	0
Future Vol, veh/h	0	0	0	150	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	167	56	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	223	56	56	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	167	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	770	1016	1562	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	1016	1562	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1562	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	0	0	0	5	0	20	0	130	7	14	36	0
Future Vol, veh/h	0	0	0	5	0	20	0	130	7	14	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	25	0	0	0
Mvmt Flow	0	0	0	6	0	22	0	144	8	16	40	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	231	225	40	221	221	149	40	0	0	153	0	0
Stage 1	72	72	-	149	149	-	-	-	-	-	-	-
Stage 2	159	153	-	72	72	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	728	678	1037	739	681	903	1583	-	-	1440	-	-
Stage 1	943	839	-	858	778	-	-	-	-	-	-	-
Stage 2	848	775	-	943	839	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	704	670	1037	732	673	902	1583	-	-	1439	-	-
Mov Cap-2 Maneuver	704	670	-	732	673	-	-	-	-	-	-	-
Stage 1	943	830	-	857	777	-	-	-	-	-	-	-
Stage 2	827	774	-	933	830	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.3	0	2.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1583	-	-	-	862	1439	-	-
HCM Lane V/C Ratio	-	-	-	-	0.032	0.011	-	-
HCM Control Delay (s)	0	-	-	0	9.3	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	106	120	0
Future Vol, veh/h	0	0	0	106	120	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	0	0	118	133	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	251	133	133	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	742	922	1464	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	742	922	1464	-	-	-
Mov Cap-2 Maneuver	742	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1464	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	0	0	0	8	0	28	0	78	16	45	75	0
Future Vol, veh/h	0	0	0	8	0	28	0	78	16	45	75	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	33	0	0	0
Mvmt Flow	0	0	0	9	0	31	0	87	18	50	83	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	295	288	83	279	279	96	83	0	0	105	0	0
Stage 1	183	183	-	96	96	-	-	-	-	-	-	-
Stage 2	112	105	-	183	183	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	661	625	982	677	632	966	1527	-	-	1499	-	-
Stage 1	823	752	-	916	819	-	-	-	-	-	-	-
Stage 2	898	812	-	823	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	623	604	982	660	611	966	1527	-	-	1499	-	-
Mov Cap-2 Maneuver	623	604	-	660	611	-	-	-	-	-	-	-
Stage 1	823	727	-	916	819	-	-	-	-	-	-	-
Stage 2	869	812	-	796	727	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.3	0	2.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1527	-	-	-	876	1499	-	-
HCM Lane V/C Ratio	-	-	-	-	0.046	0.033	-	-
HCM Control Delay (s)	0	-	-	0	9.3	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	-	-

Future (2025) Background Traffic

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	397	245	0
Future Vol, veh/h	0	0	0	397	245	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	397	245	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	642	245	245	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	442	799	1333	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	442	799	1333	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1333	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	0	0	0	5	0	28	0	368	8	16	228	0
Future Vol, veh/h	0	0	0	5	0	28	0	368	8	16	228	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	25	0	0	0
Mvmt Flow	0	0	0	5	0	28	0	368	8	16	228	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	646	637	228	633	633	373	228	0	0	377	0	0
Stage 1	260	260	-	373	373	-	-	-	-	-	-	-
Stage 2	386	377	-	260	260	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	387	398	816	395	400	678	1352	-	-	1193	-	-
Stage 1	749	697	-	652	622	-	-	-	-	-	-	-
Stage 2	641	619	-	749	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	367	392	816	391	394	677	1352	-	-	1192	-	-
Mov Cap-2 Maneuver	367	392	-	391	394	-	-	-	-	-	-	-
Stage 1	749	688	-	651	621	-	-	-	-	-	-	-
Stage 2	614	618	-	739	688	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.3	0	0.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1352	-	-	-	609	1192	-	-
HCM Lane V/C Ratio	-	-	-	-	0.054	0.013	-	-
HCM Control Delay (s)	0	-	-	0	11.3	8.1	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	346	464	0
Future Vol, veh/h	0	0	0	346	464	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	0	0	346	464	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	810	464	464	0	-	0
Stage 1	464	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	352	602	1108	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	352	602	1108	-	-	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	721	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1108	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	0	0	0	8	0	33	0	313	16	53	411	0
Future Vol, veh/h	0	0	0	8	0	33	0	313	16	53	411	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	33	0	0	0
Mvmt Flow	0	0	0	8	0	33	0	313	16	53	411	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	855	846	411	838	838	321	411	0	0	329	0	0
Stage 1	517	517	-	321	321	-	-	-	-	-	-	-
Stage 2	338	329	-	517	517	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	281	301	645	288	305	724	1159	-	-	1242	-	-
Stage 1	545	537	-	695	655	-	-	-	-	-	-	-
Stage 2	681	650	-	545	537	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	259	288	645	278	292	724	1159	-	-	1242	-	-
Mov Cap-2 Maneuver	259	288	-	278	292	-	-	-	-	-	-	-
Stage 1	545	514	-	695	655	-	-	-	-	-	-	-
Stage 2	650	650	-	522	514	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.1	0	0.9
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1159	-	-	-	551	1242	-	-
HCM Lane V/C Ratio	-	-	-	-	0.074	0.043	-	-
HCM Control Delay (s)	0	-	-	0	12.1	8	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1	-	-

Future (2030) Background Traffic

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	543	241	0
Future Vol, veh/h	0	0	0	543	241	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	543	241	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	784	241	241	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	365	803	1337	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	365	803	1337	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	586	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1337	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	28	0	515	8	16	224	0
Future Vol, veh/h	0	0	0	5	0	28	0	515	8	16	224	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	25	0	0	0
Mvmt Flow	0	0	0	5	0	28	0	515	8	16	224	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	789	780	224	776	776	520	224	0	0	524	0	0
Stage 1	256	256	-	520	520	-	-	-	-	-	-	-
Stage 2	533	524	-	256	256	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	311	329	820	317	331	560	1357	-	-	1053	-	-
Stage 1	753	699	-	543	535	-	-	-	-	-	-	-
Stage 2	534	533	-	753	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	292	324	820	313	326	559	1357	-	-	1052	-	-
Mov Cap-2 Maneuver	292	324	-	313	326	-	-	-	-	-	-	-
Stage 1	753	689	-	542	534	-	-	-	-	-	-	-
Stage 2	507	532	-	742	689	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.7	0	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	-	500	1052	-	-
HCM Lane V/C Ratio	-	-	-	-	0.066	0.015	-	-
HCM Control Delay (s)	0	-	-	0	12.7	8.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	420	599	0
Future Vol, veh/h	0	0	0	420	599	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	0	0	420	599	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1019	599	599	0	-	0
Stage 1	599	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	265	505	988	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	505	988	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	988	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	8	0	33	0	388	16	53	546	0
Future Vol, veh/h	0	0	0	8	0	33	0	388	16	53	546	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	33	0	0	0
Mvmt Flow	0	0	0	8	0	33	0	388	16	53	546	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1065	1056	546	1048	1048	396	546	0	0	404	0	0
Stage 1	652	652	-	396	396	-	-	-	-	-	-	-
Stage 2	413	404	-	652	652	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	202	227	541	208	230	658	1033	-	-	1166	-	-
Stage 1	460	467	-	633	607	-	-	-	-	-	-	-
Stage 2	620	603	-	460	467	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	185	217	541	201	220	658	1033	-	-	1166	-	-
Mov Cap-2 Maneuver	185	217	-	201	220	-	-	-	-	-	-	-
Stage 1	460	446	-	633	607	-	-	-	-	-	-	-
Stage 2	589	603	-	439	446	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.7	0	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1033	-	-	-	456	1166	-	-
HCM Lane V/C Ratio	-	-	-	-	0.09	0.045	-	-
HCM Control Delay (s)	0	-	-	0	13.7	8.2	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0.1	-	-

Future (2025) Total Traffic

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	1	0	405	248	4
Future Vol, veh/h	7	1	0	405	248	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	1	0	405	248	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	655	250	252	0	-	0
Stage 1	250	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	434	794	1325	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	434	794	1325	-	-	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1325	-	460	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-
HCM Control Delay (s)	0	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	8	0	0	5	0	28	0	369	8	16	229	3
Future Vol, veh/h	8	0	0	5	0	28	0	369	8	16	229	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	25	0	0	0
Mvmt Flow	8	0	0	5	0	28	0	369	8	16	229	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	650	641	231	637	638	374	232	0	0	378	0	0
Stage 1	263	263	-	374	374	-	-	-	-	-	-	-
Stage 2	387	378	-	263	264	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	385	395	813	393	397	677	1348	-	-	1192	-	-
Stage 1	747	694	-	651	621	-	-	-	-	-	-	-
Stage 2	641	619	-	747	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	365	389	813	389	391	676	1348	-	-	1191	-	-
Mov Cap-2 Maneuver	365	389	-	389	391	-	-	-	-	-	-	-
Stage 1	747	685	-	650	620	-	-	-	-	-	-	-
Stage 2	614	618	-	737	685	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	11.3	0	0.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	365	608	1191	-	-
HCM Lane V/C Ratio	-	-	-	0.022	0.054	0.013	-	-
HCM Control Delay (s)	0	-	-	15.1	11.3	8.1	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	0	0	351	470	7
Future Vol, veh/h	7	0	0	351	470	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	7	0	0	351	470	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	825	474	477	0	-	0
Stage 1	474	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	345	595	1096	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	345	595	1096	-	-	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	717	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1096	-	345	-	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	0	-	15.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	5	0	0	8	0	33	0	313	16	53	411	6
Future Vol, veh/h	5	0	0	8	0	33	0	313	16	53	411	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	33	0	0	0
Mvmt Flow	5	0	0	8	0	33	0	313	16	53	411	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	858	849	414	841	844	321	417	0	0	329	0	0
Stage 1	520	520	-	321	321	-	-	-	-	-	-	-
Stage 2	338	329	-	520	523	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	279	300	643	287	302	724	1153	-	-	1242	-	-
Stage 1	543	535	-	695	655	-	-	-	-	-	-	-
Stage 2	681	650	-	543	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	258	287	643	278	289	724	1153	-	-	1242	-	-
Mov Cap-2 Maneuver	258	287	-	278	289	-	-	-	-	-	-	-
Stage 1	543	512	-	695	655	-	-	-	-	-	-	-
Stage 2	650	650	-	520	511	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.2	12.1	0	0.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1153	-	-	258	551	1242	-	-
HCM Lane V/C Ratio	-	-	-	0.019	0.074	0.043	-	-
HCM Control Delay (s)	0	-	-	19.2	12.1	8	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

Future (2030) Total Traffic

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	1	0	550	243	3
Future Vol, veh/h	7	1	0	550	243	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	1	0	550	243	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	795	245	246	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	359	799	1332	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	359	799	1332	-	-	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1332	-	386	-	-
HCM Lane V/C Ratio	-	-	0.021	-	-
HCM Control Delay (s)	0	-	14.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	7	0	0	5	0	28	0	515	8	16	225	3
Future Vol, veh/h	7	0	0	5	0	28	0	515	8	16	225	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	25	0	0	0
Mvmt Flow	7	0	0	5	0	28	0	515	8	16	225	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	792	783	227	779	780	520	228	0	0	524	0	0
Stage 1	259	259	-	520	520	-	-	-	-	-	-	-
Stage 2	533	524	-	259	260	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	309	328	817	316	329	560	1352	-	-	1053	-	-
Stage 1	750	697	-	543	535	-	-	-	-	-	-	-
Stage 2	534	533	-	750	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	323	817	312	324	559	1352	-	-	1052	-	-
Mov Cap-2 Maneuver	290	323	-	312	324	-	-	-	-	-	-	-
Stage 1	750	687	-	542	534	-	-	-	-	-	-	-
Stage 2	507	532	-	739	687	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	12.7	0	0.6
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1352	-	-	290	499	1052	-	-
HCM Lane V/C Ratio	-	-	-	0.024	0.066	0.015	-	-
HCM Control Delay (s)	0	-	-	17.7	12.7	8.5	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	0	0	424	605	6
Future Vol, veh/h	9	0	0	424	605	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	9	0	0	424	605	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1032	608	611	0	-	0
Stage 1	608	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	260	499	978	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	260	499	978	-	-	-
Mov Cap-2 Maneuver	260	-	-	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	978	-	260	-	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	0	-	19.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	4	0	0	8	0	33	0	388	16	53	546	6
Future Vol, veh/h	4	0	0	8	0	33	0	388	16	53	546	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	33	0	0	0
Mvmt Flow	4	0	0	8	0	33	0	388	16	53	546	6

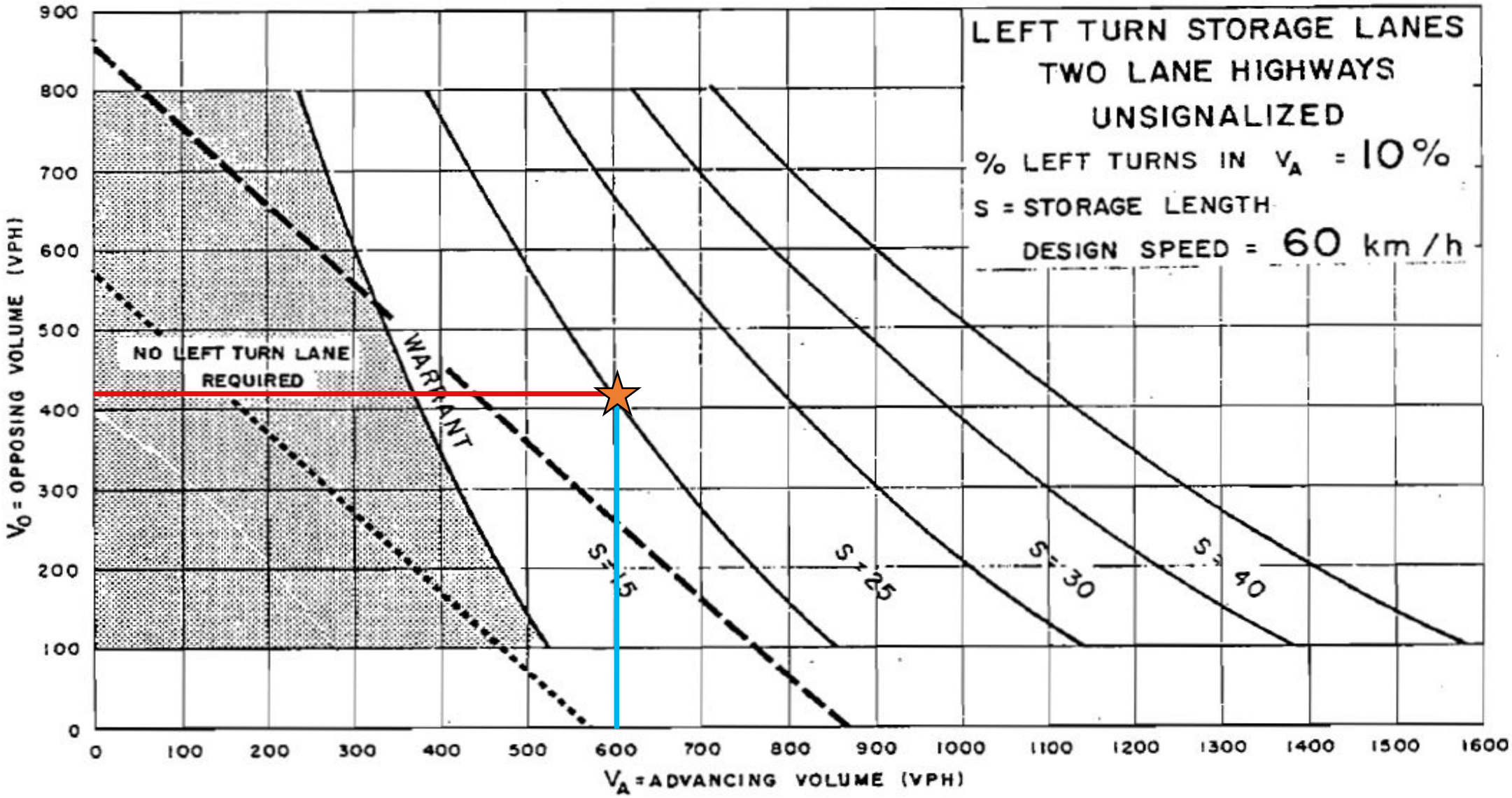
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1068	1059	549	1051	1054	396	552	0	0	404	0	0
Stage 1	655	655	-	396	396	-	-	-	-	-	-	-
Stage 2	413	404	-	655	658	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	201	226	539	207	228	658	1028	-	-	1166	-	-
Stage 1	458	466	-	633	607	-	-	-	-	-	-	-
Stage 2	620	603	-	458	464	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	184	216	539	200	218	658	1028	-	-	1166	-	-
Mov Cap-2 Maneuver	184	216	-	200	218	-	-	-	-	-	-	-
Stage 1	458	445	-	633	607	-	-	-	-	-	-	-
Stage 2	589	603	-	437	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25	13.7	0	0.7
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1028	-	-	184	455	1166	-	-
HCM Lane V/C Ratio	-	-	-	0.022	0.09	0.045	-	-
HCM Control Delay (s)	0	-	-	25	13.7	8.2	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-

Appendix J – Auxiliary Lane Analyses

4624 Spratt - Block 177
Spratt Cambie Southbound Approach



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

Opposing Volume

Advancing Volume