1047 Richmond Road (Phase 1)

Transportation Impact Assessment Report

April 2025

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Transportation Impact Assessment Report

prepared for:
1047 Richmond Investment GP Inc.
2275 Upper Middle Rd. E. Suite 700
Oakville, ON
L6H 0C3

prepared by:

PARSONS
1223 Michael Street North
Suite 100
Ottawa, ON K1J 7T2

April 10, 2025

479051–01000

Certification Form for Transportation Impact Assessment (TIA) Study

TIA Reports

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 and 2023 amendments.

Please note that the Certification is only required for the submission of a TIA. The Screening can be undertaken by a non-certified individual for the purpose of identifying if a TIA is needed or not.

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

CERTIFICATION

- ☑ 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; (Update effective July 2023)
- ☑ 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;
- ☑ 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
- ☑ I am either a licensed or registered[1] professional in good standing, whose field of expertise
  - ☑ is either transportation engineering
  - ☐ or transportation planning.

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

City Of Ottawa
Planning, Real Estate and Economic Development
110 Laurier Avenue West, 4th fl.
Ottawa, ON
K1P 1J1

Revision Date: December 2023

Dated at Ottawa (City) this 10th day of April, 20 25 .

Name : Basel Ansari P.Eng

Professional title: Transportation Engineer

Signature of individual certifier that they meet the above four criteria

Office Contact Information (Please Print)
Address: 1223 Michael Street North, Suite 100
City / Postal Code: Ottawa, Ontario, K1J 7TJ
Telephone / Extension: 613-691-1581
Email Address: Basel.Ansari@parsons.com

Stamp

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REVIEWER:	Basel Ansari. P.Eng.
AUTHORIZATION:	
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TIA REPORT

Parsons has been retained by Richmond Investment GP Inc. to prepare a Transportation Impact Assessment (TIA) Report in support of a Site Plan Application for Phase 1 of the proposed residential development at 1047 Richmond Rd. This document follows the TIA process as outlined in the City of Ottawa's Transportation Impact Assessment Guidelines (2017) and Revisions (2023). The following report represents Step 4 – TIA Report.

1.0 SCREENING FORM

The Screening Form confirmed the need for a TIA Report based on the Trip Generation, Location and Safety triggers. The Trip Generation trigger was met as the development is anticipated to have more than 150 apartment units. The Location trigger was met due to the location of the proposed development within an Inner Urban Transect Hub and Richmond Rd's designation as a Mainstreet Corridor within a Design Priority Area (DPA). The Safety trigger is met due to the proximity of the proposed access within 150 m of the signalized Richmond/New Orchard intersection. The Screening Form has been provided in **Appendix A**.

2.0 SCOPING REPORT

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

The proposed development is located at the municipal address of 1047 Richmond Rd and currently exists as an empty lot bordered by Richmond Rd to the south, New Orchard Ave to the west, a long-term care facility to the north, and residential buildings to the east. The proposed development is anticipated to be constructed in two phases. This report is specific to Phase 1 only, which is expected to consist of one 37-storey mixed use building providing 425 residential units, 503 m^2 (5,409 ft^2) of commercial area, 254 vehicle parking spaces within a 2-level underground parking lot and 322 bicycle parking spaces. Phase 1 will also provide a 1,012 m^2 (10,893 ft^2) park located at the southwest corner of the site. All vehicle access to the site will be provided via a driveway connection along New Orchard Ave N. **Figure 1** provides an illustration of the local area context of the site and **Figure 2** illustrates the latest site plan (high quality plan in **Appendix A**).

Figure 1: Local Context

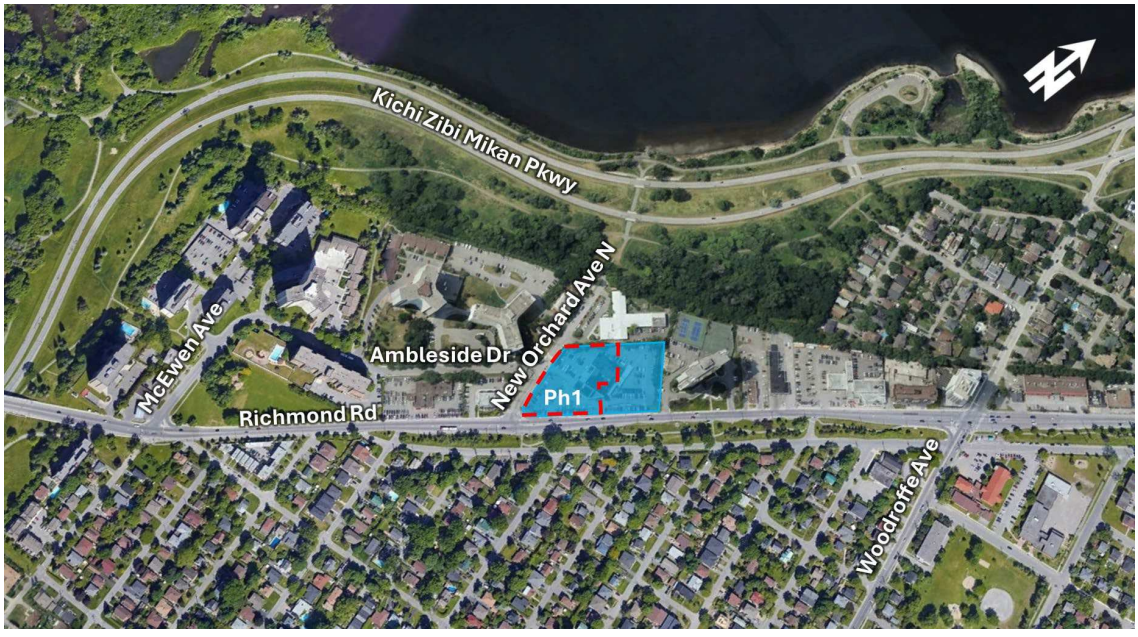
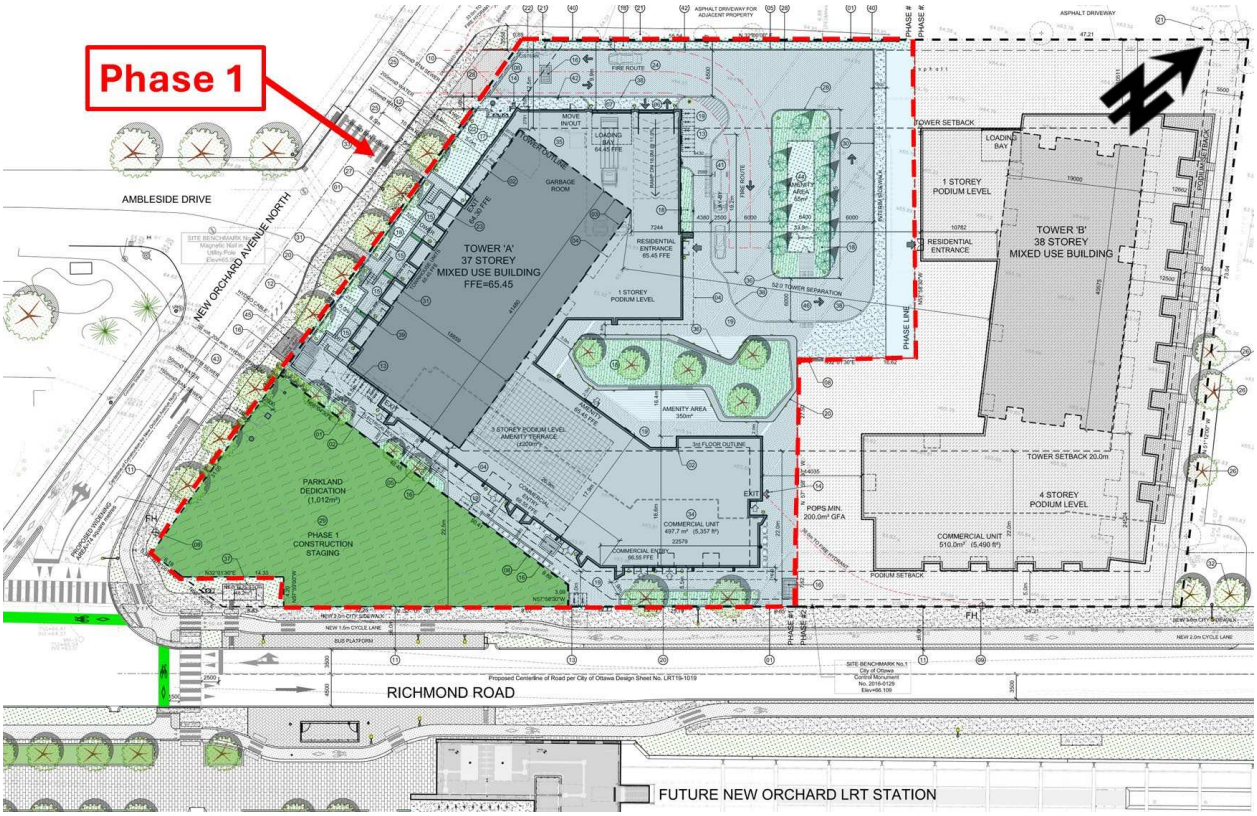


Figure 2: Proposed Site Plan (April 2025)



2.1.2. Existing Conditions

Due to the ongoing LRT Stage 2 west extension work, Richmond Rd and adjacent roads have been under construction since 2020 and have experienced varying roadway closures and interim intersection designs over the last several years. At the time of writing this report, Richmond Rd is fully closed off to WB traffic between McEwen Ave and New Orchard Ave N and all WB traffic is detoured via New Orchard Ave, Ambleside Dr and McEwen Ave. As such, an interim construction scenario prior to this ongoing closure has been assumed to be the existing baseline condition. Details of the specific road and intersection configurations are provided below.

Area Road Network

Description of roads included within the study area has been provided below.

Richmond Rd is an east-west municipal arterial road that extends from Baseline Rd in the west (where it continues west as Robertson Rd) to Island Park Dr in the east (where it continues east as Wellington St W). The roadway is currently undergoing construction within the study area as part of LRT Stage 2. The cross-section typically consisted of two travel lanes, with a continuous sidewalk on the north side of the road and bike lanes that were previously provided west of New Orchard Ave N. The posted speed limit is 50 km/h and the protected ROW is 26 m, which is subject to an unequal widening (north side 7.5 m, south side 18.5 m).

Ambleside Dr is a short east-west municipal local road providing access to residential buildings, extending from New Orchard Ave N to McEwen Ave. The roadway consists of a two-lane cross-section, with on-street parking on the south side and a sidewalk on the north side. The posted speed limit is 30 km/h and the existing ROW is measured to be approximately 20 m.

New Orchard Ave N is a short (dead-end) north-south municipal local road providing access to the proposed development, a nursing home and low to high-rise residential units. The road extends from Richmond Rd to a cul-de-sac approximately 200 m north. The roadway consists of a two-lane cross-section and a sidewalk on the

west side, with on-street parking permitted on both sides, north of Ambleside Dr. The cul-de-sac at the north end provides access to a series of pathways along the Kichi Zibi Mikan Pkwy. The posted speed limit is 30 km/h and the protected ROW is 20 m.

McEwen Ave is a short (dead-end) north-south municipal local road providing access to residential buildings. The road extends from Richmond Rd to Ambleside Dr, where it diverges to the left and ends at a cul-de-sac. The road consists of a two-lane cross-section, with sidewalks provided on both sides along most sections and on-street parking permitted on the west side near the north end. Similar to New Orchard Ave N, the cul-de-sac at the north end provides access to a series of pathways along Kichi Zibi Mikan Pkwy. The posted speed limit is 30 km/h and the existing ROW is assumed to be 20.5 m.

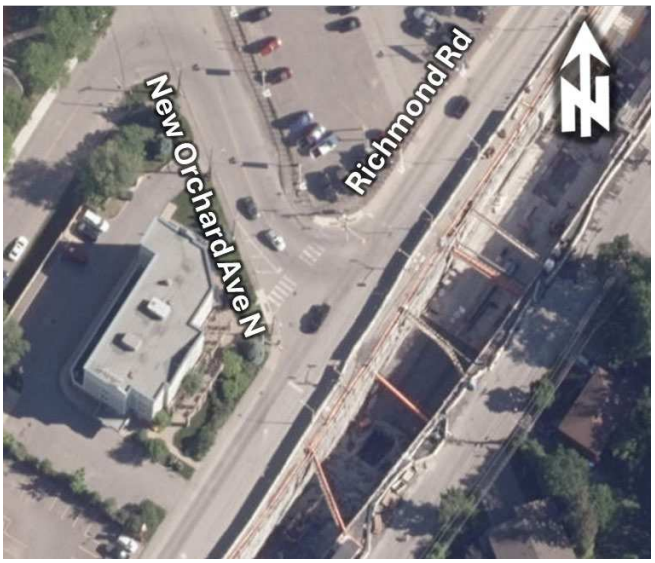
Woodroffe Ave is a north-south municipal arterial roadway that extends from Kichi Zibi Mikan Pkwy in the north to past Cortleigh Dr and Castlestone Way in the south. Within the study area, the roadway consists of a two-lane cross-section, with sidewalks on both sides of the road. The posted speed limit along Woodroffe Ave north and south of Richmond Rd is 30 km/h and 50km/h, respectively. The protected ROW is 26 m.

Existing Study Area Intersections

Richmond/New Orchard

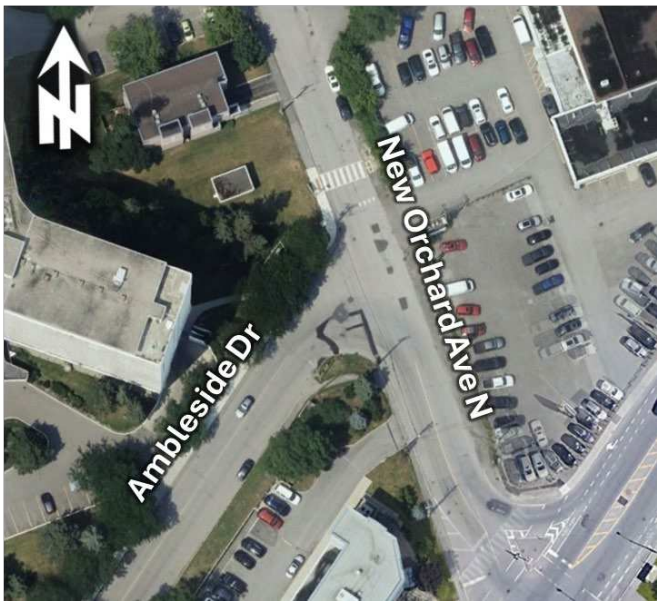
The Richmond/New Orchard intersection is a three-legged signalized intersection. The aerial image on the right illustrates the intersection configuration prior to the ongoing construction lane closures.

The eastbound approach consists of a through lane and an auxiliary left-turn lane. The westbound and southbound approaches consist of a single all-movement lane. Painted zebra crosswalks are provided on all legs of the intersection. Existing bike lanes have been removed temporarily to provide space for LRT construction. There are no prohibited movements at the intersection.



Ambleside/New Orchard

The Ambleside/New Orchard intersection is a three-legged unsignalized intersection, with stop control on the eastbound approach only. All approaches of the intersection consist of a single all-movement lane. A pedestrian crossover with flashing beacons and painted zebra crosswalk has been provided on the north leg of the intersection.



Richmond/McEwen

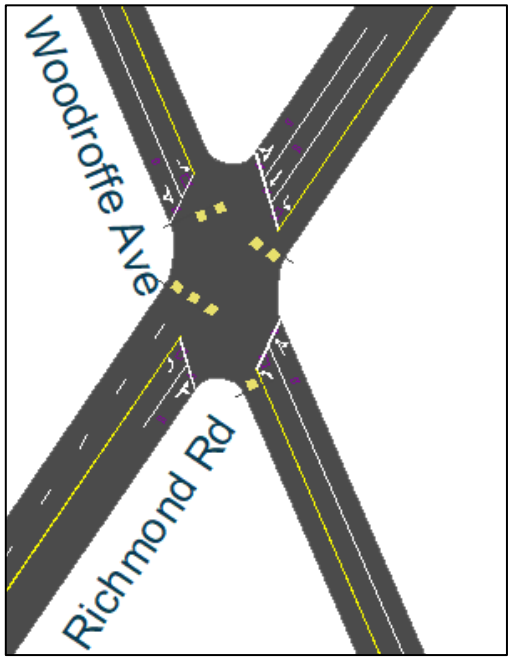
The Richmond/McEwen intersection is a signalized three-legged "T" intersection. Prior to the ongoing closure of the east leg due to construction, the intersection consisted of the configuration shown.

The eastbound and westbound approaches consist of a single all-movement lane. The southbound approach consists of a right-turn lane and an auxiliary left-turn lane. Edgeworth Ave was previously designed as a right-turn only onto Richmond Rd, however, the intersection has been realigned and all movements to/from Edgeworth Ave are prohibited. Bike lanes are provided on both sides of Richmond Rd and sidewalks are provided on all sides of the intersection. Painted crosswalks are provided on the north, west and south legs.

Richmond/Woodroffe

The Richmond/Woodroffe intersection is a signalized four-legged intersection. Prior to the ongoing construction on Richmond Road, the intersection consisted of the configuration shown.

The northbound, southbound and eastbound approaches consist of a shared through/right-turn lane and an auxiliary left-turn lane. The westbound approach consists of a through/right lane, a through lane, and an auxiliary left-turn lane. Painted zebra crosswalks are provided on all legs of the intersection. There are no restricted movements at this intersection.



Existing Driveways to Adjacent Developments

A single site access is proposed off New Orchard Ave N at the north end of the site. Adjacent development accesses located within 200m of the proposed access are illustrated in **Figure 3** and described below.

- On the west side of New Orchard Ave N, there is a total of 6 adjacent driveways. North of Ambleside Dr, there is an access to a high-rise residential apartment building, two accesses to low and mid-rise residential buildings and three accesses to single residential units. South of Ambleside Dr, there is an outbound driveway to a social services organization.
- On the east side of New Orchard Ave N, there are 2 adjacent driveways. Both accesses are for a nursing home and are located north of Ambleside Dr.

Figure 3: Adjacent Development Accesses

Existing Area Traffic Management Measures

Existing area traffic management measures within the study area include pedestrian advance walk phases at the Richmond/New Orchard intersection, along with zebra crosswalks at signalized intersections and the PXO on the north leg of New Orchard/Ambleside intersection. Additionally, low speeds of 30 km/h are posted along each of New Orchard Ave N, Ambleside Dr, McEwen Ave and Woodroffe Ave (north of Richmond Rd).

Pedestrian/Cycling Network

The active transportation (AT) network facilities for pedestrians and cyclists are illustrated in **Figure 4**. As shown, sidewalk facilities are provided on the north side of Ambleside Dr, the west side of New Orchard Ave N, and mainly the north side and some sections on the south side of Richmond Rd. Sidewalks are also provided on both sides of McEwen Ave and Woodroffe Ave. Due to on-going construction and the closure of the Richmond Rd segment between New Orchard Ave N and McEwen Ave, pedestrians have been detoured away from Richmond Rd to a temporary path that travels along the north side of the McEwen Park between Byron Ave and Ambleside Dr.

For all AT users, major Multi-Use Pathways (MUP) exist north of the site and run along both sides of the Kichi Zibi Mikan Pkwy. Connection to the MUP is provided via the New Orchard Ave N cul-de-sac, where AT users may access the south side MUP, or traverse two underpasses to access the MUP on the north side of the Kichi Zibi Mikan Pkwy. The MUPs are designated as major pathways in the City of Ottawa Official Plan (OP).

The bike lanes illustrated on Richmond Road, west of New Orchard Ave N, have been removed temporarily due to the ongoing construction between New Orchard Ave N and McEwen Ave. The bike lanes currently start approximately 75m west of McEwen Ave. Based on the City of Ottawa Transportation Master Plan (TMP), Richmond Rd is classified as a Crosstown Bikeway in the city's urban cycling network.

Transit Network

The following description of OC Transpo routes within the study area reflect the current bus operations:

- **Route #11 (Parliament <-> Bayshore):** identified by OC Transpo as a "Frequent Route", this route operates all day, 7 days a week and at an average rate of every 15 minutes during weekday peak hours. The nearest bus stop to the site is at the intersection of Richmond/New Orchard. Due to the on-going construction along

Richmond Rd, this route has been detoured to use New Orchard Ave, Ambleside Dr and McEwen Ave until further notice.

- **Route #87 (Tunney's Pasture <-> Baseline):** identified by OC Transpo as a "Frequent Route", this route operates all day, 7 days a week and at an average rate of every 15-to-30 minutes during weekday peak hours. The nearest bus stop to the site is located approximately 350m east at the intersection of Woodroffe/Richmond.
- **Route #153 (Tunney's Pasture <-> Lincoln Fields)**: identified by OC Transpo as a "Local Route", this route operates with a custom routing to local destinations. The nearest bus stops to the site are at the intersections of Ambleside/New Orchard and Richmond/New Orchard.

The transit network for the study area is illustrated in **Figure 5** and the transit route maps are provided in **Appendix B**. **Figure 6** illustrates the bus stop locations.

Figure 4: Study Area Active Transportation Facilities

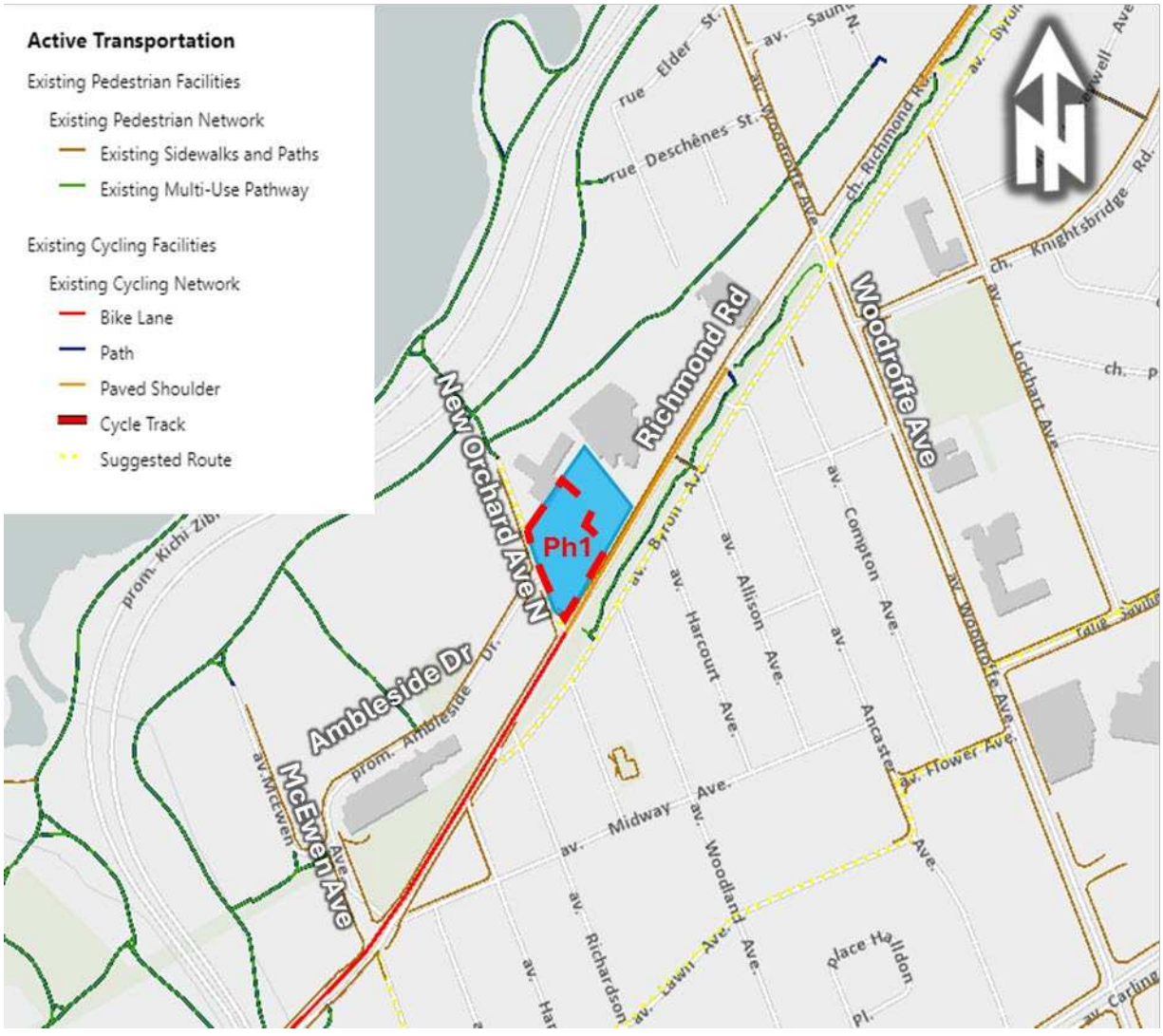
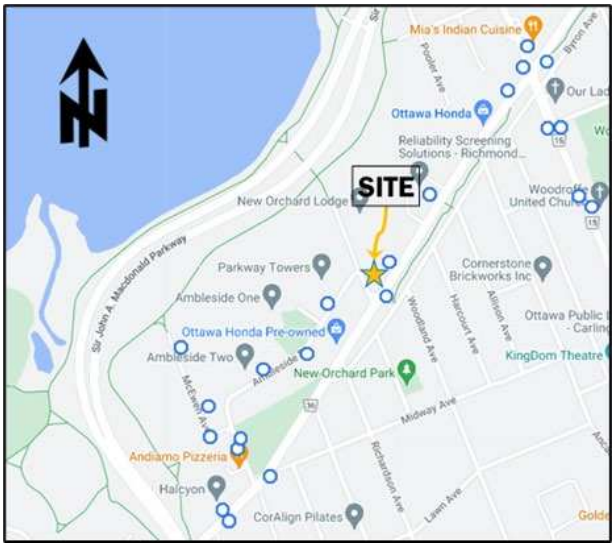


Figure 5: Area Transit Network

Figure 6: Bus Stop Locations



Peak Hour Travel Demands

The latest traffic count data available at study are intersections was obtained from the City of Ottawa for the existing peak hour traffic volumes at the signalized intersections. Due to the on-going construction, there has been no opportunity available to collect more recent turning movement counts at these intersections. Available traffic count data includes the following:

- Richmond/McEwen – Conducted Thursday, August 25, 2016
- Richmond/New Orchard – Conducted Thursday, August 25, 2016
- Richmond/Woodroffe – Conducted Thursday, December 01, 2016

Counts were conducted separately at the intersection of Ambleside/New Orchard on Wednesday, August 11, 2021, as part of the previous development application.

The vehicle volumes at study area intersections are shown in **Figure 7**, with raw traffic count data provided in **Appendix C**. Pedestrian and cyclist volumes are shown in **Figure 8.** Note that pedestrian and cyclist volumes at the intersection of Richmond/Woodroffe may be lower than typical conditions as the count was conducted during winter months.

Figure 7: Existing Peak Hour Traffic Volumes

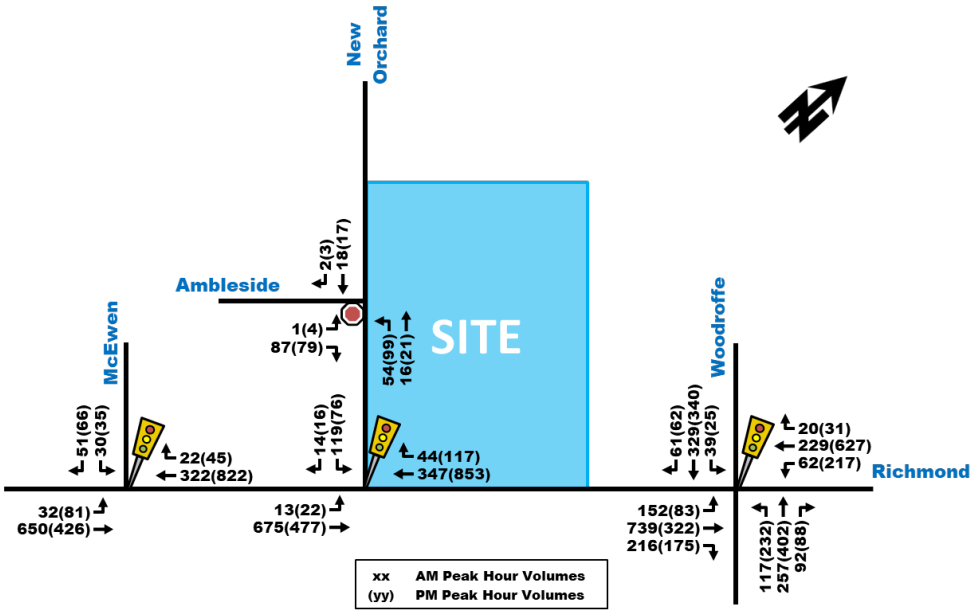
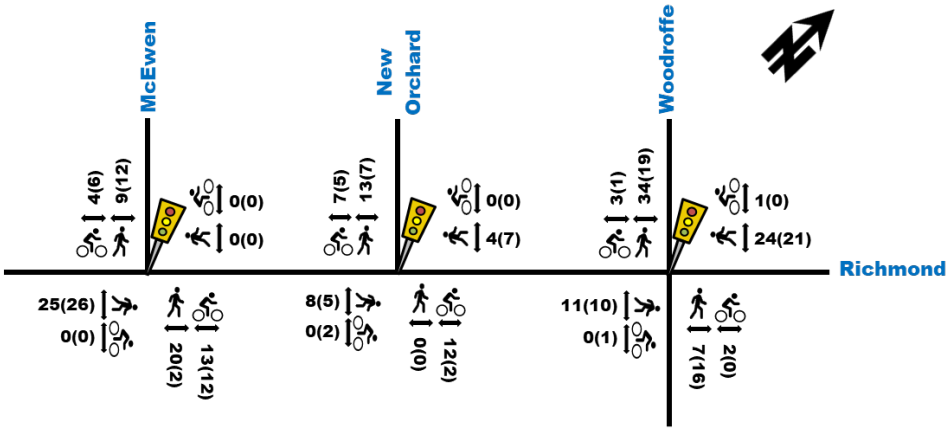


Figure 8: Existing Peak Hour AT Volumes at Richmond/New Orchard



Existing Road Safety Conditions

The most recent five-year collision history data (2017-2021, inclusive) was obtained from the City of Ottawa for all intersections and road segments within the study area. Upon review of the collision data, it was determined that a total of 64 collisions have occurred at intersections and road segments within the study area. Of the 64 collisions, 30 (47%) resulted from rear ends, 13 (20%) from angled collisions, 9 (14%) from turning movements, 7 (11%) from single vehicle (other), 3 (5%) from sideswipes, 1 (2%) from approaching and 1 (2%) from "other". Furthermore, 47 (73%) collisions representing the majority of collisions, resulted in property damage only, while 17 (27%) resulted in non-fatal injuries. No fatal injuries have been reported. The source collision data and analysis results are provided in **Appendix D**.

As per the City of Ottawa TIA Guidelines (2017), a collision pattern exists at a given location when more than 6 collisions occur for any one type of impact, travel direction, maneuver, or driver action. Within the study area, the quantity of collisions at each location are as follows:

Intersection Collisions

- Ambleside Ave/New Orchard Ave: 1
- Richmond Rd/ Ancaster Ave: 2
- Richmond Rd/New Orchard Ave: 7
- Richmond Rd/Edgeworth Ave - McEwen Ave: 5
- Richmond Rd/Hartleigh Ave: 1
- Richmond Rd/Woodroffe Ave: 30

Mid-Block Collisions

- New Orchard, End to Ambleside: 1
- Richmond Rd, Ancaster Ave to Woodroffe Ave: 4
- Richmond Rd, McEwen Ave to Hartleigh Ave: 2
- Richmond Rd, New Orchard Ave to Ancaster Ave: 9
- Richmond Rd, Richardson Ave to New Orchard Ave: 1

The 30 collisions that occurred at the intersection of Richmond Rd/Woodroffe Ave are indicative of higher overall traffic volumes due to the arterial road designation of both intersecting roads compared to other intersections within the study area. Of the 30 collisions that occurred, 17 (56%) collisions were rear ends (highest reported accident type), where the rear-end collisions occurred on the following legs of the intersection: 4 north leg, 2 south leg, 5 east leg, and 6 west leg. This pattern of rear-end collisions suggest that the higher intersection volumes and increased congestion may induce stop and go driving behaviour. Additionally, 23 (77%) of the 30 collisions resulted in property damage only.

Since the number of collisions recorded for any given movement or pattern were 6 or less, there are no discernable collision patterns observed at any of the other study area intersections or mid-block locations.

With regards to collisions involving active transportation users, a total of 6 collisions were reported. Of the 6, 3 involved pedestrians and 3 involved a cyclist, where all resulted in non-fatal injuries. None of the collisions involving active transportation users demonstrated signs of a recurring pattern and therefore are not a cause for major concern. The locations of each collision are as follows:

Intersection Collisions

- Richmond Rd/Edgeworth Ave – McEwen Ave: 1
- Richmond Rd/Woodroffe Ave: 2
- Richmond Rd/New Orchard Ave N: 1

Mid-Block Collisions

- Richmond Rd, New Orchard Ave to Lancaster Ave: 1
- Richmond Rd, Ancaster Ave to Woodroffe Ave: 1

Note that the study area intersections are being redesigned as protected intersections as part of LRT Stage 2. Therefore, the Protected Intersection Design Guidelines (PIDG) will be incorporated into future intersection timing plans (example measures include advanced pedestrian intervals, no right-turn-on-red, etc.), and will result in improvements of safety and comfort for pedestrians and cyclists and reduce potential for collisions.

Based on the overall collision data review, there were no identifiable safety concerns at any of the intersections or road segments with the study area.

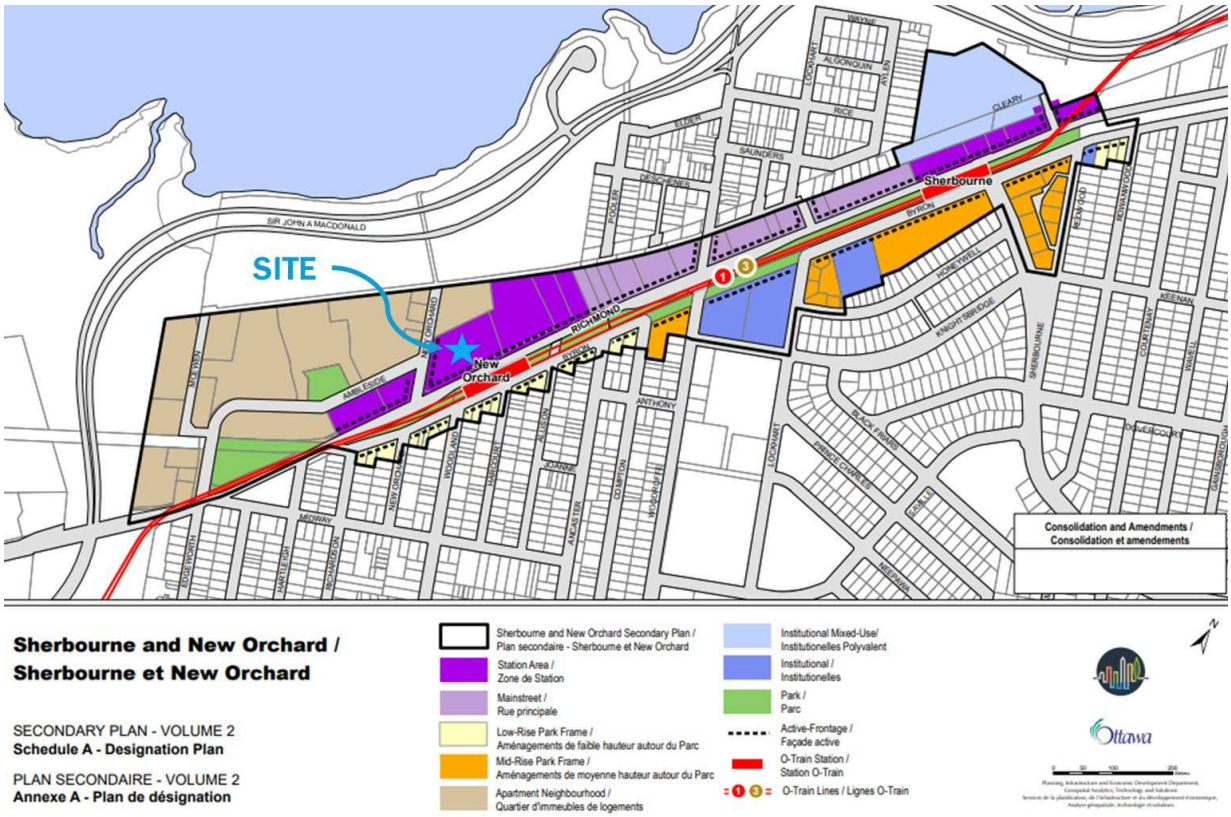
2.1.3. Planned Conditions

2.1.3.1. Future Transportation Network Changes

Sherbourne and New Orchard Secondary Plan

The Sherbourne and New Orchard Secondary Plan is a strategic planning document to guide future development of lands that are near the future Sherbourne and New Orchard LRT Stations, as part of the LRT Stage 2 west extension. **Figure 9** illustrates the areas subject to the secondary plan and the proposed development location.

Figure 9: Sherbourne and New Orchard Secondary Plan



The Secondary Plan outlines the following transportation related policies:

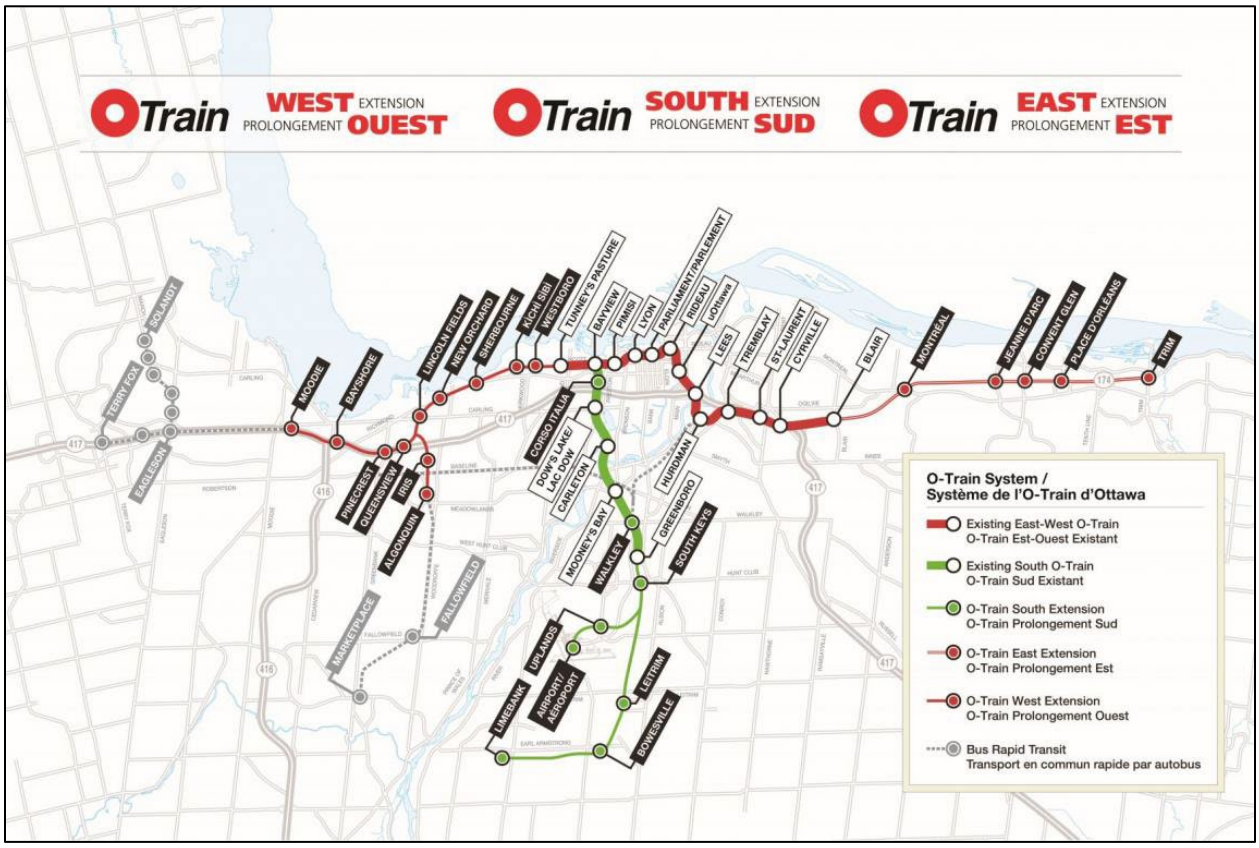
- New Orchard Ave is designated as a Greenstreet identified on Schedule B – Public Realm Plan of the Official Plan and is subject to policies that aim to extend and connect the surrounding greenspace network to provide pleasant and comfortable active transportation experiences within the area.
- Transportation Demand Management (TDM) strategies such as the provision of transit passes for new residents and on-site public car-sharing facilities are TDM strategies recommended to be implemented at the time of redeveloping a site in the area. Proposed TDM for this development is discussed in further detail in **Section 4.5**.
- The northeast corner of the Richmond/New Orchard intersection be reserved for a multi-functional public plaza space that may provide surface treatments, landscaping and seating areas catered to improving the active transportation experience. Note that this space has been accommodated as per the latest site plan (See **Figure 2**).

The Secondary Plan does not propose any major modifications or changes to the transportation network in the study area.

LRT Stage 2

The Light Rail Transit (LRT) in the City of Ottawa is currently in Stage 2 of its development, which includes extending the LRT corridor in the west, east and south directions. As part of the west extension from Tunney's Pasture to Moodie, the future "New Orchard Station" is currently under construction within the Byron Linear Park and will be located within 150 m walking distance of the proposed development. The west extension is expected to be completed by 2026. **Figure 10** illustrates the full expansion of the LRT Stage 2 system.

Figure 10: LRT Stage 2 Expansions Map



Roadway modifications will be implemented to the study area as part of the LRT Stage 2 project, although the designs have not been finalized and may still undergo changes in the future. These modifications include the following:

- Along Richmond Rd, a combination of uni-directional and bi-directional cycle tracks and widened sidewalks are anticipated to be provided on both sides of the road.
- Uni-directional cycle tracks will be provided along a short segment of both sides of New Orchard Ave N between Richmond Rd and Ambleside Dr, where the cycle track then merges into a mixed traffic lane.
- Each signalized study area intersection is expected to be constructed as protected intersections as per the City of Ottawa Protected Intersection Design Guidelines.
- The intersection of Richmond/New Orchard is expected to operate with a single all-movement lane on all approaches.
- At the intersection of Richmond/Woodroffe, the eastbound approach is expected to provide an auxiliary left turn lane, a through lane and a smart channel with a right-turn lane. The westbound approach will provide an auxiliary left turn lane and a shared through/right turn lane.
- The intersection of Richmond/McEwen will provide a single all-movement lane on the southbound and westbound approaches and a through lane with auxiliary left-turn lane on the eastbound approach.
- Bike crossings will also be provided on all approaches of the three Richmond Rd intersections at McEwen Ave, New Orchard Ave N and Woodroffe Ave. All bike crossings are expected to be unidirectional, with a bidirectional crossing at the south leg of the Woodroffe Ave intersection.

Richmond Rd Revitalization

Starting July 2024, the City of Ottawa will begin the process of rebuilding the Byron Linear Park atop the newly constructed LRT tunnels along Richmond Rd and Byron Ave and simultaneously begin the road revitalization project of Richmond Rd. This work is all part of the next phase of the Stage 2 LRT works. As a result, a two-

kilometer segment of Richmond Rd and Byron Ave will be affected between McEwen Ave and Cleary Ave for an expected 3 years (until 2027).

Construction on Richmond Rd will result in traffic being detoured to Byron Ave. However, within detoured areas, the westbound direction on Richmond Rd is expected to remain open for local traffic to/from residences on the northside. This construction work is expected to occur on weekends and overnight. It is also anticipated that pedestrian, cyclist, and transit detours, as well as bus stop relocations will be in effect.

Figure 11: Richmond Rd Closure

New Ways to Bus (OC Transpo)

After conducting a bus route review in 2023, OC Transpo has recently announced a new bus network that aims to address changes in customer's travel needs and ridership levels. The network changes are planned to be launched following the anticipated opening of the O-Train Lines 2 and 4 (south extensions) in the spring of 2025, in support of the new and existing LRT lines. Many routes are expected to be impacted, either by shortening, extending, adjusting, or removing the routes. Within the study area, routes #11 and #153 and expected to undergo minor changes in their overall travel pattern, where route #11 will connect with Bayview Station, and route #153 will be reduced to only operate between Lincoln Fields and Carlingwood mall.

New Orchard Ave N Sidewalk Renewal

According to the City of Ottawa Planned Construction Projects, the west sidewalk along New Orchard Ave N is set to undergo a renewal within the next 3 – 5 years. It is assumed the renewal will provide 2.0 m wide concrete sidewalks between Richmond Rd and the north cul-de-sac, improving pedestrian experience in the area.

2.1.3.2. Other Area Developments

The following section outlines proposed future adjacent developments within the study area. Based on the City of Ottawa's Development Applications search tool, there are four development applications initiated near the development site.

100 New Orchard Ave N

A Zoning By-Law Amendment (ZBLA) application has been submitted for a 14-storey high-rise residential building located at 100 New Orchard Ave N. The development will consist of 84 residential units, which did not trigger the need for a TIA report. As such, the development is anticipated to generate a low traffic volume and will be accounted for in the total future background volumes.

1071 Ambleside Dr

A Zoning By-Law Amendment (ZBLA) and Official Plan Amendment (OPA) application has been submitted for a 30-storey residential building with 293 apartment units that will be replacing a surface parking lot at 1071 Ambleside Dr. The development is anticipated to generate approximately 18 vehicle trips during peak hours by

2028 (i.e. post LRT west extension) and will be layered onto the total future background volumes for both horizon years.

1299 Richmond Rd

A Zoning By-Law Amendment (ZBLA) and Site Plan Control (SPC) application has been submitted for a residential tower development with a 28 and 32-storey towers. The towers will consist of 590 apartment units and 8,046 ft^2 ground floor retail space, replacing the existing commercial building. Full buildout is anticipated by year 2025, where the development is expected to generate up to 61 veh/h during peak hours and will be layered onto the total future background volumes.

30 Cleary Ave

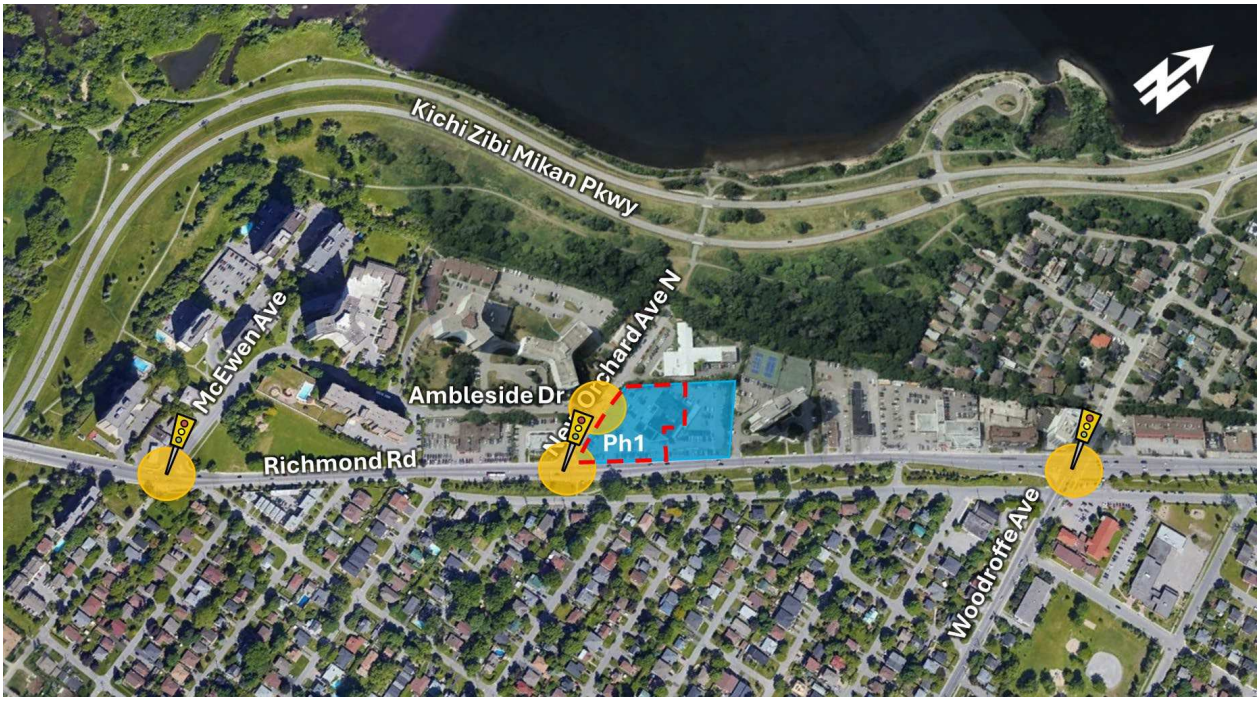
An Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBLA) has been submitted for a residential development consisting of one mid-rise and one high-rise building. The buildings will consist of a total of 214 apartment units, replacing the current church, seniors' residence, and childcare centre. Full buildout is anticipated by year 2028, where the development is expected to generate up to 11 new vehicle trips during peak hours. The development is anticipated to generate a low traffic volume and will be accounted for in the total future background volumes.

2.2. Study Area and Time Periods

The proposed development is anticipated to be constructed in two phases, however, for the purpose of this report only the transportation implications of Phase 1 will be analyzed and reviewed, while Phase 2 will be reviewed as part of a future development application. Full buildout year of Phase 1 is assumed to be 2026. As such, the horizon years 2026 and 2031 (i.e. five-years after development buildout) will be analyzed using the weekday morning and afternoon peak hour time period traffic volumes. Proposed study area intersections are outlined below and highlighted in **Figure 12**.

- Richmond/New Orchard (signalized)
- Ambleside/New Orchard (unsignalized)
- Richmond/McEwen (signalized)
- Richmond/Woodroffe (signalized)

Figure 12: Study Area



2.3. Exemption Review

The following modules/elements of the TIA process provided in **Table 1** are recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Networks	Only required for applications involved with a plan of subdivision
4.6 Neighbourdhood Traffic Calming	All	Not required for SPA. Exempt as per 2023 Revisions to TIA Guidelines
4.7 Transit	4.7.2 Transit Priority Requirements	Less than 75 site generated auto trips are anticipated. Exempt as per 2023 Revisions to TIA Guidelines.
4.8 Network Concept	All	Less than 200 site generated person trips are anticipated.
4.9 Intersection Design	All	Less than 75 site generated auto trips are anticipated. Exempt as per 2023 Revisions to TIA Guidelines.

3.0 FORECASTING REPORT

3.1. Development Generated Travel Demand

3.1.1. Trip Generation and mode shares

The proposed development will consist of one high-rise residential building containing 425 apartment units and 5,409 ft^2 of first floor commercial space. The commercial space is small in size and will likely provide ancillary use for the high-density residential units, therefore, it is expected to be intended for local residents, community and potentially some pass-by traffic. As such, it is not expected to be a regional attraction and is not anticipated to generate new trips.

The appropriate trip generation rates for high-rise apartment land uses were obtained from the 2020 TRANS Trip Generation Manual. The Manual provides person-trip rates during the peak AM and PM periods (7AM-9:30AM and 3:30PM-6PM). The trip rates are summarized in **Table 2** below.

Table 2: Residential Trip Generation Trip Rates

Land Use	Data Source	Trip Rates	
		AM Peak Period (7-9:30AM)	PM Peak Period (3:30-6PM)
High-Rise Apartments	TRANS 2020	T = 0.8(du);	T = 0.9(du);
Notes: *T = Average Vehicle Trip Ends* *du = Dwelling unit*			

Using the trip rates provided in **Table 2**, the total number of person trips expected to be generated during the morning and afternoon peak periods can be found in **Table 3**.

Table 3: Apartment Units Peak Period Person Trip Generation

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High-Rise Apartments	425	340	383

The proposed development is anticipated to generate 340 and 383 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in **Table 3** are then divided into different travel modes using mode share percentages obtained from the 2020 TRANS Manual for the "Ottawa West" district. **Table 4** provides the travel mode breakdown for the proposed building.

Table 4: Residential Peak Period Trips Mode Shares Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	Mode Share	PM Peak Period Person Trips
Auto Driver	28%	97	33%	126
Auto Passenger	11%	39	11%	44
Transit	41%	140	26%	98
Cycling	3%	11	7%	26
Walking	16%	53	23%	89
Total Person Trips	**100%**	**340**	**100%**	**383**

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. In the 2020 TRANS Manual, Table 4 provides conversions rates from peak period to peak hours for different mode shares. The conversion rates are provided in **Table 5** below.

Table 5: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors	
	AM	PM
Auto Driver and Passenger	0.48	0.44
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Using the conversion rates in **Table 5** and the peak period person trips for different travel modes in **Table 4**, the peak hour trips for different travel modes can be calculated as shown in **Table 6**.

Table 6: Residential Peak Hour Trips Mode Share Breakdown

Travel Mode	AM Peak Hour Trips	PM Peak Hour Trips
Auto Driver	46	55
Auto Passenger	19	19
Transit	77	46
Cycling	6	12
Walking	31	46
Total Person Trips	**179**	**179**

As shown in **Table 6**, the proposed development is anticipated to generate a total of 179 person trips during the morning and afternoon peak hours. Inbound and outbound percentages were obtained from the 2020 TRANS Manual and applied to each travel mode as shown in **Table 7**.

Table 7: Residential Land Use Trip Generation

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Auto Driver	14	32	46	32	23	55
Passenger	6	13	19	11	8	19
Transit	24	53	77	27	19	46
Cycling	2	4	6	7	5	12
Walk	10	21	31	27	19	46
Total Person Trips	**55**	**123**	**179**	**104**	**75**	**179**

As shown in **Table 7**, the proposed development is anticipated to generate up to 55 vehicle trips, 77 transit trips and 58 Active Transport (walking and cycling) trips, during the morning and afternoon peak hours.

However, the mode shares used reflect existing travel behaviors. Since the New Orchard LRT Station is expected to be fully constructed by full buildout of the proposed development (2026) and considering the proximity of the site to the station, the transit mode share should be increased appropriately to reflect the higher number of transit trips. The percentages provided in **Table 8**, are reflective of the City's Transit-Oriented Development (TOD)

projections. A higher cycling percentage was assumed given the proximity to the major pathways along Kichi Zibi Mikan Pkwy and the future cycle tracks along Richmond Rd. Walking percentages have been reduced considering the general distance of the site from major employment centres.

Table 8: Residential Peak Hour Trips TOD Mode Share Breakdown

Travel Mode	Mode Share	AM Peak Hour Trips	PM Peak Hour Trips
Auto Driver	15%	27	27
Auto Passenger	5%	9	9
Transit	65%	116	116
Cycling	10%	18	18
Walking	5%	9	9
Total Person Trips	**100%**	**179**	**179**

Using the TOD mode shares in **Table 8**, the breakdown of inbound and outbound trips for the residential land use are provided in **Table 9**.

Table 9: Residential Land Use Trip Generation (TOD Mode Shares)

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Auto Driver	8	19	27	16	11	27
Passenger	3	6	9	5	4	9
Transit	36	80	116	67	49	116
Cycling	6	12	18	10	8	18
Walk	3	6	9	5	4	9
Total Person Trips	**56**	**123**	**179**	**103**	**76**	**179**

As shown in **Table 9**, the proposed development is anticipated to generate 27 vehicle trips, 116 transit trips and 27 active transport trips during peak hours.

3.1.2. Trip Distribution and Assignment

Based on the 2011 OD Survey (Ottawa West district) and the distribution of background traffic volumes on Richmond Rd, the site-generated commuter traffic (i.e. vehicles travelling to work in the AM peak hour and back from work in the PM peak hour) was estimated as follows:

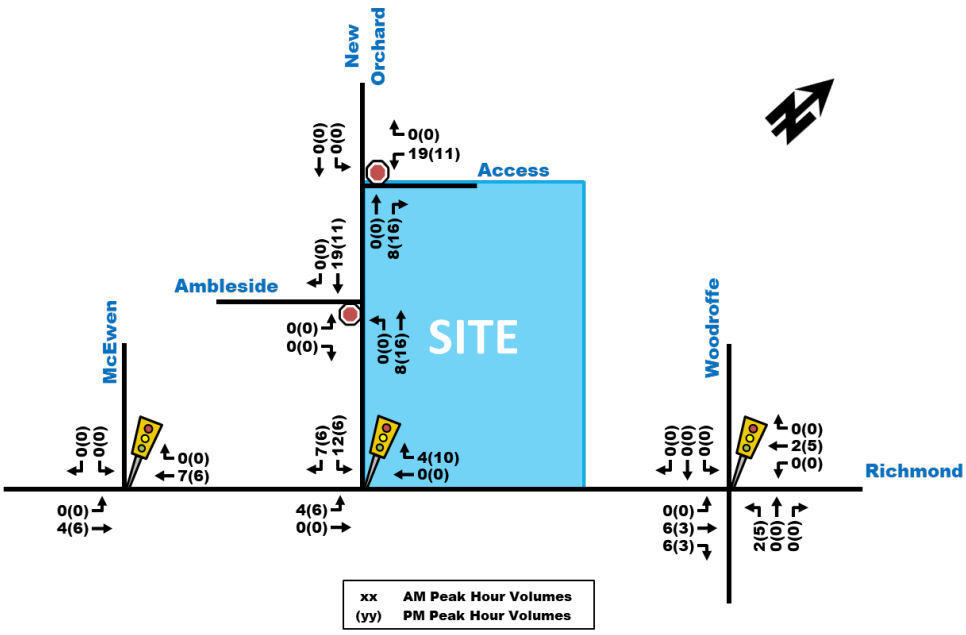
- 10% to/from the north;
- 25% to/from the south;
- 30% to/from the east; and,
- 35% to/from the west.

For non-commuter site-generated traffic (i.e. inbound traffic during the AM peak hour and outbound traffic during the PM peak hour), it was assumed that traffic would be divided evenly with regards to their travel directions for the primary purpose of reaching major commercial destinations, such as Ikea, Bayshore Mall and Lincoln Fields Mall to the west and the downtown and Hwy 417 to the east and south. The distribution of site-generated traffic volumes was estimated as follows:

- 50% to/from the west on Richmond Rd;
- 25% to/from the east on Richmond Rd; and,
- 25% to/from Hwy 417 via Woodroffe Ave.

Trips travelling to/from the north, south and east will travel east on Richmond Rd, while trips travelling west will travel west on Richmond Rd. The anticipated site-generated auto trips for the proposed building were then assigned to the road networks as shown in **Figure 13**. As mentioned previously, the new proposed building will be accessed via a new access along New Orchard Ave N.

Figure 13: Proposed Development Site-Generated Traffic



3.2. Background Network Travel Demands

3.2.1. Transportation Network Plans

Refer to **Section 2.1.3.1** for a summary of the planned transportation network changes concerning the proposed development and the adjacent road network.

3.2.2. Background Growth

A regression analysis was conducted using historic (2009, 2011, 2016) traffic volumes at the intersection of Richmond/New Orchard. Provided in **Table 10** below is a summary of the analysis results, with the corresponding detailed results provided in **Appendix E.**

Table 10: Percent Annual Change at Richmond/New Orchard

Time Period	Percent Annual Change			
	North Leg	East Leg	West Leg	Overall
8 hrs	1.28%	1.86%	1.38%	**1.60%**
AM Peak	0.64%	0.07%	0.15%	**0.15%**
PM Peak	2.75%	2.53%	2.06%	**2.34%**

The regression analysis indicates that the background traffic growth of the study area has increased between 0 and 2% per annum depending on the time period, between 2009 and 2016. Since Richmond Rd serves as the study areas primary corridor, it is expected most of the growth would occur along this road. The analysis also suggests historical growth along the north leg of New Orchard Ave N, however, since the roadway is a short local street and a dead-end, it is unlikely to expect any increase in auto driver trips in the foreseeable future, beyond future developments accounted for separately.

Considering the latest available data is pre-pandemic, it does not account for the forecasted increases in active transportation and transit mode shares as part of the LRT Stage 2 or shifts in commuter travel behaviour due to hybrid working conditions. Additionally, ongoing construction in the area over the past several years has likely shifted some traffic to alternative routes and further reduced potential for background traffic growth. Therefore, a background growth rate of 0% was deemed suitable for the future horizon years of the study area.

3.2.3. Other Developments

All significant other area developments within the study area have been identified in **Section 2.1.3.2**, where the potential transportation impacts of each have been identified in respect to the proposed developments horizon years. The other area developments that will be layered onto total future background volumes are the following:

- 1071 Ambleside Dr, generating up to 18 vehicle trips during peak hours
- 1299 Richmond Rd, generating up to 61 vehicle trips during peak hours

The site generated traffic of the two developments are illustrated below in **Figure 14** and **Figure 15**, both of which are expected to be constructed prior to full buildout of the 1047 Richmond Rd development. **Figure 16** illustrates the 2026 and 2031 future background traffic, where the volumes from adjacent developments were layered onto the existing traffic volumes (**Figure 7**).

Figure 14:1071 Ambleside Dr Site Generated Traffic Volumes

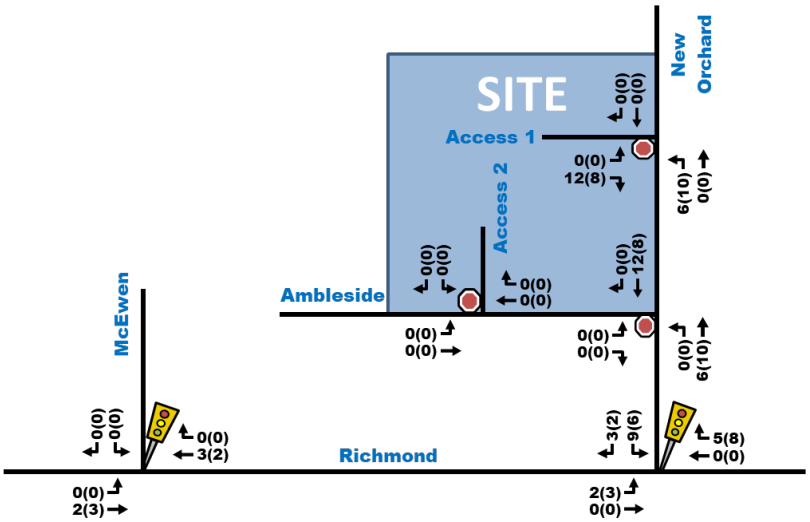


Figure 15: 1299 Richmond Rd Site Generated Traffic Volumes

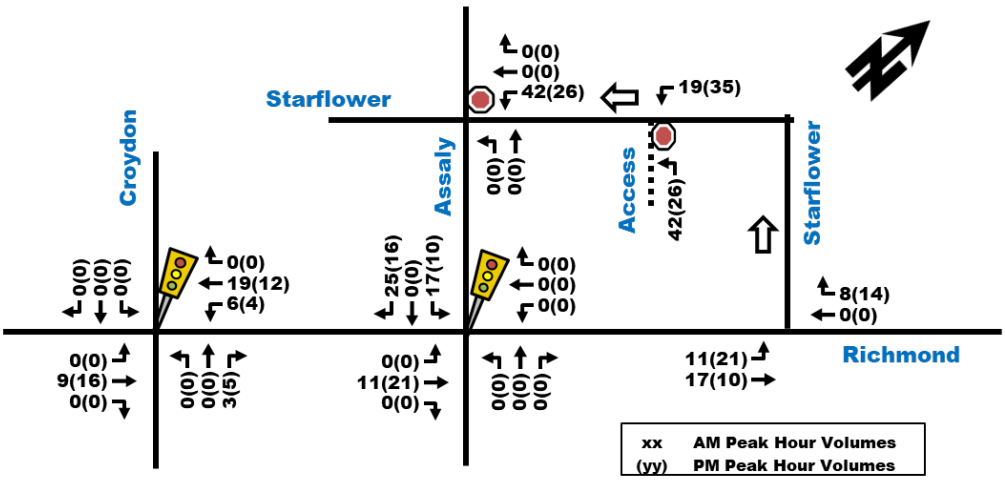
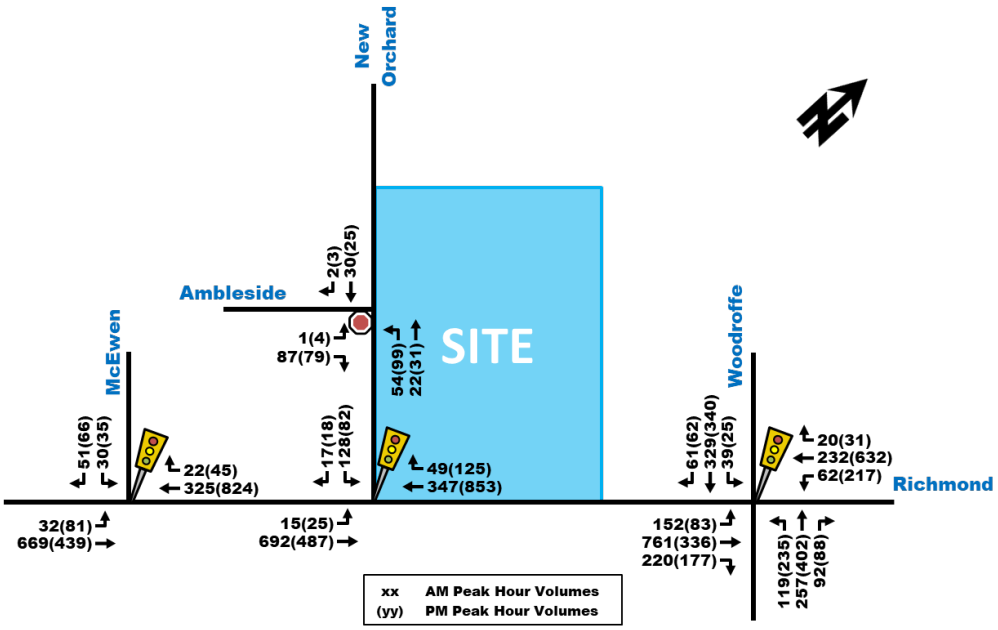


Figure 16: Total Future Background 2026 and 2031 Traffic Volumes



3.3. Demand Rationalization

The total projected traffic volumes are developed by superimposing the site-generated traffic volumes (**Figure 13**), onto the total future background traffic volumes (**Figure 16**). As a result, the total projected traffic volumes for both the 2026 and 2031 horizon years are illustrated in **Figure 17**.

While the proposed development is anticipated to generate up to 27 vehicles during both peak hours, the traffic will split between east and west travel directions on Richmond Rd, resulting in mostly negligible impacts to existing traffic operations within the study area. Potential future capacity constraints in the study area may be caused by a combination of LRT Stage 2 intersection modifications and the background travel demand, which are discussed in detail below.

Potential Future Network Capacity Constraints

The ongoing construction of LRT and the Richmond Rd renewal will result in lost operational capacity at study area intersections as existing auxiliary turn lanes are removed to enhance pedestrian and cycling infrastructure along the corridor and convert all intersections to protected intersections. The following potential future constraints are noted:

- Signal timing measures will likely be implemented at the protected intersections following the City of Ottawa Protected Intersection Design Guide (PIDG). This may add measures such as bike signals and no right-turn-on-red signage, which will improve active transport comfort and safety, but potentially reduce vehicle capacity.
- The Richmond/New Orchard intersection will be losing the auxiliary EBL turn lane, which will potentially result in extended traffic queues forming as left-turning vehicles may block through traffic. As a result, some traffic may choose to reroute to the McEwen intersection via Ambleside Dr, which reduces pressure on the New Orchard Ave intersection.
- The intersection of Woodroffe/Richmond will lose the auxiliary EBR lane and the second EBT and WBT lanes. The intersection experiences congestion in existing conditions, and the long-term outlook of this

intersection is not expected to change since both roadways are designated as major arterials, each carrying heavy traffic.

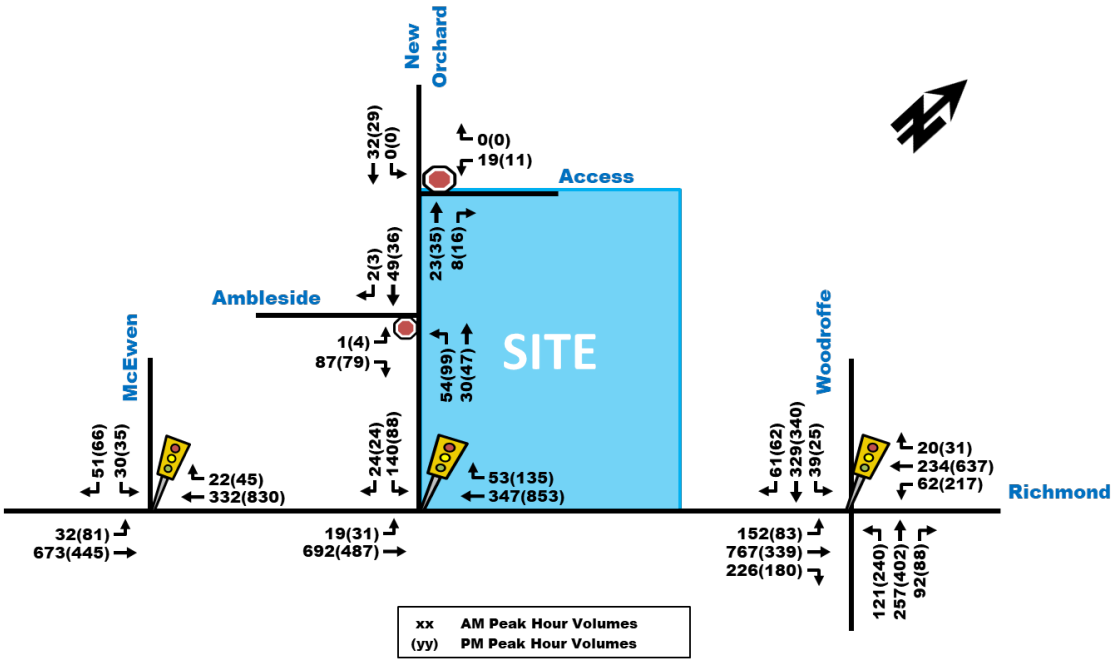
- Pedestrian and cyclist volumes and crossing activity at intersections is also expected to increase significantly, especially at Richmond/New Orchard as a result of the new dedicated AT facilities, the close proximity to the New Orchard LRT Station and the future development generated trips in the area.

Future Background Traffic Demand Rationalization

As discussed in Section 3.2.2, a background traffic growth rate of 0% was determined to be suitable for the study area, despite historical traffic growth. The implementation of LRT related modifications along the Richmond Rd, future lane configuration changes at intersections, and other sustainable initiatives throughout the City are expected to encourage existing drivers to utilize transit or active travel, and reduce background traffic over time.

The assumption that traffic volumes would be reduced in future years is supported by the City's Regional Transportation Model (RTM), which forecasts travel patterns of traffic up to the 2031 horizon year during the AM peak hour. The model suggests Richmond Rd traffic could stagnate or reduce by up to 10% from existing levels. The City's model outputs have been provided in Appendix F. Additionally, hybrid work conditions have contributed to some reduction in vehicular traffic, though it is noted that work-from-home rates have dropped significantly since COVID-19 pandemic.

Figure 17: Total Projected 2026 and 2031 Traffic Volumes



4.0 ANALYSIS

4.1. Development Design

4.1.1. Design for Sustainable Modes

The City of Ottawa's TDM-supportive Development Design and Infrastructure checklist has been provided in Appendix G and discussed in more detail in Section 4.5.3.

Auto and Bicycle Parking

Vehicle and bicycle parking are proposed to be provided in a two-level underground parking garage along with 10 exterior bicycle parking spaces located outside the main residential entrance and commercial units. The parking garage ramp, a loading bay and short-term lay-by drop-off/pick-up parking can all be accessed along the site's proposed internal driveways.

Pedestrian Facilities

The proposed development will provide sidewalks along the entire building perimeter and provide ample pedestrian connections to future city curbside facilities. Internal sidewalks are expected to be at least 1.8 m wide. Along New Orchard Ave N, where the townhouse units are to be located, direct paths will be provided from city sidewalks to each unit. Several connections will be provided along Richmond Rd, creating direct and accessible pathways to the future commercial units and to the centre courtyard area. Within the courtyard and along the driveway, a pedestrian-oriented woonerf design is implemented with unit pavers and flush curbs. A small amenity area will be located within the site circulation centre island and will be accessible via a short pathway and crosswalk on the southeastern side. The curbs and style of unit pavers provide a clear delineation between vehicular and pedestrian zones and TWSI's will be provided at the curb-cut locations along the lay-by and the driveway crossing to and from the center island.

Transit Amenities

The New Orchard LRT Station will be located within a 150 m walking distance of the proposed developments residential and commercial entrances. The station can be accessed via sidewalk facilities and the crossings at the intersection of Richmond/New Orchard. The existing bus routes may also continue to operate in the future as indicated in **Section 2.1.2**:. As per the latest Site Plan, the LRT Stage 2 work will move the existing bus stop along the site frontage on Richmond Rd approximately 40 m west to the northeast corner of the Richmond/New Orchard intersection.

4.1.2. Circulation and Access

A single site driveway will be connected via New Orchard Ave N at the northwest corner of the site and will lead to an internal driveway and courtyard area. The access will serve different functions, allowing access to the parking garage ramp, a loading bay for both move-in and waste collection trucks, the site's fire truck route, and a courtyard area for pick-up/drop-off trips. The internal site driveway and courtyard area are shown in **Figure 18** below.

To ensure the move-in vehicles, garbage trucks, and fire trucks may access the proposed internal driveway, loading bay, and courtyard area with no conflicts, truck turning templates (swept path analysis) have been completed using the HSU trucks and the front-loading "Waste Collection Truck Edmonton 2018" truck as design vehicles. The detailed templates are provided in **Appendix H.**

Loading Bay

As per the requirements of the City of Ottawa Solid Waste Collection Guidelines for Multi-Unit Residential Developments, the loading bay will provide minimum dimensions of 4 m wide and 13 m long. The loading bay will also provide a vertical clearance of 6.1 m and be no more than 0.6 m above the driveway level. Move-in vehicles are expected to be rear-loading, whereas garbage trucks are front loading. No concerns are anticipated in regard to the access and circulation of both move-in and waste collection vehicles.

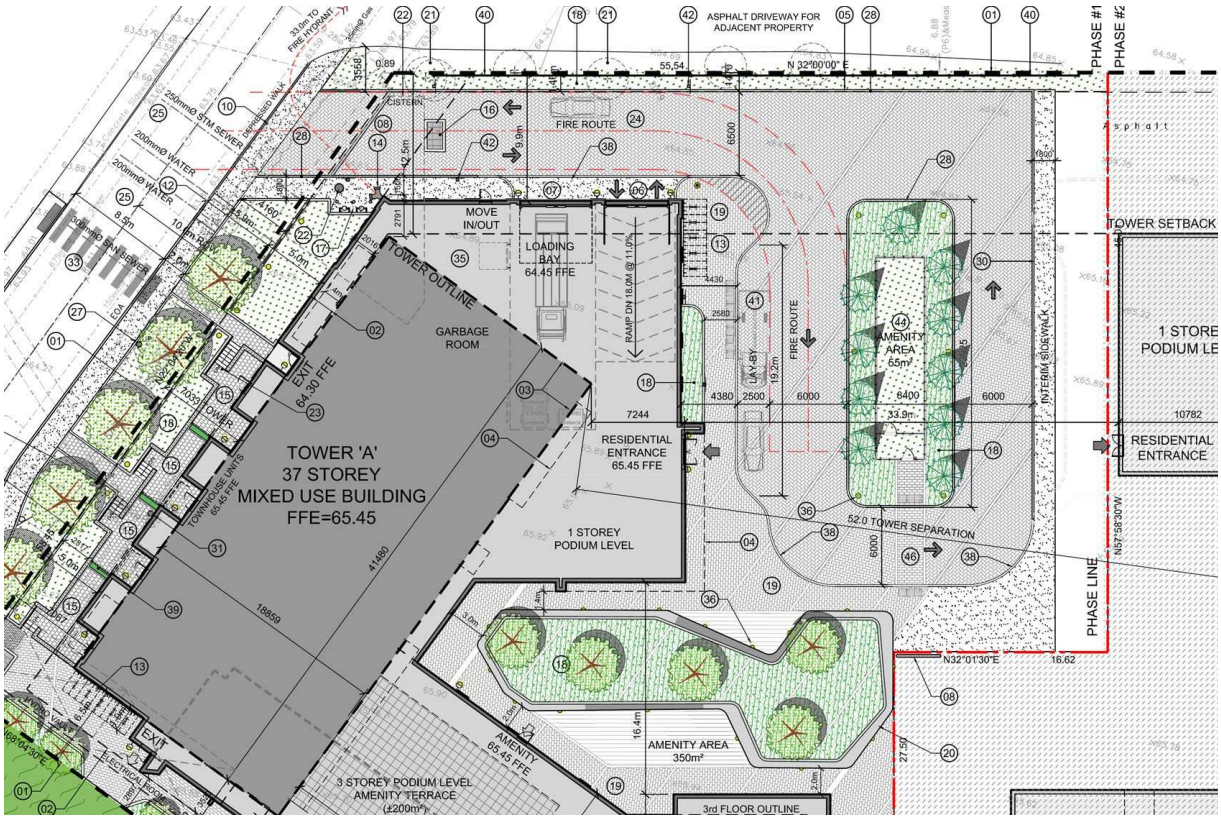
As shown in **Figure 18**, the loading bay is located approximately 18 m away from New Orchard Ave N and is directly adjacent to the parking garage ramp. Although the location of the loading bay may cause some additional friction along the driveway, it is not anticipated to cause any major conflicts and any potential conflict is mitigated due to the following:

- Trucks accessing the loading bay will be infrequent and temporary, occurring only at certain times during the week.
- The parking garage ramp is expected to provide either yield or stop control signage upon exiting and will ensure drivers approach the internal driveway with added caution.
- The flush curb delineates the pedestrian crossing location across the loading bay and ramp and will ensure drivers are conscientious of potential nearby pedestrians. Additionally, both the pedestrian crossing and the site driveway utilize unit pavers to create a pedestrian priority environment, which increases vehicle awareness.
- Future local residents will be familiar with the location of the loading bay and general site layout and will therefore have an increased awareness of potential site-specific conflict points.
- Pedestrian access to the site is primarily from Richmond Rd and limited access is given to New Orchard Ave N.

Fire Truck Route

The developments fire route is shown as the dashed red line in **Figure 18**. Where the fire route overlaps with part of the mountable curb adjacent to the parking garage ramp. Fire trucks would be able to drive into the courtyard area as needed, then exit by completing a hammerhead maneuver. No concerns are anticipated in regard to the fire truck access and circulation.

Figure 18: Internal Driveway and Courtyard Area



4.1.3. New Street Networks

Exempt – See **Table 1**.

4.2. Parking

The development is proposing to provide a total of 425 dwelling units and approximately 503 m^2 (5,409 ft^2) retail space, within a single mixed-use building. Based on the City of Ottawa Parking Provisions under Zoning By-Law, the proposed development is located in "Area Z", which consists of the following parking requirements:

- No off-street motor vehicle parking required for the proposed residential and commercial land uses.
- Visitor parking is required at a rate of 0.1 per dwelling unit, up to a maximum of 30 spaces per building and excluding the first twelve units. This equates to a total of 30 required spaces.
- Bicycle parking is required at a rate of 0.50 per dwelling unit and 1 per 250 m^2 of retail space, for a total of approximately 216 required spaces.

The development is proposing to provide a total of 254 vehicle parking spaces within two levels of an underground parking garage. Additionally, the total number of bicycle parking spaces proposed is 322 spaces, well above the required by-law amount.

4.3. Boundary Street Design

Multi-Modal Level of Service (MMLOS) analysis was conducted for existing and future conditions for the proposed development's boundary streets, Richmond Rd and New Orchard Ave N based on the City of Ottawa's MMLOS Analysis Guidelines.

The multi-modal level or service analysis for Richmond Rd and New Orchard Ave N is summarized in **Table 11** for both existing and future conditions, with detailed analysis provided in **Appendix I**. The tables also identify the target LOS, based on the land-use designation and road classification of the development site and the boundary streets. The Official Plan Designation/Policy Area identifies the development within a "General Urban Area", with Richmond Rd designated as a "Traditional Main Street" for existing conditions and "Within 600m of a Rapid Transit Station" for future conditions. Red font in the table indicates that the respective minimum desirable LOS targets were not met. The road classifications of each of the boundary streets were noted in the descriptions of features below.

The existing geometric features of the two roads are identified below:

Richmond Rd (arterial road classification)

- 1 vehicle travel lane in each direction
- 1.5m unidirectional bike lanes
- 1.8m concrete sidewalk on the north side
- Greater than 3000 average daily curb lane traffic
- No on-street parking
- Posted speed limit of 50 km/h
- Approximately 3.5 wide lanes

New Orchard Ave N (local road classification)

- 1 vehicle travel lane in each direction
- 1.8m sidewalk on both sides
- Less than 3000 average daily curb lane traffic
- No on-street parking
- Posted speed limit of 30 km/h
- Approximately 4.25m wide lanes

The anticipated future geometric features of the two roads are identified below:

Richmond Rd (arterial road classification)

- 1 vehicle travel lane in each direction
- 1.5m unidirectional cycle tracks
- 2.0 - 3.0m sidewalk on the north side
- Greater than 3000 average daily curb lane traffic
- No on-street parking
- Posted speed limit of 50 km/h
- Approximately 3.5m wide lanes

New Orchard Ave N (local road classification)

- 1 vehicle travel lane in each direction
- 1.5m cycle track that merges into mixed traffic along the site frontage
- 2.0m sidewalk on the east side
- Less than 3000 average daily curb lane traffic
- No on-street parking
- Posted speed limit of 30 km/h
- Approximately 4.25m wide lanes

Table 11: MMLOS Segment Analysis Results – Existing and Future Conditions

Road Segment	Level of Service – Existing, Future							
	Pedestrian (PLOS)		Bicycle (BLOS)		Transit (TLOS)		Truck (TkLOS)	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target
Richmond Rd	F,D	B,A	E,A	A,A	D,A	D,A	C,C	D,D
New Orchard Ave N	D,B	C,A	B,A	B	D,D	D	N/A	N/A

As shown in **Table 11**:

- Target pedestrian LOS 'C' for existing conditions and LOS 'A" for future conditions was not met for New Orchard Ave N. The target LOS 'B' and 'A' were not met for Richmond Rd for both existing and future background conditions. Richmond Rd does not meet the target due to high operating speeds and average daily curb lane traffic volume. However, it is important to note that the PLOS improves significantly in the future condition due to wider sidewalks and boulevards.
- The minimum desirable bicycle LOS 'A' was not met for Richmond Rd for the existing condition but met in the future conditions. The inclusion of physically separated cycle tracks improved the score to LOS 'A'. New Orchard Ave N provides an acceptable LOS 'B' and 'A" for existing and future conditions, respectively.
- Transit LOS 'D' was met for both Richmond Rd and New Orchard Ave N for both existing and future conditions.
- Truck LOS target of 'D' was met for Richmond Ave for both conditions, improving to a LOS 'C' in the future background condition.

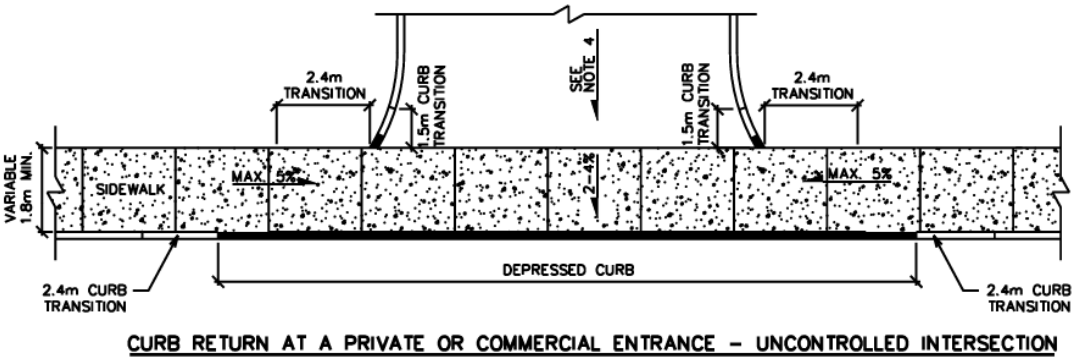
4.4. Access Intersections Design

4.4.1. Location and Design of Site Access

Section 8.8.1 of TAC Guidelines recommends that the minimum distance from an intersection and the nearest access is to be 15m for a local road. The proposed site access will be located along New Orchard Ave N at the northern end of the property, 85 m north of the Richmond/New Orchard intersection, which ensures sufficient distance away from the signalized intersection. The access will be STOP controlled upon exiting the site and is

to be constructed with continuous sidewalk and depressed curb as per City of Ottawa specification SC7.1, illustrated below in **Figure 19**. Additional requirements as per City of Ottawa Zoning By-Law and Private Approach By-Law are presented further below.

Figure 19: City of Ottawa Standard Detail Drawing SC7.1



Zoning By-Law (ZBL)

The ZBL provides requirements relating to parking and driveways under 'Part 4 – Parking, Queuing and Loading Provisions (Sections 100-114)', which includes the following:

- Parking requirements were detailed in **Section 4.2**, where the development is expected to meet all the ZBL requirements related to vehicle and bicycle parking.
- Parking spaces are required to be at least 2.6m wide and 5.2m long, which is expected to be met by the development.
- The driveway and parking aisles are either 6.0m or 6.7m wide, which meets the requirements of the ZBL.

Private Approach By-Law (PABL)

The PABL provides requirements for the site access of a multiple residential dwellings development, including the following relevant requirements:

- The proposed driveway width is approximately 6.7m and does not exceed the maximum permitted width of 9m.
- The number of accesses provided (one access) meets the requirements as up to two two-way private approaches are permitted on the 235m frontage.
- The distance between the private approach and an intersecting street line must not be less than 6m, which the site access meets.
- The grade of the private approach is not to exceed 2% within the private property for a distance of 9m to the curb line, which is met by the site driveway.
- The Site Plan includes a provision for an approximate 1.5 m buffer between the proposed access/driveway and the adjacent property line, which is less than the required 3 m distance indicated in the PABL. However, it can be rationalized that a reduced distance is acceptable due to the following:
  - The proposed access is adjacent to the long-term care facility's site access at 99 New Orchard Ave N, just north of the property, with a separation distance of approximately 2.5 m between accesses. It is noted that Section 8.9.8 of the TAC Geometric Design Guide for Canadian Roads recommends a minimum 3.0 m between the driveways between commercial driveways. However, TAC also indicates that a minimum distance of 1.0 m can be provided between low volume driveways for residential properties. Therefore, the approximate 2.5 m distance provided is considered appropriate given the low peak hour volumes of both properties and a safe distance to be provided.

- There are no sightline obstructions to the north for vehicles exiting the proposed development. Exiting vehicles will have full visibility of New Orchard Ave N to the north and any vehicles exiting the adjacent 99 New Orchard Ave N site. This is due to low landscape proposed to be planted north of site access and a setback of the proposed wood fence.
- New Orchard Ave N is a local road with a dead end to the north. Therefore, traffic volumes are low and very limited in potential growth. At the site access, the main anticipated movements are right-in and left- out as no traffic is expected to travel north on New Orchard Ave N. Therefore, there is very low expectation for a traffic hazard to be caused by the proximity of the site access to the property line.

4.5. Transportation Demand Management

4.5.1. Context for TDM

The proposed development is located in a Design Priority Area (DPA) along the Richmond Rd Mainstreet Corridor and is located within 150 m walking distance of the future New Orchard LRT Station. The property is owned and will be managed by the Richmond Investment GP.

Given the proposed land-use of the development as a residential building, it is expected that most trips generated will be from residents leaving the site in the AM peak to go to work and returning to the site in the PM peak. **Sections 3.1.1** and **3.1.2** describe how many trips are anticipated per travel mode and anticipates the likely locations that they will travel to and from based on the 2011 OD-Survey for Ottawa.

The development is proposing to provide 425 apartment units in a single residential building. A breakdown of the unit types indicates that the units provided will consist of 43 studio units, 249 one-bedroom units, 124 two-bedroom units, 5 three-bedroom units, and 4 townhouse units.

4.5.2. Need and Opportunity

Transit usage is anticipated to increase greatly in the area because of the future New Orchard LRT Station. In addition to the LRT expansions, the active transportation facilities (sidewalks and bike lanes) are anticipated to be significantly improved in the area. Therefore, transit and active transport travel modes are expected to generate the highest number of trips.

The proposed development is expected to utilize Transportation Demand Management (TDM) measures to maintain sustainable transit and active mode shares, as described in more detail in the following sections. As discussed in **Section 2.1.3.1**, The Sherbourne and New Orchard Secondary Plan recommends providing transit passes to new residents and on-site car sharing facilities. As outlined by TDM measures listed in the next section, measures being provided include the provision of transit passes to new residents, however, providing on-site car sharing facilities are still under consideration by the proponent at this time.

4.5.3. TDM Program

The TDM Infrastructure and TDM Measures Checklists have been provided in **Appendix G**. The proposed measures in each respective checklist are identified below.

<u>Proposed measures identified in the TDM-supportive Development Design and Infrastructure Checklist are:</u>

- All ten (10) Required measures related to Walking and Cycling (facilities and bicycle parking) and Vehicle Parking have been satisfied
- Twelve (12) out of fourteen (14) basic measures related to Walking and Cycling, Parking and Ridesharing have been satisfied, namely:
    - Locating building close to the street.

  - Locating building entrances to minimize walk distance to sidewalks and transit.
  - Locating building doors and windows to ensure visibility of pedestrians.
  - Providing safe, direct and attractive walking routes to transit.
  - Ensuring walking routes are secure, visible, and lighted.
  - Designing roads for cyclist circulation.
  - Providing lighting, landscaping and benches along walking and cycling routes.
  - Providing wayfinding signage for site access.
  - Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles
  - Provide shelters, lighting and benches at any on-site transit stops.
  - Provide a designated area for carpool drivers to drop-off or pick-up passengers.
  - Providing parking for long-term and short-term users.
- Two (2) out of seven (7) better measures related to Parking have been satisfied, namely:
  - Provide a permanent bike repair station.
  - Provide separate areas for short-term and long-term parking.

Proposed measures identified in the TDM Measures Checklist are:

- Designate an internal or external coordinator.
- Conduct periodic surveys to identify travel-related behaviors.
- Display walking and cycling information at major entrances.
- Display transit information at major entrances.
- Offer PRESTO cards for one month.
- Unbundle parking costs from monthly rent.
- Provide multi-modal travel information package to new residents.

4.6. Neighbourhood Traffic Calming

Exempt – See **Table 1**.

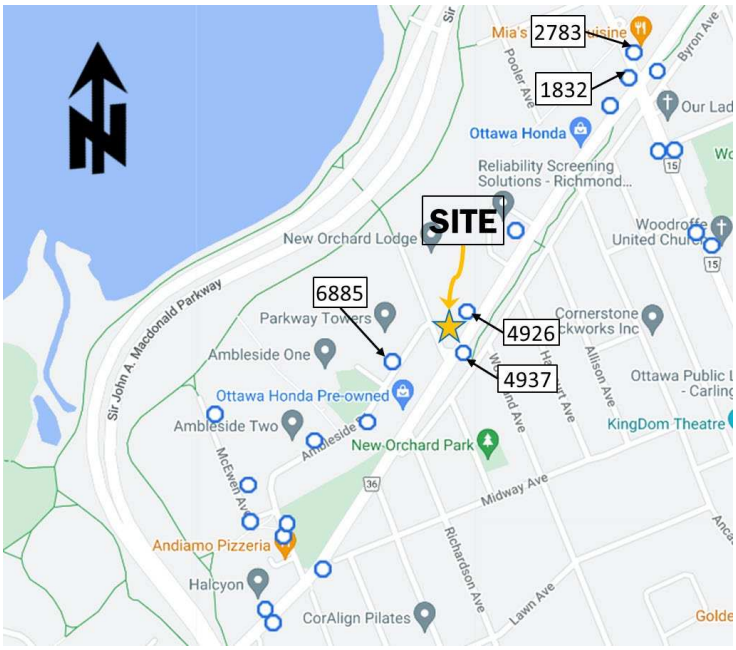
4.7. Transit

4.7.1. Route Capacity

As shown in **Table 9**, the proposed development is anticipated to generate a total of 116 transit trips during both the morning and afternoon peak hours. These trips are expected to be accommodated by the LRT at the future New Orchard Station along with any of the bus routes mentioned in **Section 2.1.2**.

Existing conditions transit ridership data was obtained from OC Transpo for the five bus stops near the proposed development site, as shown in **Figure 20.**

Figure 20: Transit Ridership Data Bus Stop Locations



Provided below is a summary of the transit ridership data, indicating the average bus boarding, alighting and occupancy statistics for each bus route at their respective stop location during morning and afternoon peak periods.

Table 12: Transit Ridership Data (Dec 2023 - Apr 2024)

Stop No.	Location	Route	Direction	AM (6:00 – 9:00)			PM (15:00 – 18:00)		
				Boarding	Alighting	Avg. Load at Depart.	Boarding	Alighting	Avg. Load at Depart.
1832	Woodroffe / Richmond	87	SB	8	1	5	9	23	10
2783	Woodroffe / Richmond	87	NB	21	0	10	5	17	9
4926	Richmond / New Orchard	11	WB	3	7	5	4	17	11
		153	WB	0	0	1	0	0	10
4937	Richmond / New Orchard	11	EB	14	2	10	7	0	7
6885	Ambleside / New Orchard	153	WB	0	0	1	0	2	9

The average load of each bus route at its respective bus stop ranges from 1 to 11 persons as the respective bus departs from the respective stop during the peak hours. For buses approaching their respective bus stops, the average load is estimated to be up to 24 passengers.

It should be noted these routes may serve their respective stops several times during peak hours, namely bus routes #11 and #87, that are expected to arrive every 15 minutes or less during these time periods. Once construction is completed, the future New Orchard LRT Station is expected to provide headways of 3-5 minutes during peak hours. At this time, it is not known if the existing bus routes will continue to operate with the exact same routes and rates as today, but the LRT is expected to provide more than enough capacity to accommodate all future transit volumes because of the proposed development.

Future Development-Generated Transit Trips

Background transit demand is also anticipated to increase with future other area developments where:

- 1071 Ambleside Dr is anticipated to generate 77 trips during both the morning and afternoon peak hours
- 1299 Richmond Rd is anticipated to generate 134 trips during both the morning and afternoon peak hours.
- 30 Cleary Ave is anticipated to generate 63 and 45 trips during the morning and afternoon peak hours
- 100 New Orchard Ave did not trigger the need for a TIA and is anticipated to generate a negligible number of trips.

Based on information obtained from the OC Transpo website, the person capacity of OC Transpo vehicles, which includes the number of seats on the bus plus the standing capacity, ranges from approximately 57 occupants in its smallest vehicles to approximately 110 occupants in its largest vehicles. The LRT's capacity is approximately 336 occupants.

Therefore, based on the current average bus loads, the background transit demand of adjacent developments, the available capacity and frequency of the existing bus routes, and the future anticipated capacity and frequency of the LRT, the future transit trips by the proposed development and adjacent developments during peak hours are anticipated to be accommodated by the existing and future transit services.

4.7.2. Transit Priority

Exempt – See **Table 1**.

4.8. Review of Network Concept

Exempt – See **Table 1**.

4.9. Intersection Design

Exempt – See **Table 1**.

5.0 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Based on the results summarized herein, the following transportation related conclusions are offered:

Proposed Development

- Richmond Investment GP is proposing a multi-phase residential development at the northeast corner of the Richmond/New Orchard signalized intersection. The municipal address of the development is 1047 Richmond Rd. The focus of this TIA Report is for Phase 1, while Phase 2 will be reviewed as part of a future development application.
- Phase 1 of the development will consist of a single mixed-use building that is 37-storeys high and will consist of 425 apartment units, along with approximately 497 m^2 (5,357 ft^2) of first floor commercial space. A park of approximately 1,012 m^2 (10,893 ft^2) is proposed at the southwest corner of the site. The proposed development is assumed to be fully constructed by 2026.
- Approximately 254 vehicle parking spaces and 322 bicycle parking spaces are proposed to be provided in the underground parking garage, which adheres to the requirements of the City of Ottawa's Parking Provisions.
- The site access along New Orchard Ave N will be located at the north end of the site, approximately 85 m north of the Richmond/New Orchard intersection. The access will provide stop control for vehicles exiting the site. The underground parking garage ramp, a drop-off courtyard and a loading bay will be located along the internal site driveway.

- Vehicle circulation for waste collection trucks, move-in trucks and fire trucks was reviewed and no concerns or conflicts were found.
- The development is anticipated to generate approximately 179 person trips during peak hours, which includes 27 vehicle trips, 9 passenger trips, 116 transit trips and 27 active transport (walking and cycling) trips.
- The development will be located across from the future New Orchard LRT Station (anticipated to be constructed by 2026), within a 150 m walking distance. As a result, transit usage was expected to be very high, with 116 peak hour trips anticipated to be generated by the proposed development. A review of the existing and future transit network in the area indicated that these volumes can be accommodated in the future.
- A suite of TDM measures is anticipated to be adopted by the development for the purpose of ensuring sustainable transit and active mode travel patterns are maintained. Example measures being provided include displaying multi-modal travel information for walking, cycling and transit, and unbundling parking costs from monthly rent. The Secondary Plan for the area recommends that transit passes be provided to new residents and on-site public car-sharing facilities be provided. At this time, it is anticipated that one-month PRESTO cards will be offered to new residents, while car-sharing spaces are under consideration by the proponent.

Future Study Area Modifications

- The proposed development is subject to the Sherbourne and New Orchard Secondary Plan, which outlines public realm related policies that require the development to maintain/improve and TDM recommendations for new developments such as providing transit passes to new resident and on-site car sharing facilities.
- As part of LRT west extension, which will be complete by 2026, the following modifications are expected:
    - A new station will be constructed within the Byron Linear Park called New Orchard Station (directly across from development site).
    - Cycle tracks are anticipated to be provided on both sides of Richmond Rd while also being provided on a short segment of New Orchard Ave N along the site frontage.
    - All study area intersections are expected to be constructed as protected intersections.
    - The intersection of Richmond/New Orchard will provide a single all-movement lane on all approaches.
    - The intersection of Richmond/Woodroffe is expected to provide an auxiliary left turn lane, a through lane and a smart channel with a right-turn lane on the eastbound approach. The westbound approach will provide an auxiliary left turn lane and a shared through/right turn lane.
    - The intersection of Richmond/McEwen will provide a single all-movement lane on the southbound and westbound approaches and a through lane with auxiliary left-turn lane on the eastbound approach.
    - Unidirectional bike crossings will be provided on all approaches of the three Richmond Rd intersections with McEwen Ave, New Orchard Ave N and Woodroffe Ave, with a bidirectional crossing on the south leg of the Woodroffe Ave intersection.
    - A new concrete sidewalk will be constructed on the west side of New Orchard Ave N.
- Richmond Rd is set to undergo a road revitalization project starting this year (2024) now that LRT tunnel work has finished. The design will incorporate complete streets and protected intersection guidelines

that aim to facilitate active transportation and transit modes by including amenities such as cycle tracks, widened sidewalks, bicycle crossings, bicycle signals etc.

- New Orchard Ave N is expected to have the west sidewalk renewed in the next 3 – 5 years, which is assumed to provide a 2.0 m wide concrete sidewalk.
- OC Transpo is launching 'New Ways to Bus' in spring 2025 in anticipation of the new LRT Trillium Line opening. The program aims to address changes in customers travel needs and ridership levels and improve connections to existing and future LRT stations.
- Four adjacent developments are anticipated to be constructed at 100 New Orchard Ave N, 1071 Ambleside Dr, 1299 Richmond Rd, and 30 Cleary Ave. The 100 New Orchard Ave N and 30 Cleary Ave developments are anticipated to generate minimal traffic, while the 1071 Ambleside Dr development is anticipated to generate 18 vehicle trips by 2028, which has been included in the future background traffic volumes. The 1299 Richmond Rd development is expected to generate 61 vehicle trips and has been included in the future background traffic volumes.

Future Demand and Operations

- It was determined a 0% background growth rate was suitable for the study area given the expected increase in transit and active travel modes and hybrid working conditions
- The signalized study area intersections will be converted to protected intersections and may experience some congestion in the future. This would be attributed to future background demands and the following combination of factors:
    - Loss of lane capacity, especially auxiliary turn lanes at study area intersections due to LRT.
    - A significant increase of pedestrian and cyclist activity at the intersections as a result of travel to/from the future LRT New Orchard station.
- MMLOS analysis of the boundary streets for:
    - Existing conditions indicate that the transit and truck LOS targets were met while pedestrian LOS targets were not met for both Richmond Rd and New Orchard Ave N. Bicycle LOS targets were met for New Orchard Ave N, however Richmond Rd did not meet the targets due to high operating speeds and average daily curb lane traffic.
    - Future background conditions saw an improvement to pedestrian LOS due to expected wider sidewalks and boulevards. Bicycle LOS was met for Richmond Rd due to the addition of physically separated cycle tracks, however the remaining targets for transit and trucks saw no change in LOS scores.

Overall, the Phase 1 proposed development can be supported by the transportation network at the 2026 and 2031 horizon years. The development plan leverages its location near the future New Orchard LRT Station with enhanced active transportation facilities and will consider various TDM initiatives to promote sustainable travel choices for its residents and reduce the vehicular impacts on the adjacent network. As a result, the analysis confirmed that no off-site roadway modifications were needed to support the development based on information available at the time of this study. The proposed development is recommended to proceed from a transportation perspective.

Prepared By:

Jordan Terada, E.I.T.
Transportation Analyst

Reviewed By:

Basel Ansari, P.Eng.
Transportation Engineer

Appendix A:

Screening Form and Site Plan

City of Ottawa 2017 Transportation Impact Assessment (TIA) Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	1047 Richmond Rd, Ottawa, ON
Description of Location	Northeast corner of the intersection of Richmond/New Orchard
Land Use Classification	Apartment units with first-floor retail
Development Size (units)	513 (Tower A, Phase 1) and 482 (Tower B, Phase 2) units
Development Size (m^2)	10,193
Number of Accesses and Locations	One access along New Orchard Ave N
Phase of Development	Phase 1 (two phases total)
Buildout Year	Phase 1 assumed 2026

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.

Table notes:

1.Table 2, Table 3 & Table 4 TRANS Trip Generation Manual
2.Institute of Transportation Engineers (ITE) Trip Generation Manual 11.1 Ed.

Land Use Type	Minimum Development Size
Single-family homes	60 units
Multi-Use Family (Low-Rise)[1]	90 units
Multi-Use Family (High-Rise)[1]	150 units
Office[2]	1,400 m^2
Industrial[2]	7,000 m^2
Fast-food restaurant or coffee shop[2]	110 m^2
Destination retail[2]	1,800 m^2
Gas station or convenience market[2]	90 m^2

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

[1] Hubs are identified in Schedules B1 to B8 of the City of Ottawa Official Plan. PMTSAs are identified in ScheduleC1 of the Official Plan. DPAs are identified in Schedule C7A and C7B of the Official. See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA.

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 Network, Rapid Transit network or Cross-Town Bikeways?		X
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?[1]	X	

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

4. Safety Triggers

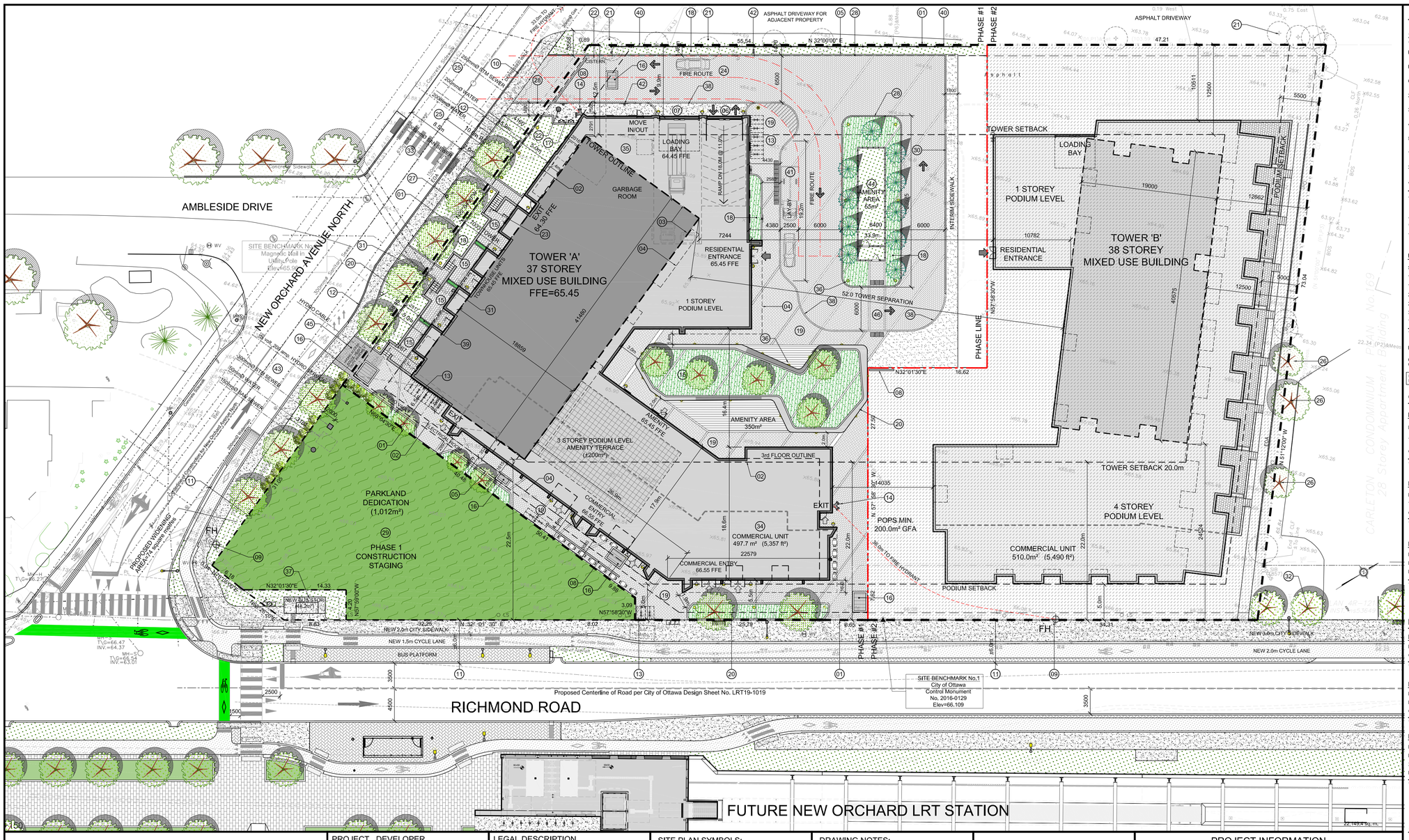
	Yes	No
Are posted speed limits on a boundary street 80 km/hr or greater?		X
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		X
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	X	
Is the proposed driveway within auxiliary lanes of an intersection?		X
Does the proposed driveway make use of an existing median break that serves an existing site?		X
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		X
Does the development include a drive-thru facility?		X

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

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	X	
Does the development satisfy the Location Trigger?	X	
Does the development satisfy the Safety Trigger?	X	

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



BUILDING STATISTICS

GROSS BUILDING - AREA — PHASE 1 - TOWER 'A'
(CITY OF OTTAWA'S DEFINITION)

P2 PARKING LEVEL		0.0 sq. m. 0 sq. ft.
P2 PARKING LEVEL		0.0 sq. m. 0 sq. ft.
GROUND FLOOR		711.5 sq. m. 7,659 sq. ft.
2nd FLOOR		708.7 sq. m. 7,628 sq. ft.
3rd FLOOR		1,277.3 sq. m. 13,749 sq. ft.
4th FLOOR - AMENITY LEVEL		0.0 sq. m. 0 sq. ft.
5th - 14th FLOOR	10 x 626.82 sq. m. 10 x 6,747 sq. ft.	6,268.2 sq. m. 67,470 sq. ft.
15th - 35th FLOOR	21 x 626.82 sq. m. 21 x 6,747 sq. ft.	13,163.2 sq. m. 141,687 sq. ft.
36th FLOOR - RESIDENTIAL / AMENITY		501.1 sq. m. 5,394 sq. ft.
AMENITY / MECHANICAL PENTHOUSE		0 sq. m. 000 sq. ft.
TOTAL AREA		22,630.0 sq. m. 243,587 sq. ft.
TOWER FLOOR PLATE (AS DEFINED IN ZONING EXCEPTION 2494)		636.1 sq. m. 6,847 sq. ft.
TOWER BALCONY PROJECTIONS		79.0 sq. m. 850 sq. ft.

UNIT STATISTICS

STUDIO UNIT	10.1%	43
1 BEDROOM UNIT	40.7%	173
1 BEDROOM + DEN UNIT	17.9%	76
2 BEDROOM UNIT	18.1%	77
2 BEDROOM + DEN UNIT	11.1%	47
3 BEDROOM UNIT	1.2%	5
TOWNHOUSE UNIT - 3 BEDROOM	0.9%	4
TOTAL	100%	425

RESIDENTIAL AREA	22,149.4 sq. m. 238,414 sq. ft.
COMMERCIAL AREA CITY OF OTTAWA'S DEFINITION	502.5 sq. m. 5,409 sq. ft.
COMMERCIAL AREA BOMA LEASABLE AREA DEFINITION - NOTED ON FLOOR PLAN	523.8 sq. m. 5,735 sq. ft.

CAR PARKING

REQUIRED by ZONING BY-LAW

RESIDENCE	- AREA 'Z' NONE REQUIRED	0
VISITOR	- 0.1 PER DWELLING UNIT (MAX. 30 PER BLDG.)	30
COMMERCIAL	- AREA 'Z' NONE REQUIRED	0
TOTAL		30

PROVIDED

RESIDENCE	- 0.447 PER UNIT	189
VISITOR	- 0.071 PER UNIT	30
COMMERCIAL		35
TOTAL		254

LOCATION

P2 U/G PARKING LEVEL	133
P1 U/G PARKING LEVEL	121
EXTERIOR AT GRADE	0
TOTAL	254

BICYCLE PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT	213
COMMERCIAL	- 1.0 PER 250m² OF G.F.A.	3
TOTAL		216

PROVIDED

RESIDENCE - INTERIOR	- 0.5 PER UNIT	294
RESIDENCE - EXTERIOR		10
COMMERCIAL - EXTERIOR		18
TOTAL		322

LOCATION

P2 U/G PARKING LEVEL	105
P1 U/G PARKING LEVEL	146
2nd FLOOR LEVEL	43
EXTERIOR AT GRADE	28
TOTAL	322

AMENITY SPACE

GROUND FLOOR COMMUNAL EXTERIOR = 350.0 sq. m.
GROUND FLOOR COMMUNAL INTERIOR = 200.0 sq. m.
4th FLOOR COMMUNAL INTERIOR = 590.0 sq. m.
4th FLOOR COMMUNAL TERRACE = 200.0 sq. m.
36th FLOOR COMMUNAL INTERIOR = 208.0 sq. m.
37th FLOOR COMMUNAL INTERIOR = 265.0 sq. m.
PRIVATE BALCONIES = 2,520.0 sq. m.
PRIVATE TERRACE = 80.0 sq. m.
TOTAL = 4,413.0 sq. m.
TOTAL COMMUNAL = 1,813.0 sq. m.
REQUIRED - 6.0m² PER UNIT (425) = 2,550.0 sq. m.
REQUIRED COMMUNAL @ 50% = 1,275.0 sq. m.

WASTE REQUIREMENT

GARBAGE - COMPACTED	- 0.053 PER UNIT	23 YARDS
RECYCLING GMP	- 0.018 PER UNIT	8 YARDS
RECYCLING FIBER	- 0.038 PER UNIT	16 YARDS
COMPOST	- 240L PER 50 UNITS	9

LOT COVERAGE

PHASE 2 LANDS	4,004.1 sq. m.	44.22%
POPS (ALL IN PHASE 2)	0.0 sq. m.	0%
PAVED SURFACE	983.3 sq. m.	10.86%
TOWER 'A' FOOTPRINT	2,121.2 sq. m.	23.42%
LANDSCAPE OPEN SPACE	1,947.2 sq. m.	21.50%
TOTAL SUBTOTAL #1	9,055.8 sq. m.	100.0%
PARKLAND DEDICATION	1,012.0 sq. m.	
NEW ORCHARD ROW	74.0 sq. m.	
BUS STOP	48.2 sq. m.	
TOTAL SUBTOTAL #2	1,134.2 sq. m.	

TOTAL - PRE DEVELOPMENT AREA 10,190.0 sq. m.

NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- ◇00 INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
- ⬡00 INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- (000) INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.

00 TITLE SCALE A000 A000
DETAIL NUMBER
DETAIL REFERENCE PAGE
DETAIL CROSS REFERENCE PAGE

REVISIONS:

No.	DESCRIPTION	DATE
13	ISSUED FOR ROUND 2 COMMENT RESPONSE	Apr. __, 25
12	ISSUED FOR BUILDING PERMIT	Mar. 24, 25
11	ISSUED FOR CONSULTANT REVIEW	Mar. 05, 25
10	ISSUED FOR PAGE TURN REVIEW	Jan. 22, 25
9	ISSUED FOR ROUND 1 COMMENT RESPONSE	Dec. 13, 24
8	ISSUED FOR OWNER / CONSULTANT REVIEW	Nov. 26, 24
7	ISSUED FOR SPC APPLICATION	Sept. 03, 24
6	ISSUED FOR OWNER / CONSULTANT REVIEW	Aug. 28, 24
5	ISSUED FOR UDRP PRESENTATION	Aug. 02, 24
4	ISSUED FOR OWNER / CONSULTANT REVIEW	July 12, 24
3	ISSUED FOR PRE-CONSULT PHASE 1 - ADDITIONAL INFO. PACKAGE	June 10, 24
2	ISSUED FOR PRE-CONSULT APPLICATION	Apr. 26, 24
1	ISSUED FOR OWNER REVIEW	Apr. 11, 24

ARCHITECT SEAL:
KEVIN M. REID
LICENCE
8667
SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT:
FENGATE Asset Management
1047 Richmond Investment GP Inc.

ARCHITECT:
rla/architecture
roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t. 613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE:
1047 RICHMOND ROAD
OTTAWA ONTARIO

SHEET TITLE:
SITE PLAN
PHASE 1

DRAWN:	CHECKED:
R.V.	R.V.
SCALE: 1:250	SHEET No. SP-1
PROJECT No. 2404	

D07-12-24-0104

1 SP-2 SITE PLAN

SCALE = 1 : 250

0m 5 10 20
SCALE 1: 250

KEY MAP

PROJECT DEVELOPER
FENGATE Asset Management
77 King Street West, Suite 3410
Toronto, ON M5K 1H1
Tel: (613) 546-3146
Cell: (416) 543-8005
E-Mail: Corina.Sajewski@fengate.com
E-Mail: Lee.Marlowe@fengate.com

URBAN PLANNER
Fotenn Consulting
396 Cooper Street
Suite 300
Ottawa, ON K2P 2H7
Tel: (613) 730-5709
E-Mail: dallarosa@fotenn.com
E-Mail: simpson@fotenn.com

CIVIL ENGINEER
Egis Group
115 Walgreen Road
Ottawa, ON K0A 1L0
Tel: (613) 836-2184
Fax: (613) 836-3742
Email: Alison.GOSLING@egis-group.com

WIND / SOUND ENDINEER
Gradient Wind
127 Walgreen Road,
Ottawa, ON, Canada K0A 1L0
Tel.:(613) 836-0934 ext. 116
Cell: (613) 266-5273
E-Mail: joshua.foster@gradientwind.com

LEGAL DESCRIPTION
TOPOGRAPHICAL PLAN OF SURVEY OF
PART OF PIN 03970-0109 AND ALL OF PIN 03970-0105

PART OF LOTS 24 AND 25
CONCESSION 1 (OTTAWA FRONT)
GEOGRAPHIC TOWNSHIP OF NEPEAN
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

LANDSCAPE ARCHITECT
Studio TLA
20 Champlain Boulevard, Suite 102
Toronto, ON M3H 2Z1,
Tel: (416) 638-4911
E-Mail: lbitar@studiotla.ca

TRANSPORTATION ENGINEER
Parsons
1223 Michael Street, Suite 100,
Ottawa, ON K1J 7T2
Tel: (613) 601-1528
Cell: (343) 996-5362
Email: Austin.Shih@parsons.com

GEOTECHNICAL ENGINEER
Golder Associates Ltd.
1931 Roberson Road
Ottawa, Ontario K2H5B7
Tel.:613 592 9600
E-Mail: ____________

SITE PLAN SYMBOLS:

▨	SOFT LANDSCAPE PLANTING
🟩	PARKLAND DEDICATION
▨	CONCRETE PAVERS, SEE LANDSCAPE DRAWINGS
▨	PAVERS @ TERRACE LEVEL
▨	CONCRETE UNIT PAVERS ON DRIVEWAY
▨	CITY SIDEWALK
⊟	BIKE RACK
➡	MAIN ENTRANCE DOOR
⇨	COMMERCIAL / EXIT DOOR
●	PROPOSED SITE LIGHTING
⇦	VEHICULAR DIRECTION
●	EXISTING TREE TO REMAIN
○	EXISTING TREE TO BE REMOVED
●	PROPOSED TREE
◆	SIAMESE CONNECTION
FH ⌖	FIRE HYDRANT

NOTE:
SEE LANDSCAPE FOR ALL SURFACE MATERIAL AND PATTERN

DRAWING NOTES:

1. PROPERTY LINE
2. BUILDING / TOWER SETBACK LINE
3. OUTLINE OF TOWER
4. LINE OF BALCONIES / CANOPY ABOVE
5. LINE OF PARKING GARAGE BELOW
6. ENTRANCE TO GARAGE RAMP
7. ENTRANCE TO LOADING BAY
8. TRENCH DRAIN
9. RELOCATED EXISTING FIRE HYDRANT
10. DEPRESSED STREET CURB & SIDEWALK, CONTINUOUS AND DEPRESSED @ DRIVEWAY
11. PROPOSED CITY ROAD AND BOULEVARD AS PER PHASE 2 CONFEDERATION LINE WORK
12. CITY CURB, SIDEWALK & GRASSED BOULEVARD
13. BICYCLE RACKS, SEE LANDSCAPE PLAN FOR TYPE
14. SIAMESE CONNECTION
15. PRIVATE PATIO FOR GROUND FLOOR UNITS WITH PRIVACY RAILING, HT. VARIES
16. INTAKE / EXHAUST GRATE
17. GAS PRESSURE RELEASE STATION
18. SOFT LANDSCAPING
19. HARD SURFACE LANDSCAPED AREA
20. RAISED PLANT BED , SEE LANDSCAPE
21. EXISTING TREE TO BE REMOVED
22. CISTERN WITH OVERFLOW / ACCESS MH.
23. EXTERIOR STEPS WITH HANDRAILS AS REQUIRED
24. 6.0 METRE WIDE FIRE ROUTE
25. PROPOSED SERVICES, SEE CIVIL
26. EXISTING TREE TO REMAIN
27. EXISTING UTILITY / LIGHT POLE
28. 150mm HT. BARRIER CURB
29. PROPOSED PARKLAND DEDICATION
30. INTERIM CONCRETE CURB AND SIDEWALK
31. EXISTING UTILITY / LIGHT POLE TO BE REMOVED
32. TREES AS PER PHASE 2 CONFEDERATION LINE WORK
33. EXISTING PEDESTRIAN CROSSWALK
34. GROUND FLOOR COMMERCIAL UNIT
35. GROUND FLOOR GARBAGE ROOM
36. SITE LIGHTING - SEE ELECTRICAL SITE PLAN
37. BUS STOP AS PER PHASE 2 CONFEDERATION LINE WORK
38. CONCRETE WALK & CURB: DEPRESSED / MOUNTABLE
39. 1.2m HT. METAL PLANTER WITH PRIVACY SCREEN
40. REMOVE EXISTING CHAIN LINK FENCE ON PROPERTY LINE AND REPLACED WITH 2.1m HT. SOLID WOOD FENCE
41. ACCESSIBLE PASSENGER LOADING AREA WITH TWSI
42. SIGNAGE: FIRE ROUTE, NO PARKING, LOADING, ECT.
43. PARK SERVICES
44. EXTERIOR AMENITY AREA
45. HYDRO ACCESS ROUTE, HEAVY DUTY INSULATION AND PAVERS REQUIRED
46. UNIT PAVER CROSSWALK WITH TWSI

PROJECT INFORMATION

Zoning By-law 2008-250 Consolidation TM[2494] H(127) — SITE AREA 0.9 ha. 9,104.0 sq. m 97,995 sq. ft.

ZONING	REQUIRED	PROVIDED
BUILDING HEIGHT - PODIUM	4 STOREY / 15.0m	3 STOREY / 11.0m
BUILDING HEIGHT - TOWER 'A' WEST	40 STOREY / 127.0m	37 STOREY / 113.0m
BUILDING HEIGHT - TOWER 'B' EAST - PHASE 2	38 STOREY / 121.0m	STOREY / ___.0m
GRADE (GEODETIC ELEVATION - ASL)	65.50m ASL	65.50m ASL
DENSITY - FSI	6.3 (57,355.2m²)	2.44 (22,149.4m²)
TOWER FLOOR PLATE - GFA	750.0m²	636.1m²
PRIVATELY OWNER PUBLIC SPACE (POPS): MIN. 200.0m²	200.0m²	0.0m²
NON-RESIDENTIAL SPACE AT GRADE: MIN. 1,000.0m²	1,000.0m²	502.5m²
FRONT, CORNER & INTERIOR YARD SETBACK (PODIUM)	5.0m	5.0m
ABUTTING PARK SETBACK (PODIUM)	3.0m	4.5m
FRONT YARD SETBACK (TOWER)	22.0m	22.5m
REAR & INTERIOR YARD SETBACK (TOWER)	12.5m	12.5m
INTERIOR YARD SETBACK (TOWER)	12.5m	n/a
CORNER SIDE YARD SETBACK (TOWER)	7.0m	7.0m
ABUTTING PARK SETBACK (TOWER)	6.5m	6.5m
TOWER SEPARATION (SAME LOT)	25.0m	52.0m
AMENITY AREA - TOTAL 6.0m² PER UNIT: 425 UNITS	2,550.0m²	4,413.0m²
AMENITY AREA - 50% COMMUNAL PER UNIT	1,275.0m²	1,813.0m²
VEHICLE PARKING: RESIDENTIAL - AREA "Z" NOT REQUIRED	0	189
VEHICLE PARKING: VISITOR - 0.1 PER UNIT AFTER 12 UNITS (MAX. 30 PER BLDG.)	30	30
VEHICLE PARKING: COMMERCIAL - AREA "Z" NOT REQUIRED	0	35
BICYCLE PARKING - RESIDENTIAL - 0.5 PER UNIT	213	304
BICYCLE PARKING - COMMERCIAL - 1.0 PER 250m² GFA	3	18
AISLE & DRIVEWAY MINIMUM / MAXIMUM WIDTH	6.0m / 6.7m	6.0m / 6.7m

Appendix B:

Transit Route Maps

11

LINCOLN FIELDS
BAYSHORE

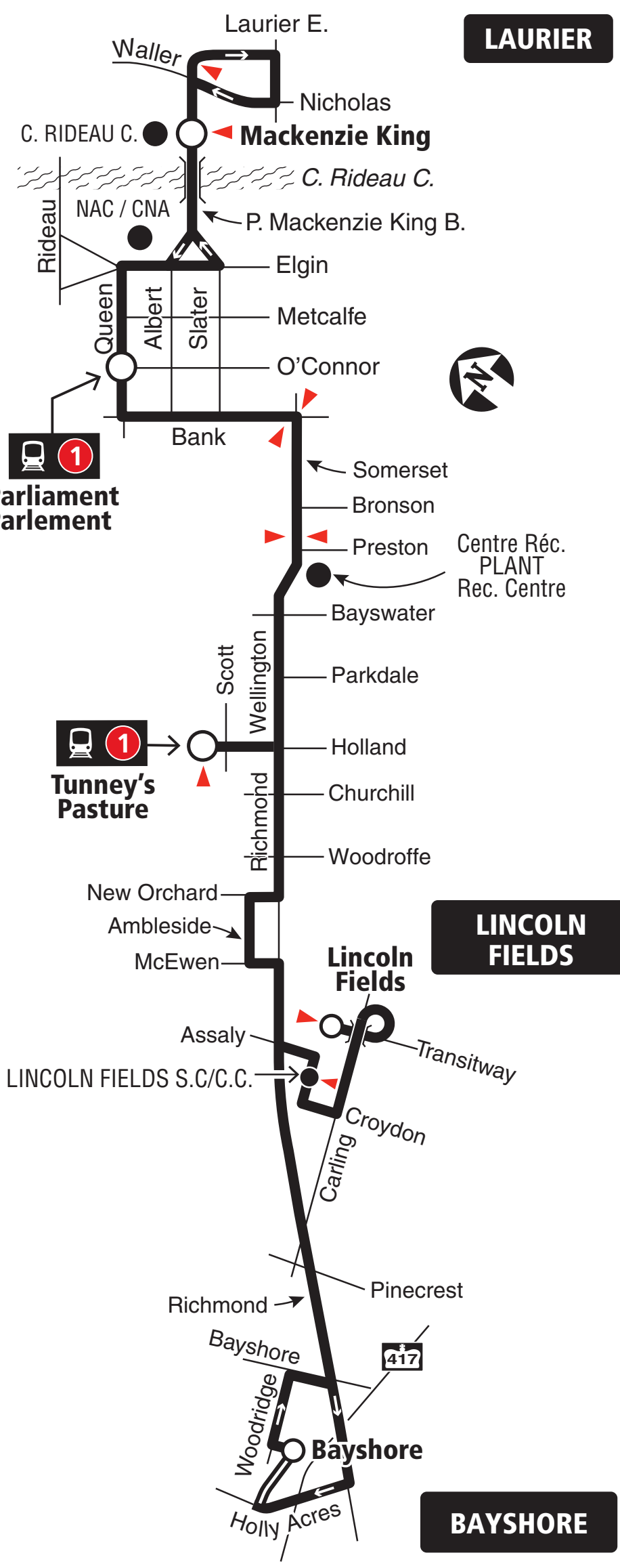
LAURIER

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



12.2023

Transitway & Station

Timepoint / Heures de passage

12.2023

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 December 24, 2023

En vigueur 24 décembre 2023

OC Transpo

INFO 613-560-5000
octranspo.com

87

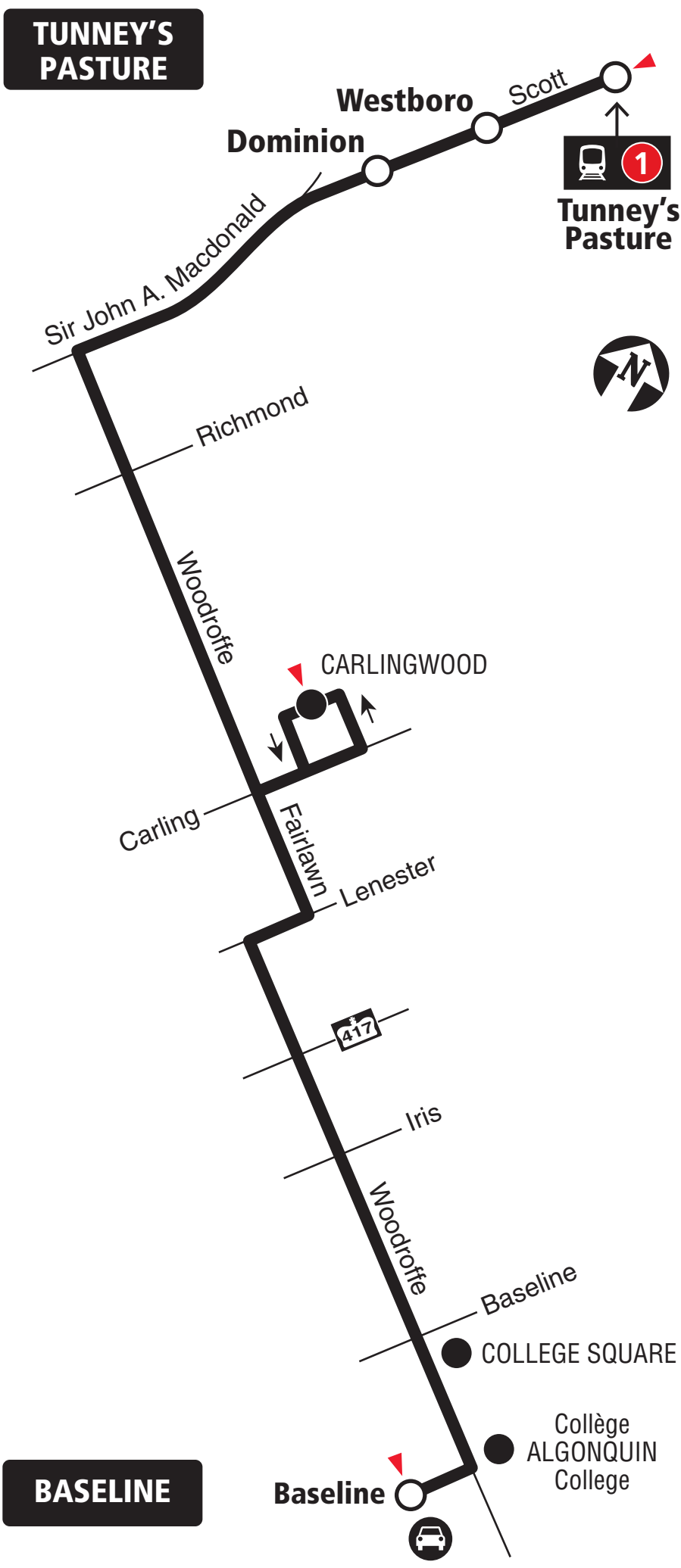
Fréquent

BASELINE
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service

Service toute la journée



2022.06

Transitway & Station

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2022.06

Schedule / Horaire.....613-560-1000

Text / Texto 560560

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

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

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

Security / Sécurité **613-741-2478**

Effective June 26, 2022

En vigueur 26 juin 2022

OC Transpo

INFO 613-560-5000
octranspo.com

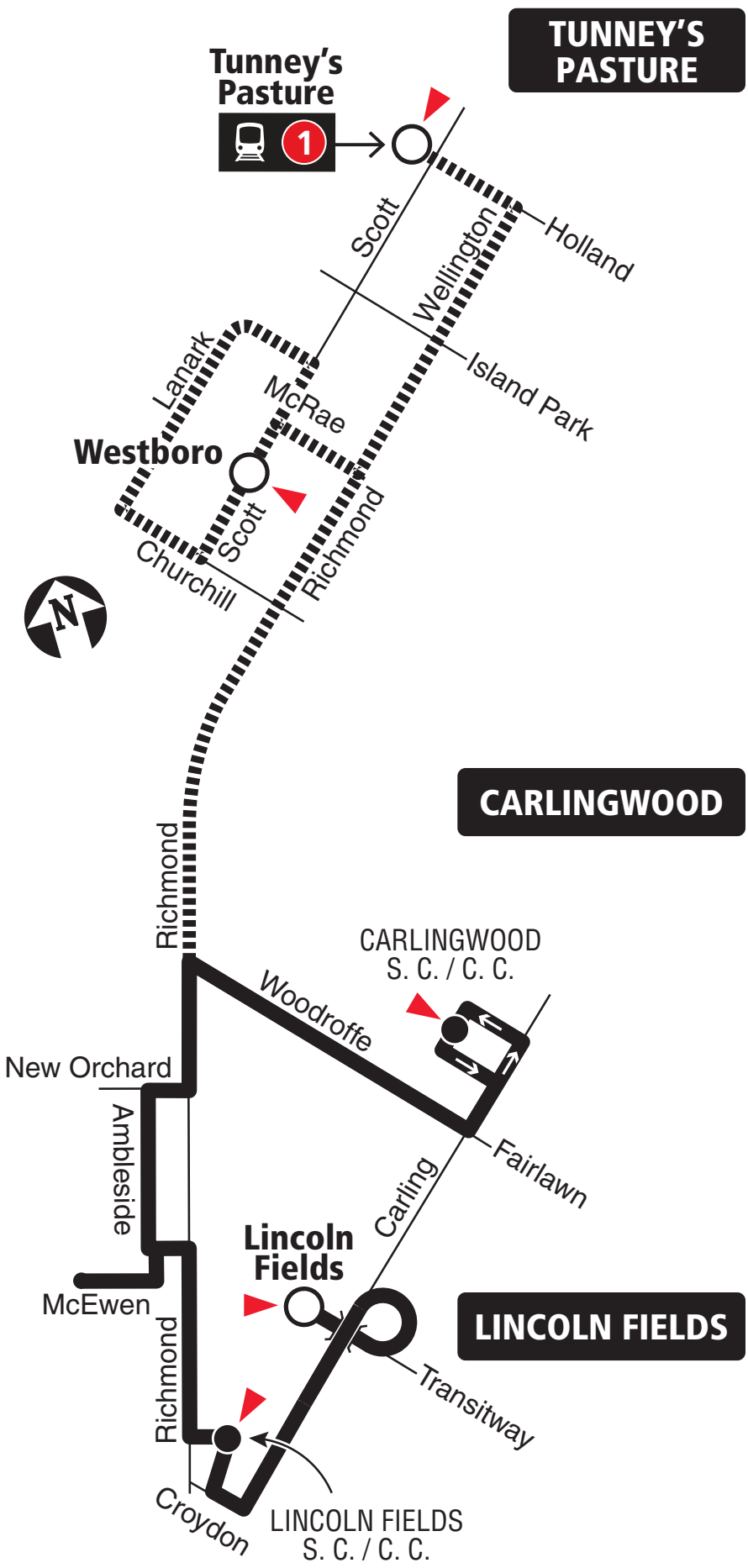
153

LINCOLN FIELDS
TUNNEY'S PASTURE
CARLINGWOOD

Local

7 days a week / 7 jours par semaine

Selected time periods only
Périodes sélectionnées seulement



12.2022

○	Station
▪▪▪▪▪▪▪▪▪▪	Some trips / Quelques trajets
▲	Timepoint / Heures de passage

12.2022

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 December 18, 2022
En vigueur 18 décembre 2022

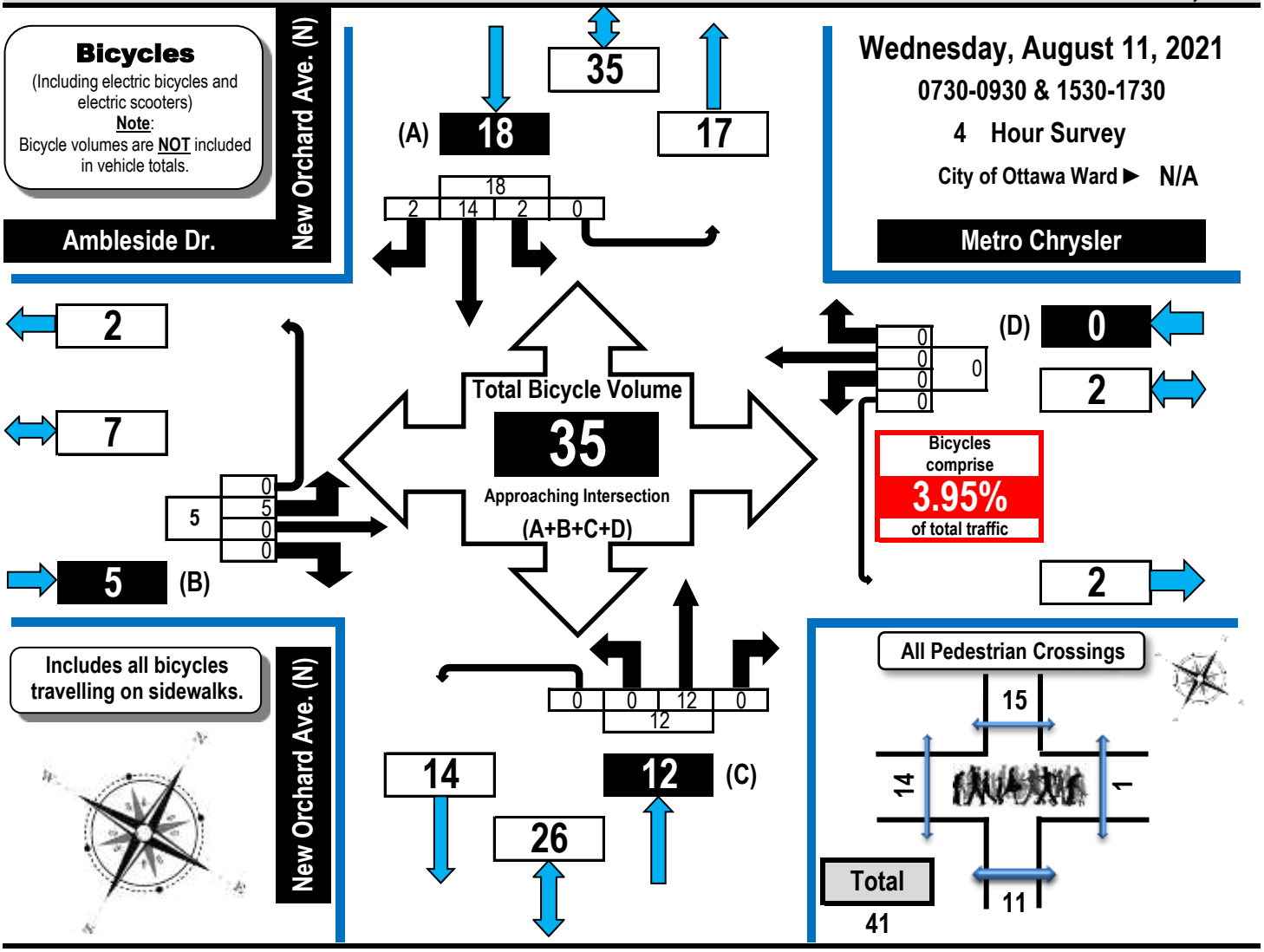
OC Transpo

INFO 613-560-5000
octranspo.com

Appendix C:

Traffic Count Data

Turning Movement Count
Bicycle Summary
Flow Diagram



	Ambleside Dr.					Metro Chrysler					New Orchard Ave. (N)					New Orchard Ave. (N)					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0730-0800	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
0800-0900	3	0	0	0	3	0	0	0	0	0	0	5	0	0	5	0	3	0	0	3	11
0900-0930	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	4	2	0	6	8
1530-1600	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
1600-1700	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	2	0	0	2	7
1700-1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3
Totals	5	0	0	0	5	0	0	0	0	0	0	12	0	0	12	2	14	2	0	18	35

Comments:

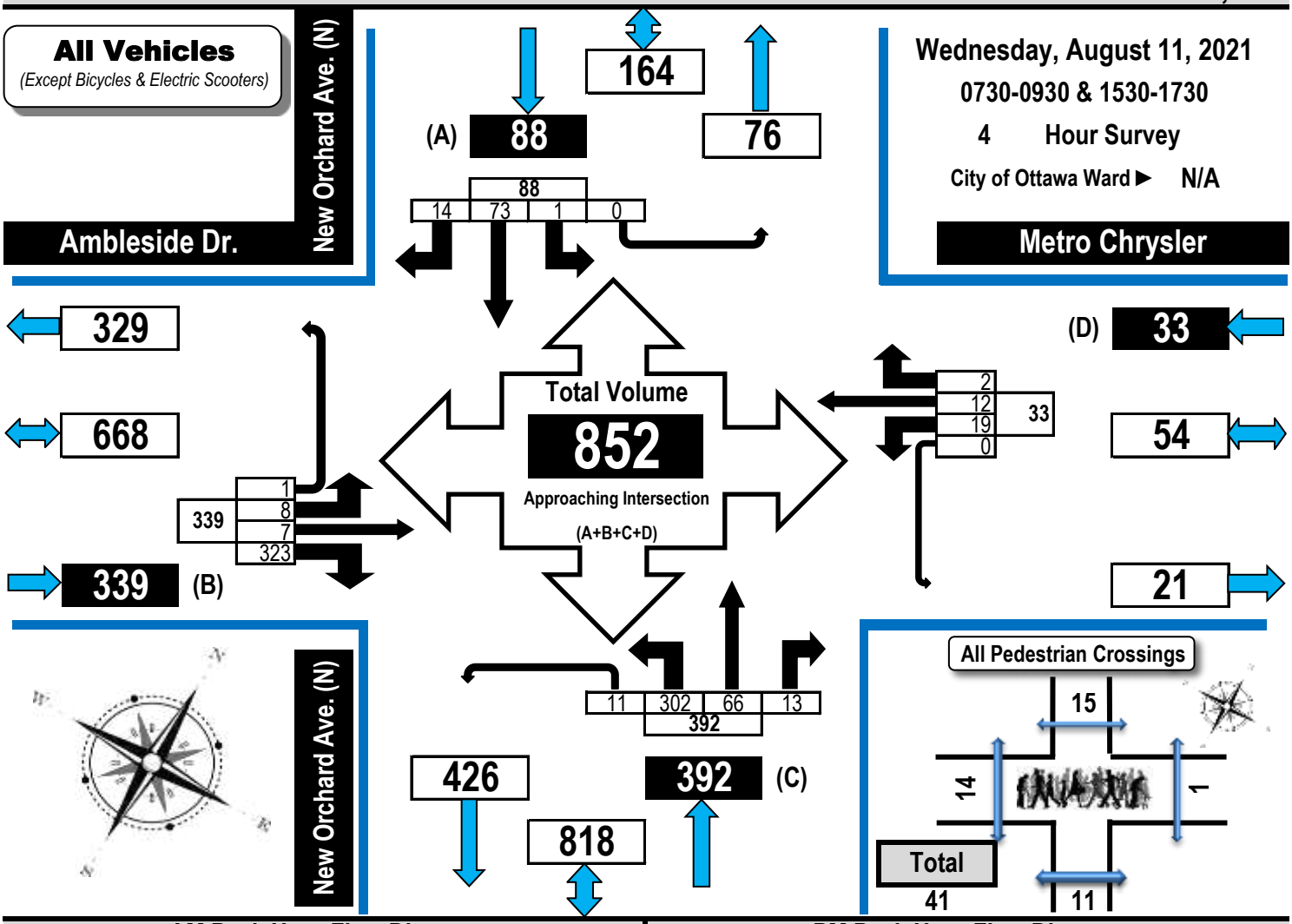
Traffic count conducted during SARS-CoV-2 (Covid-19) pandemic. All businesses open for in-person shopping and all restaurants, including patios, open for in-person dining.

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

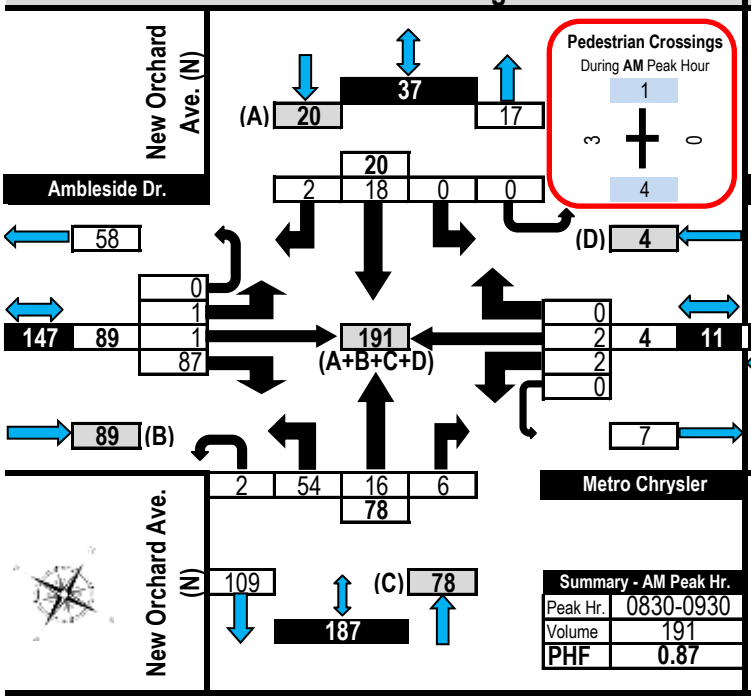
Ambleside Drive & New Orchard Avenue North — Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Wednesday, August 11, 2021
0730-0930 & 1530-1730
4 Hour Survey
City of Ottawa Ward ► N/A

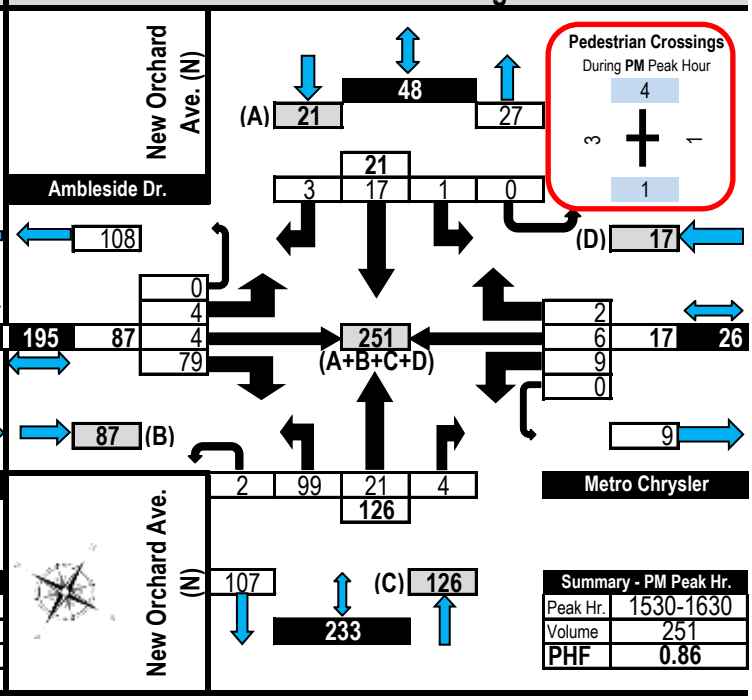


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0830-0930
Volume	191
PHF	0.87

PM Peak Hour Flow Diagram



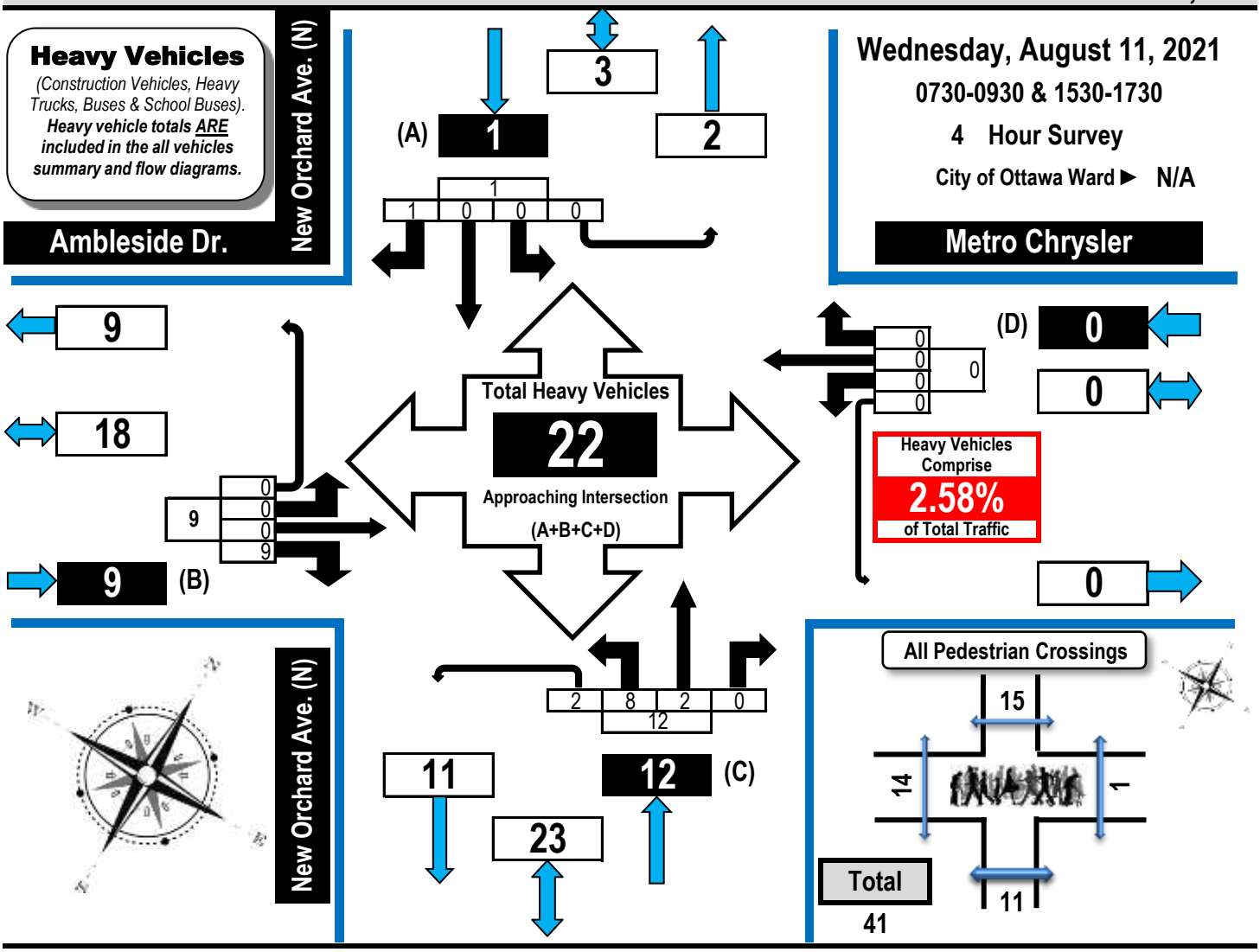
Summary - PM Peak Hr.	
Peak Hr.	1530-1630
Volume	251
PHF	0.86

Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Ambleside Drive & New Orchard Avenue North — Ottawa, ON

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Wednesday, August 11, 2021
0730-0930 & 1530-1730
4 Hour Survey
City of Ottawa Ward ► N/A



	Ambleside Dr.					Metro Chrysler					ew Orchard Ave. (N					ew Orchard Ave. (N					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0730-0800	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
0800-0900	0	0	4	0	4	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	9
0900-0930	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
1530-1600	0	0	3	0	3	0	0	0	0	0	2	1	0	0	3	0	0	1	0	1	7
1600-1700	0	0	2	0	2	0	0	0	0	0	0	1	0	1	2	0	0	0	0	0	4
1700-1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	9	0	9	0	0	0	0	0	8	2	0	2	12	0	0	1	0	1	22

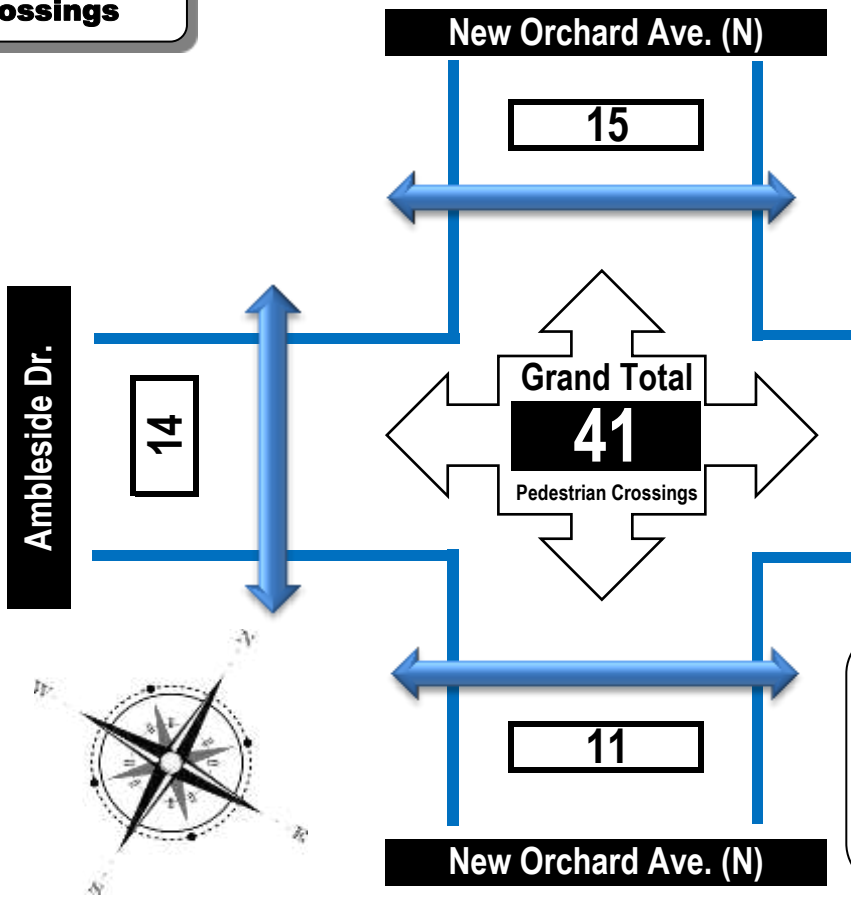
Comments:
Traffic count conducted during SARS-CoV-2 (Covid-19) pandemic. All businesses open for in-person shopping and all restaurants, including patios, open for in-person dining.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Ambleside Drive & New Orchard Avenue North — Ottawa, ON

Pedestrian Crossings

Wednesday, August 11, 2021
0730-0930 & 1530-1730
4 Hour Survey
City of Ottawa Ward ► N/A



Note

*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Ambleside Dr.	East Side Crossing Metro Chrysler	Street Total	South Side Crossing New Orchard Ave. (N)	North Side Crossing New Orchard Ave. (N)	Street Total	Grand Total
0730-0800	0	0	0	1	3	4	4
0800-0900	7	0	7	5	2	7	14
0900-0930	1	0	1	2	1	3	4
1530-1600	1	1	2	1	1	2	4
1600-1700	3	0	3	2	5	7	10
1700-1730	2	0	2	0	3	3	5
Totals	**14**	**1**	**15**	**11**	**15**	**26**	**41**

Comments:
Traffic count conducted during SARS-CoV-2 (Covid-19) pandemic. All businesses open for in-person shopping and all restaurants, including patios, open for in-person dining.

Turning Movement Count
Summary Report
Including AM and PM Peak Hours
All Vehicles Except Bicycles

Ambleside Drive & New Orchard Avenue North — Ottawa, ON

Survey Date: Wednesday, August 11, 2021 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Cloudy 22° C **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1530-1730
Weather PM: Cloudy 29° C **Surveyor(s):** J. Mousseau

	Ambleside Dr.					Metro Chrysler						New Orchard Ave. (N)					New Orchard Ave. (N)						
	Eastbound					Westbound						Northbound					Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	1	2	34	0	**37**	0	0	0	0	**0**	**37**	20	7	2	4	**33**	0	11	0	0	**11**	**44**	**81**
0800-0900	2	1	88	0	**91**	1	2	0	0	**3**	**94**	44	7	6	2	**59**	0	20	2	0	**22**	**81**	**175**
0900-0930	0	0	46	0	**46**	2	0	0	0	**2**	**48**	29	12	1	1	**43**	0	10	2	0	**12**	**55**	**103**
1530-1600	1	2	35	0	**38**	7	2	1	0	**10**	**48**	54	12	2	0	**68**	1	8	2	0	**11**	**79**	**127**
1600-1700	4	2	79	0	**85**	5	4	1	0	**10**	**95**	96	20	2	3	**121**	0	14	5	0	**19**	**140**	**235**
1700-1730	0	0	41	1	**42**	4	4	0	0	**8**	**50**	59	8	0	1	**68**	0	10	3	0	**13**	**81**	**131**
Totals	8	7	323	1	**339**	19	12	2	0	**33**	**372**	302	66	13	11	**392**	1	73	14	0	**88**	**480**	**852**

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡				0.87								Highest Hourly Vehicle Volume Between 0700h & 1000h											
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot	Gr. Total
0830-0930	1	1	87	0	**89**	2	2	0	0	**4**	**93**	54	16	6	2	**78**	0	18	2	0	**20**	**98**	**191**

PM Peak Hour Factor ➡				0.86								Highest Hourly Vehicle Volume Between 1500h & 1800h											
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot	Gr. Tot.
1530-1630	4	4	79	0	**87**	9	6	2	0	**17**	**104**	99	21	4	2	**126**	1	17	3	0	**21**	**147**	**251**

Comments:

Traffic count conducted during SARS-CoV-2 (Covid-19) pandemic. All businesses open for in-person shopping and all restaurants, including patios, open for in-person dining.

Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

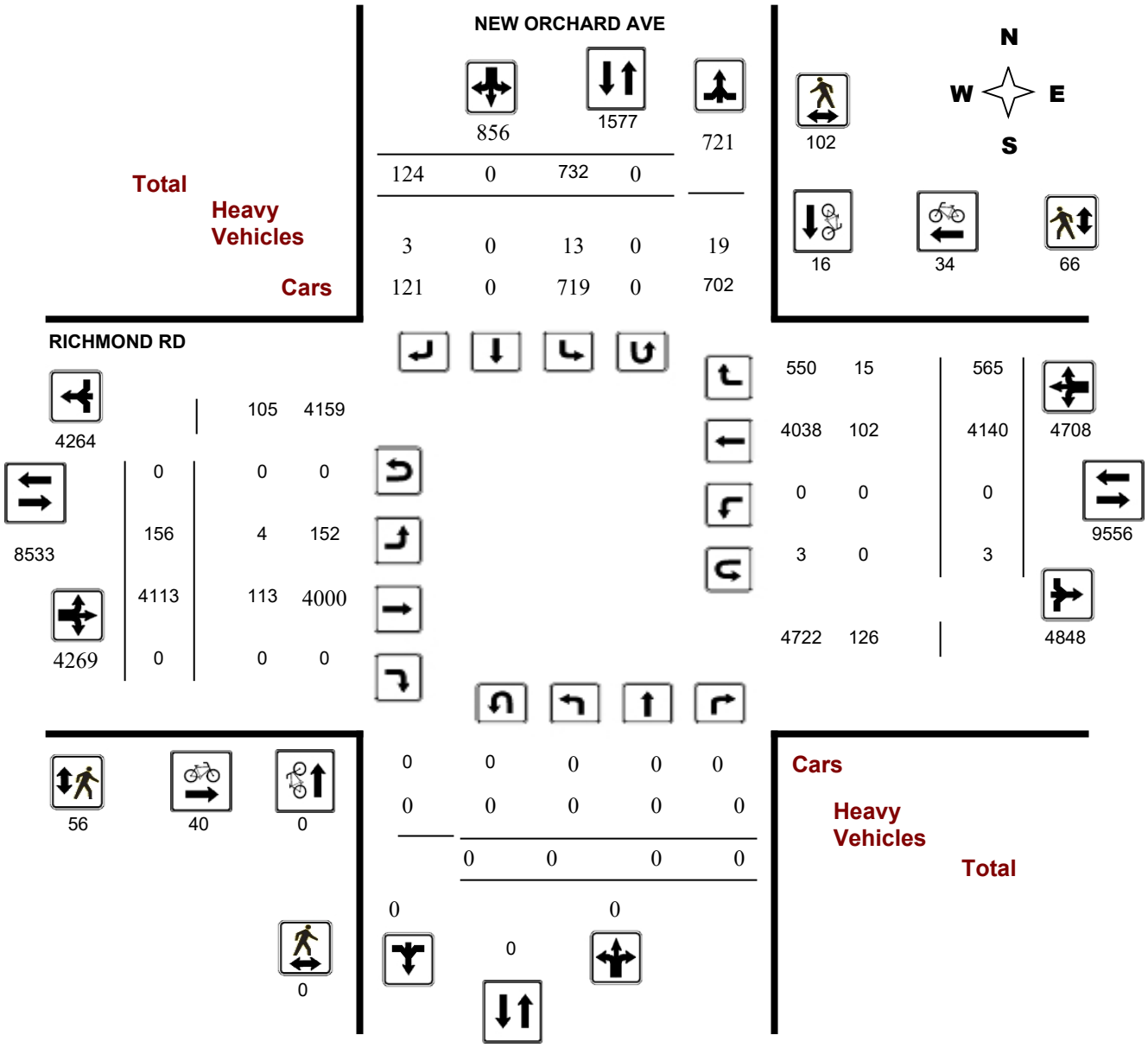
Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016
Start Time: 07:00
WO No: 36256
Device: Miovision

Full Study Diagram



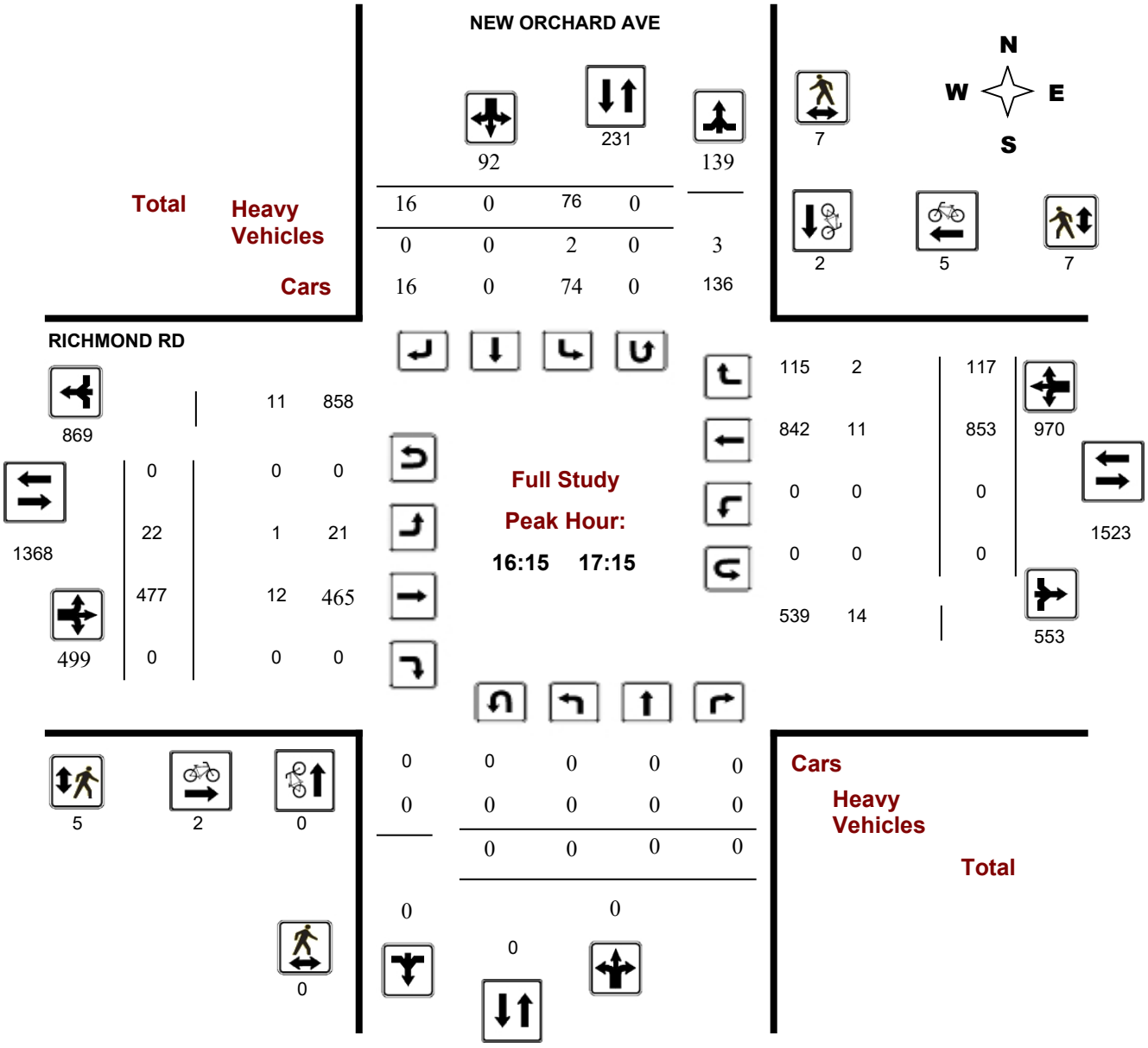
Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016
Start Time: 07:00
WO No: 36256
Device: Miovision

Full Study Peak Hour Diagram



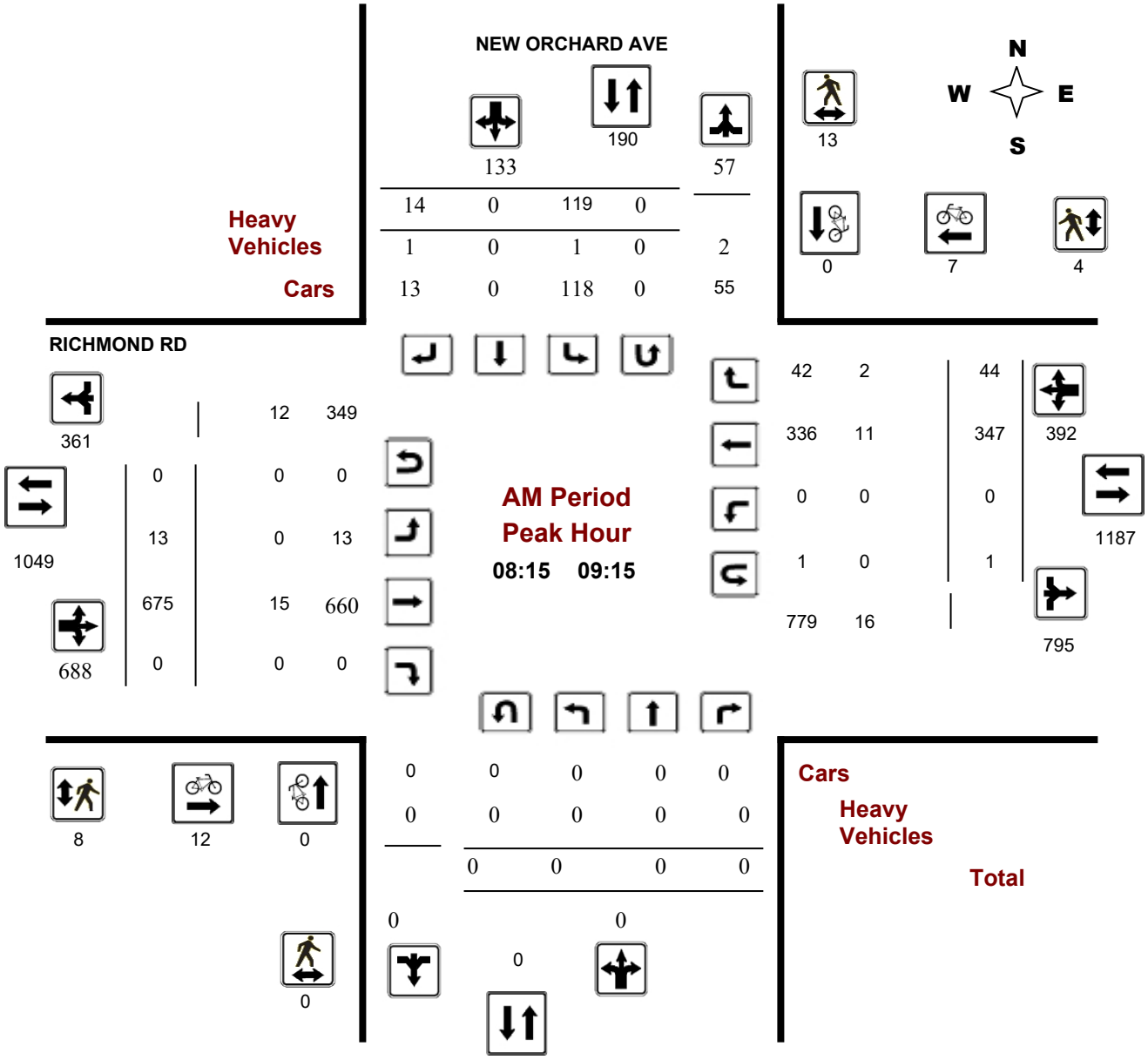
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016
Start Time: 07:00

WO No: 36256
Device: Miovision



Comments

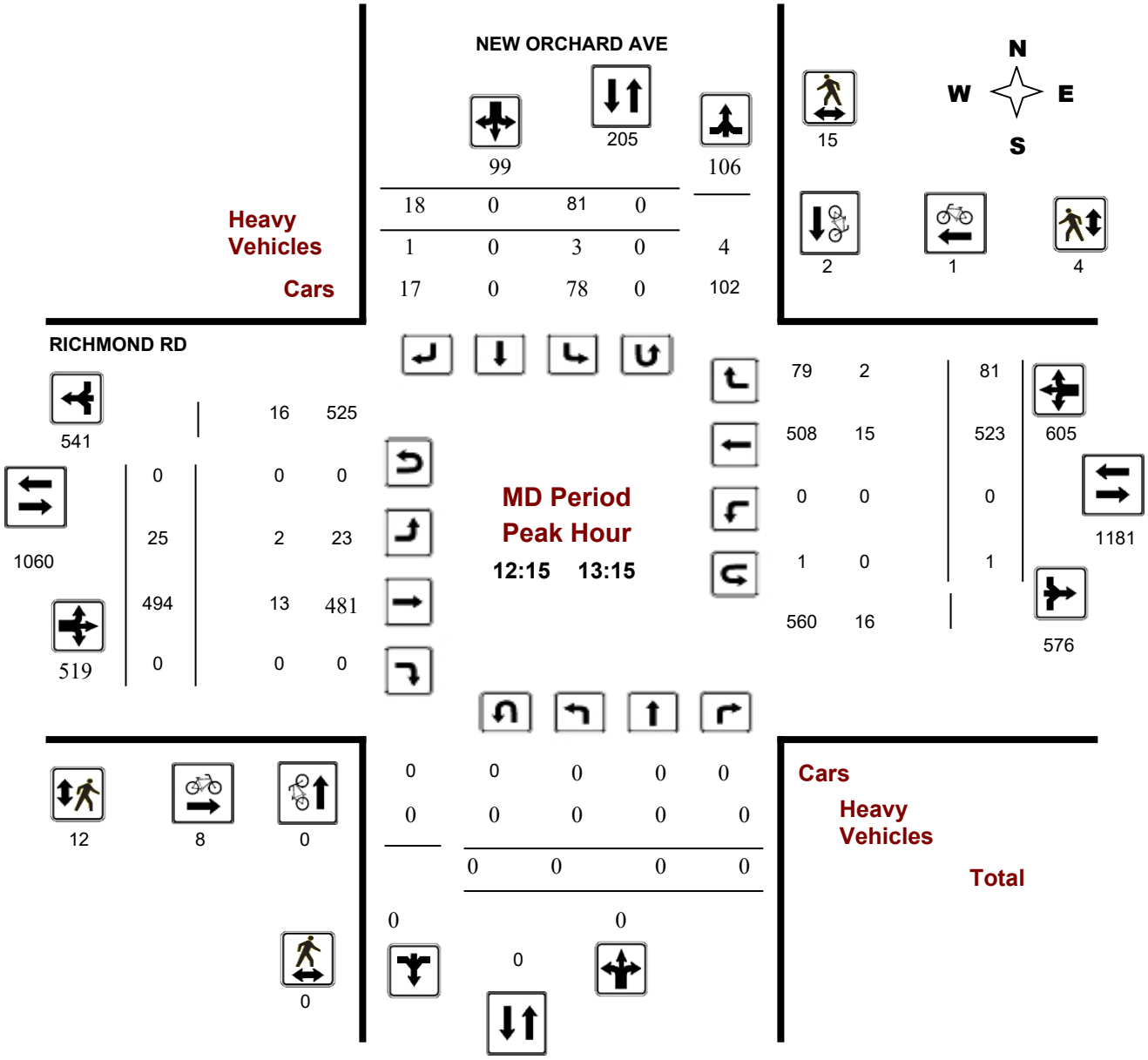
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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



Comments

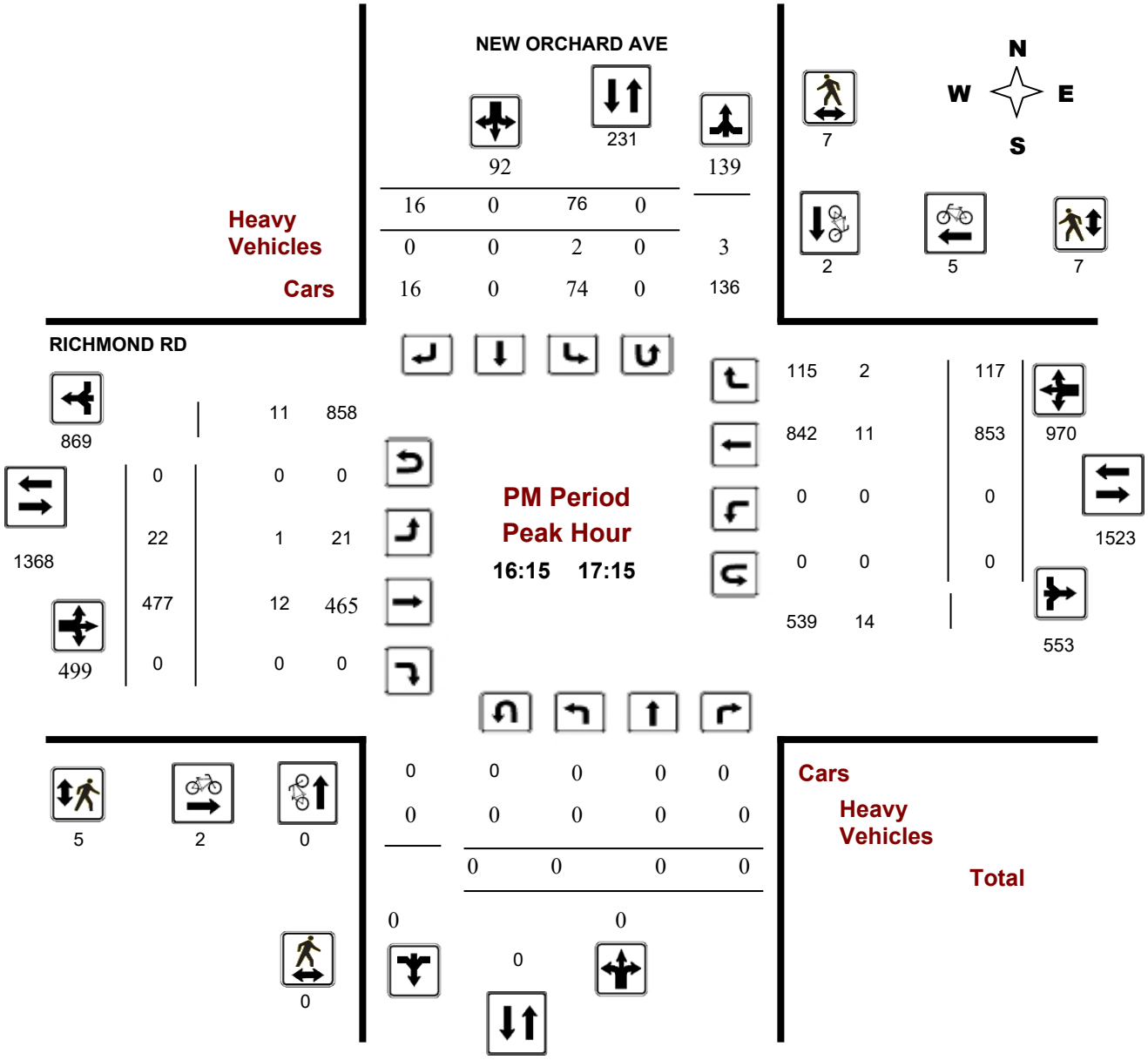
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, August 25, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 3

AADT Factor

.90

	NEW ORCHARD AVE									RICHMOND RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	0	0	0	**0**	93	0	5	**98**	**98**	18	559	0	**577**	0	191	30	**221**	**798**	**896**
08:00 09:00	0	0	0	**0**	104	0	15	**119**	**119**	13	706	0	**719**	0	327	43	**370**	**1089**	**1208**
09:00 10:00	0	0	0	**0**	110	0	11	**121**	**121**	19	493	0	**512**	0	350	49	**399**	**911**	**1032**
11:30 12:30	0	0	0	**0**	94	0	22	**116**	**116**	23	498	0	**521**	0	475	79	**554**	**1075**	**1191**
12:30 13:30	0	0	0	**0**	82	0	14	**96**	**96**	23	488	0	**511**	0	489	76	**565**	**1076**	**1172**
15:00 16:00	0	0	0	**0**	95	0	18	**113**	**113**	20	431	0	**451**	0	696	95	**791**	**1242**	**1355**
16:00 17:00	0	0	0	**0**	73	0	20	**93**	**93**	17	459	0	**476**	0	819	103	**922**	**1398**	**1491**
17:00 18:00	0	0	0	**0**	81	0	19	**100**	**100**	23	479	0	**502**	0	793	90	**883**	**1385**	**1485**
Sub Total	0	0	0	**0**	732	0	124	**856**	**856**	156	4113	0	**4269**	0	4140	565	**4705**	**8974**	**9830**
U Turns	0			**0**	0			**0**	**0**	**0**			**0**	3			**3**	**3**	**3**
Total	0	0	0	**0**	732	0	124	**856**	**856**	156	4113	0	**4269**	3	4140	565	**4708**	**8977**	**9833**
EQ 12Hr	0	0	0	**0**	1017	0	172	**1189**	**1189**	217	5717	0	**5934**	4	5755	785	**6544**	**12478**	**13667**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	0	0	**0**	915	0	155	**1070**	**1070**	195	5145	0	**5340**	4	5180	706	**5890**	**11230**	**12300**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	0	0	0	**0**	1199	0	203	**1402**	**1402**	255	6740	0	**6995**	5	6786	925	**7716**	**14711**	**16113**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

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

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study 15 Minute Increments

		NEW ORCHARD AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	0	17	0	0	17	**17**	4	103	0	107	0	32	4	36	**143**	**160**
07:15	07:30	0	0	0	0	18	0	1	19	**19**	4	128	0	132	0	59	7	66	**198**	**217**
07:30	07:45	0	0	0	0	26	0	1	27	**27**	7	157	0	164	0	42	8	50	**214**	**241**
07:45	08:00	0	0	0	0	32	0	3	35	**35**	3	171	0	174	0	58	11	69	**243**	**278**
08:00	08:15	0	0	0	0	21	0	4	25	**25**	5	177	0	182	0	68	9	77	**259**	**284**
08:15	08:30	0	0	0	0	22	0	6	28	**28**	1	161	0	162	0	82	8	90	**252**	**280**
08:30	08:45	0	0	0	0	25	0	4	29	**29**	2	177	0	179	1	90	12	103	**282**	**311**
08:45	09:00	0	0	0	0	36	0	1	37	**37**	5	191	0	196	0	87	14	101	**297**	**334**
09:00	09:15	0	0	0	0	36	0	3	39	**39**	5	146	0	151	0	88	10	98	**249**	**288**
09:15	09:30	0	0	0	0	26	0	1	27	**27**	5	110	0	115	0	87	11	98	**213**	**240**
09:30	09:45	0	0	0	0	21	0	5	26	**26**	4	113	0	117	0	89	15	104	**221**	**247**
09:45	10:00	0	0	0	0	27	0	2	29	**29**	5	124	0	129	0	86	13	99	**228**	**257**
11:30	11:45	0	0	0	0	22	0	4	26	**26**	7	132	0	139	1	116	14	131	**270**	**296**
11:45	12:00	0	0	0	0	19	0	5	24	**24**	5	135	0	140	0	109	24	133	**273**	**297**
12:00	12:15	0	0	0	0	32	0	5	37	**37**	7	115	0	122	0	112	20	132	**254**	**291**
12:15	12:30	0	0	0	0	21	0	8	29	**29**	4	116	0	120	0	138	21	159	**279**	**308**
12:30	12:45	0	0	0	0	21	0	4	25	**25**	13	123	0	136	0	130	29	159	**295**	**320**
12:45	13:00	0	0	0	0	19	0	4	23	**23**	3	124	0	127	0	126	13	139	**266**	**289**
13:00	13:15	0	0	0	0	20	0	2	22	**22**	5	131	0	136	1	129	18	148	**284**	**306**
13:15	13:30	0	0	0	0	22	0	4	26	**26**	2	110	0	112	0	104	16	120	**232**	**258**
15:00	15:15	0	0	0	0	26	0	8	34	**34**	3	95	0	98	0	125	27	152	**250**	**284**
15:15	15:30	0	0	0	0	27	0	3	30	**30**	7	114	0	121	0	155	21	176	**297**	**327**
15:30	15:45	0	0	0	0	17	0	5	22	**22**	6	109	0	115	0	191	26	217	**332**	**354**
15:45	16:00	0	0	0	0	25	0	2	27	**27**	4	113	0	117	0	225	21	246	**363**	**390**
16:00	16:15	0	0	0	0	19	0	10	29	**29**	4	109	0	113	0	188	23	211	**324**	**353**
16:15	16:30	0	0	0	0	19	0	5	24	**24**	3	118	0	121	0	213	26	239	**360**	**384**
16:30	16:45	0	0	0	0	22	0	2	24	**24**	5	120	0	125	0	200	27	227	**352**	**376**
16:45	17:00	0	0	0	0	13	0	3	16	**16**	5	112	0	117	0	218	27	245	**362**	**378**
17:00	17:15	0	0	0	0	22	0	6	28	**28**	9	127	0	136	0	222	37	259	**395**	**423**
17:15	17:30	0	0	0	0	22	0	4	26	**26**	4	121	0	125	0	197	20	217	**342**	**368**
17:30	17:45	0	0	0	0	18	0	4	22	**22**	4	108	0	112	0	207	21	228	**340**	**362**
17:45	18:00	0	0	0	0	19	0	5	24	**24**	6	123	0	129	0	167	12	179	**308**	**332**
Total:		0	0	0	0	732	0	124	856	**856**	156	4113	0	4269	3	4140	565	4708	**856**	**9,833**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study Cyclist Volume

Time Period		NEW ORCHARD AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	1	1	**2**	**2**
07:15	07:30	0	0	**0**	2	3	**5**	**5**
07:30	07:45	0	0	**0**	2	2	**4**	**4**
07:45	08:00	0	0	**0**	2	3	**5**	**5**
08:00	08:15	0	2	**2**	3	2	**5**	**7**
08:15	08:30	0	0	**0**	3	4	**7**	**7**
08:30	08:45	0	0	**0**	3	1	**4**	**4**
08:45	09:00	0	0	**0**	4	1	**5**	**5**
09:00	09:15	0	0	**0**	2	1	**3**	**3**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	1	**1**	1	0	**1**	**2**
09:45	10:00	0	0	**0**	2	0	**2**	**2**
11:30	11:45	0	0	**0**	0	1	**1**	**1**
11:45	12:00	0	0	**0**	2	0	**2**	**2**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	1	**1**	0	1	**1**	**2**
12:30	12:45	0	0	**0**	2	0	**2**	**2**
12:45	13:00	0	1	**1**	5	0	**5**	**6**
13:00	13:15	0	0	**0**	1	0	**1**	**1**
13:15	13:30	0	1	**1**	0	0	**0**	**1**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	1	**1**	0	0	**0**	**1**
15:30	15:45	0	1	**1**	0	0	**0**	**1**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	2	**2**	**2**
16:15	16:30	0	0	**0**	0	1	**1**	**1**
16:30	16:45	0	0	**0**	0	1	**1**	**1**
16:45	17:00	0	1	**1**	0	1	**1**	**2**
17:00	17:15	0	1	**1**	2	2	**4**	**5**
17:15	17:30	0	3	**3**	2	2	**4**	**7**
17:30	17:45	0	0	**0**	0	3	**3**	**3**
17:45	18:00	0	3	**3**	1	2	**3**	**6**
Total		0	16	**16**	40	34	**74**	**90**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study Pedestrian Volume

	NEW ORCHARD AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	0	2	**2**	2	0	**2**	**4**
07:15 07:30	0	1	**1**	0	0	**0**	**1**
07:30 07:45	0	0	**0**	0	1	**1**	**1**
07:45 08:00	0	1	**1**	0	2	**2**	**3**
08:00 08:15	0	3	**3**	2	1	**3**	**6**
08:15 08:30	0	3	**3**	2	2	**4**	**7**
08:30 08:45	0	4	**4**	1	0	**1**	**5**
08:45 09:00	0	3	**3**	3	2	**5**	**8**
09:00 09:15	0	3	**3**	2	0	**2**	**5**
09:15 09:30	0	6	**6**	4	4	**8**	**14**
09:30 09:45	0	4	**4**	1	2	**3**	**7**
09:45 10:00	0	1	**1**	3	2	**5**	**6**
11:30 11:45	0	1	**1**	0	3	**3**	**4**
11:45 12:00	0	5	**5**	1	4	**5**	**10**
12:00 12:15	0	7	**7**	0	2	**2**	**9**
12:15 12:30	0	4	**4**	2	1	**3**	**7**
12:30 12:45	0	3	**3**	4	1	**5**	**8**
12:45 13:00	0	3	**3**	2	0	**2**	**5**
13:00 13:15	0	5	**5**	4	2	**6**	**11**
13:15 13:30	0	4	**4**	3	5	**8**	**12**
15:00 15:15	0	5	**5**	1	1	**2**	**7**
15:15 15:30	0	11	**11**	8	7	**15**	**26**
15:30 15:45	0	7	**7**	1	3	**4**	**11**
15:45 16:00	0	0	**0**	2	3	**5**	**5**
16:00 16:15	0	2	**2**	0	5	**5**	**7**
16:15 16:30	0	2	**2**	1	3	**4**	**6**
16:30 16:45	0	1	**1**	2	1	**3**	**4**
16:45 17:00	0	3	**3**	0	2	**2**	**5**
17:00 17:15	0	1	**1**	2	1	**3**	**4**
17:15 17:30	0	4	**4**	1	5	**6**	**10**
17:30 17:45	0	1	**1**	1	0	**1**	**2**
17:45 18:00	0	2	**2**	1	1	**2**	**4**
Total	0	102	**102**	56	66	**122**	**224**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study Heavy Vehicles

		NEW ORCHARD AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	0	0	**0**	**5**	**5**
07:15	07:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	4	0	**4**	**9**	**9**
08:00	08:15	0	0	0	**0**	1	0	0	**1**	**1**	1	3	0	**4**	0	5	0	**5**	**9**	**10**
08:15	08:30	0	0	0	**0**	0	0	1	**1**	**1**	0	3	0	**3**	0	3	0	**3**	**6**	**7**
08:30	08:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	2	0	**2**	**6**	**6**
08:45	09:00	0	0	0	**0**	1	0	0	**1**	**1**	0	4	0	**4**	0	4	2	**6**	**10**	**11**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	2	0	**2**	**6**	**6**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	3	1	**4**	**7**	**7**
09:30	09:45	0	0	0	**0**	1	0	0	**1**	**1**	0	4	0	**4**	0	3	1	**4**	**8**	**9**
09:45	10:00	0	0	0	**0**	2	0	0	**2**	**2**	0	3	0	**3**	0	3	2	**5**	**8**	**10**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	9	0	**9**	**16**	**16**
11:45	12:00	0	0	0	**0**	0	0	1	**1**	**1**	0	6	0	**6**	0	3	3	**6**	**12**	**13**
12:00	12:15	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	6	0	**6**	**12**	**12**
12:15	12:30	0	0	0	**0**	2	0	1	**3**	**3**	1	1	0	**2**	0	4	0	**4**	**6**	**9**
12:30	12:45	0	0	0	**0**	0	0	0	**0**	**0**	1	2	0	**3**	0	2	1	**3**	**6**	**6**
12:45	13:00	0	0	0	**0**	1	0	0	**1**	**1**	0	4	0	**4**	0	6	1	**7**	**11**	**12**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	3	0	**3**	**9**	**9**
13:15	13:30	0	0	0	**0**	1	0	0	**1**	**1**	0	3	0	**3**	0	3	0	**3**	**6**	**7**
15:00	15:15	0	0	0	**0**	1	0	0	**1**	**1**	0	5	0	**5**	0	4	0	**4**	**9**	**10**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	5	0	**5**	**10**	**10**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	4	0	**4**	**7**	**7**
15:45	16:00	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
16:15	16:30	0	0	0	**0**	2	0	0	**2**	**2**	0	5	0	**5**	0	1	0	**1**	**6**	**8**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	4	2	**6**	**8**	**8**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	1	4	0	**5**	0	4	0	**4**	**9**	**9**
17:15	17:30	0	0	0	**0**	1	0	0	**1**	**1**	0	2	0	**2**	0	2	1	**3**	**5**	**6**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	1	1	**2**	**4**	**4**
Total:	None	0	0	0	**0**	13	0	3	**16**	**16**	4	113	0	**117**	0	102	15	**117**	**234**	**250**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

NEW ORCHARD AVE @ RICHMOND RD

Survey Date: Thursday, August 25, 2016 **WO No:** 36256

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

Full Study 15 Minute U-Turn Total

		NEW ORCHARD AVE		RICHMOND RD		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	1	**1**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	1	**1**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	1	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		0	0	0	3	**3**

Transportation Services - Traffic Services

W.O. 36566

Turning Movement Count - 15 Minute Summary Report

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

		WOODROFFE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	16	44	18	**78**	5	81	10	**96**	**174**	24	106	36	**166**	11	32	4	**47**	**213**	**387**
07:15	07:30	18	48	15	**81**	7	86	18	**111**	**192**	29	132	35	**196**	11	33	3	**47**	**243**	**435**
07:30	07:45	25	65	22	**112**	11	92	12	**115**	**227**	36	154	54	**244**	11	22	2	**35**	**279**	**506**
07:45	08:00	33	75	20	**128**	5	90	17	**112**	**240**	37	175	50	**262**	17	42	5	**64**	**326**	**566**
08:00	08:15	26	67	20	**113**	11	69	14	**94**	**207**	39	188	56	**283**	17	56	4	**77**	**360**	**567**
08:15	08:30	32	49	28	**109**	15	83	8	**106**	**215**	37	189	55	**281**	10	73	7	**90**	**371**	**586**
08:30	08:45	26	66	24	**116**	8	87	22	**117**	**233**	39	187	55	**281**	18	58	4	**80**	**361**	**594**
08:45	09:00	25	67	24	**116**	7	66	19	**92**	**208**	30	189	43	**262**	18	54	5	**77**	**339**	**547**
09:00	09:15	33	57	26	**116**	5	67	11	**83**	**199**	29	132	49	**210**	22	70	7	**99**	**309**	**508**
09:15	09:30	27	42	12	**81**	4	48	9	**61**	**142**	19	99	46	**164**	21	49	2	**72**	**236**	**378**
09:30	09:45	45	54	22	**121**	2	56	12	**70**	**191**	18	88	63	**169**	22	59	2	**83**	**252**	**443**
09:45	10:00	46	44	21	**111**	2	47	9	**58**	**169**	22	81	73	**176**	26	66	2	**94**	**270**	**439**
11:30	11:45	35	43	34	**112**	4	42	11	**57**	**169**	17	72	49	**138**	25	69	6	**100**	**238**	**407**
11:45	12:00	45	65	26	**136**	4	60	12	**76**	**212**	24	82	60	**166**	36	48	4	**88**	**254**	**466**
12:00	12:15	62	46	25	**133**	7	54	11	**72**	**205**	16	78	61	**155**	27	87	6	**120**	**275**	**480**
12:15	12:30	48	58	24	**130**	4	51	6	**61**	**191**	19	77	75	**171**	26	89	9	**124**	**295**	**486**
12:30	12:45	53	58	29	**140**	5	59	16	**80**	**220**	22	69	57	**148**	29	80	2	**111**	**259**	**479**
12:45	13:00	50	63	27	**140**	4	46	9	**59**	**199**	16	71	61	**148**	32	77	9	**118**	**266**	**465**
13:00	13:15	53	57	20	**130**	3	49	9	**61**	**191**	22	73	60	**155**	38	81	7	**126**	**281**	**472**
13:15	13:30	45	64	25	**134**	6	49	10	**65**	**199**	20	68	62	**150**	29	80	6	**115**	**265**	**464**
15:00	15:15	59	92	17	**168**	8	77	11	**96**	**264**	31	88	47	**166**	34	90	7	**131**	**297**	**561**
15:15	15:30	53	91	15	**159**	10	93	20	**123**	**282**	22	65	36	**123**	40	117	3	**160**	**283**	**565**
15:30	15:45	59	115	34	**208**	9	88	21	**118**	**326**	16	67	53	**136**	36	150	16	**202**	**338**	**664**
15:45	16:00	59	81	24	**164**	7	88	18	**113**	**277**	13	74	42	**129**	43	176	11	**230**	**359**	**636**
16:00	16:15	57	95	24	**176**	5	102	13	**120**	**296**	19	71	43	**133**	52	163	14	**229**	**362**	**658**
16:15	16:30	46	100	15	**161**	8	90	17	**115**	**276**	14	84	44	**142**	53	156	10	**219**	**361**	**637**
16:30	16:45	70	96	22	**188**	3	73	17	**93**	**281**	29	86	46	**161**	64	161	4	**230**	**391**	**672**
16:45	17:00	59	111	27	**197**	9	75	15	**99**	**296**	21	81	42	**144**	48	147	3	**198**	**342**	**638**
17:00	17:15	49	80	24	**153**	5	81	15	**101**	**254**	18	90	49	**157**	49	160	5	**214**	**371**	**625**
17:15	17:30	57	100	28	**185**	11	94	22	**127**	**312**	9	93	38	**140**	51	147	9	**207**	**347**	**659**
17:30	17:45	62	68	18	**148**	9	86	17	**112**	**260**	21	73	41	**135**	47	158	2	**207**	**342**	**602**
17:45	18:00	71	76	27	**174**	7	95	22	**124**	**298**	30	88	35	**153**	34	139	6	**179**	**332**	**630**
TOTAL:		1444	2237	737	**4418**	210	2324	453	**2987**	**7405**	758	3270	1616	**5644**	997	2989	186	**4173**	**9817**	**17222**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36566

RICHMOND RD @ WOODROFFE AVE

Count Date: Thursday, December 01, 2016 **Start Time:** 07:00

	WOODROFFE AVE			RICHMOND RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	1	**1**	1	2	**3**	**4**
08:00 09:00	2	1	**3**	1	1	**2**	**5**
09:00 10:00	0	0	**0**	3	0	**3**	**3**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	1	0	**1**	1	0	**1**	**2**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	1	**1**	0	1	**1**	**2**
17:00 18:00	0	2	**2**	0	2	**2**	**4**
Total	3	5	**8**	6	6	**12**	**20**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

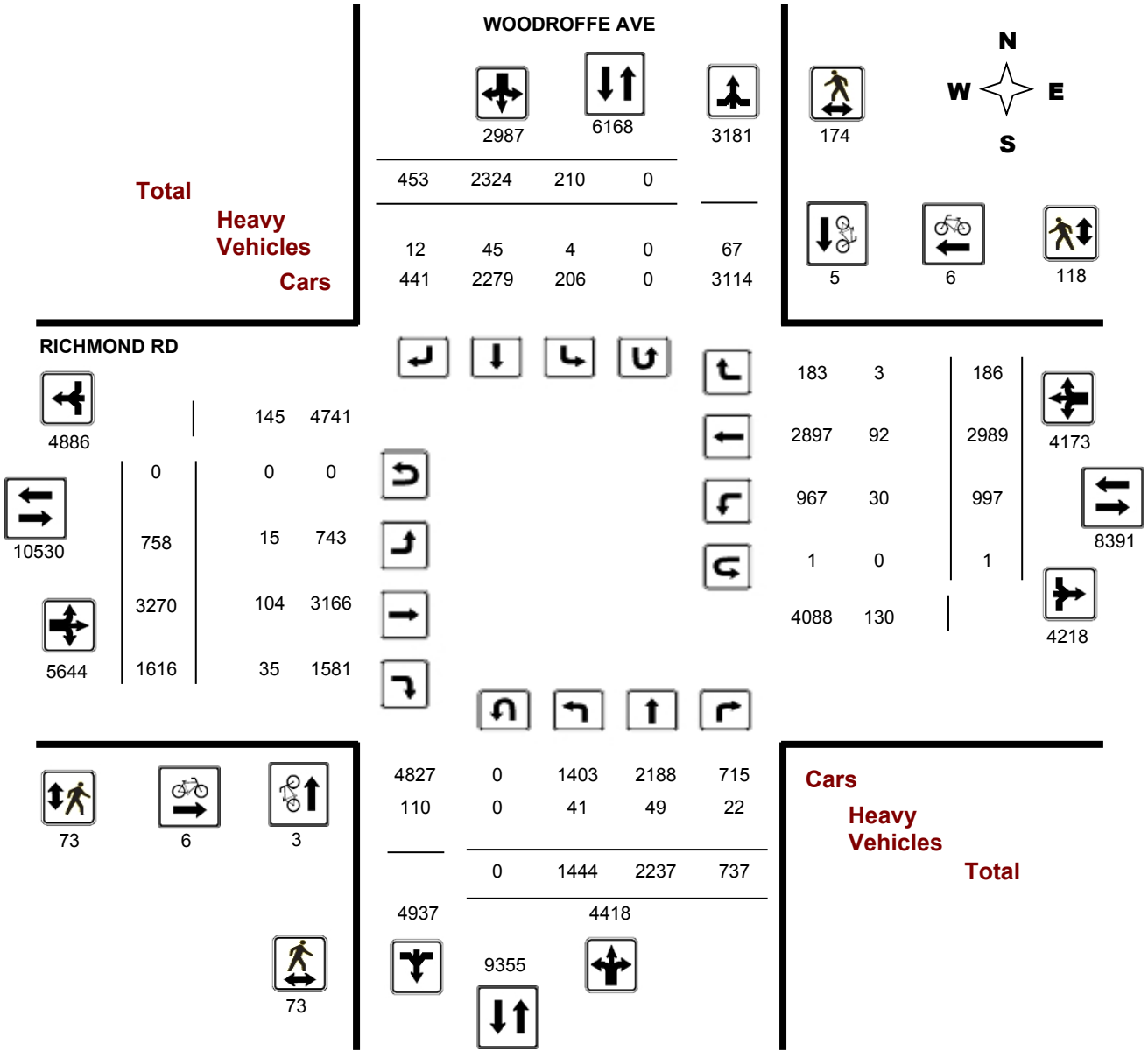
Turning Movement Count - Full Study Diagram

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016

WO#: 36566

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36566

Turning Movement Count - Heavy Vehicle Report

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016

		WOODROFFE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	08:00	7	6	4	**17**	2	6	0	**8**	**25**	3	25	1	**29**	0	7	0	**7**	**36**	**61**
08:00	09:00	5	5	4	**14**	0	6	1	**7**	**21**	4	28	9	**41**	6	17	1	**24**	**65**	**86**
09:00	10:00	7	8	7	**22**	1	3	2	**6**	**28**	1	14	3	**18**	8	11	1	**20**	**38**	**66**
11:30	12:30	2	8	4	**14**	0	3	2	**5**	**19**	3	6	2	**11**	3	7	1	**11**	**22**	**41**
12:30	13:30	7	6	1	**14**	0	7	3	**10**	**24**	1	8	6	**15**	9	16	0	**25**	**40**	**64**
15:00	16:00	3	7	1	**11**	0	6	4	**10**	**21**	0	9	7	**16**	0	9	0	**9**	**25**	**46**
16:00	17:00	7	6	1	**14**	1	7	0	**8**	**22**	2	8	4	**14**	1	16	0	**17**	**31**	**53**
17:00	18:00	3	3	0	**6**	0	7	0	**7**	**13**	1	6	3	**10**	3	9	0	**12**	**22**	**35**
Sub Total		41	49	22	**112**	4	45	12	**61**	**173**	15	104	35	**154**	30	92	3	**125**	**279**	**452**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		41	49	22	**0**	4	45	12	**61**	**173**	15	104	35	**154**	30	92	3	**125**	**279**	**452**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
36566

Turning Movement Count - Pedestrian Volume Report

RICHMOND RD @ WOODROFFE AVE

Count Date: Thursday, December 01, 2016 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	1	2	**3**	1	1	**2**	**5**
07:15 07:30	0	5	**5**	0	4	**4**	**9**
07:30 07:45	2	8	**10**	1	12	**13**	**23**
07:45 08:00	3	10	**13**	1	11	**12**	**25**
07:00 08:00	6	25	**31**	3	28	**31**	**62**
08:00 08:15	3	4	**7**	3	5	**8**	**15**
08:15 08:30	0	12	**12**	3	2	**5**	**17**
08:30 08:45	1	8	**9**	4	6	**10**	**19**
08:45 09:00	6	6	**12**	4	3	**7**	**19**
08:00 09:00	10	30	**40**	14	16	**30**	**70**
09:00 09:15	0	8	**8**	1	2	**3**	**11**
09:15 09:30	5	1	**6**	2	2	**4**	**10**
09:30 09:45	2	4	**6**	1	2	**3**	**9**
09:45 10:00	1	4	**5**	4	8	**12**	**17**
09:00 10:00	8	17	**25**	8	14	**22**	**47**
11:30 11:45	2	2	**4**	2	2	**4**	**8**
11:45 12:00	2	4	**6**	3	6	**9**	**15**
12:00 12:15	1	10	**11**	1	3	**4**	**15**
12:15 12:30	1	6	**7**	1	3	**4**	**11**
11:30 12:30	6	22	**28**	7	14	**21**	**49**
12:30 12:45	2	7	**9**	6	1	**7**	**16**
12:45 13:00	2	1	**3**	2	1	**3**	**6**
13:00 13:15	3	3	**6**	0	1	**1**	**7**
13:15 13:30	1	5	**6**	2	2	**4**	**10**
12:30 13:30	8	16	**24**	10	5	**15**	**39**
15:00 15:15	0	5	**5**	3	0	**3**	**8**
15:15 15:30	1	2	**3**	2	1	**3**	**6**
15:30 15:45	1	4	**5**	5	2	**7**	**12**
15:45 16:00	1	3	**4**	1	3	**4**	**8**
15:00 16:00	3	14	**17**	11	6	**17**	**34**
16:00 16:15	2	11	**13**	2	7	**9**	**22**
16:15 16:30	4	1	**5**	2	2	**4**	**9**
16:30 16:45	6	4	**10**	4	6	**10**	**20**
16:45 17:00	4	3	**7**	2	6	**8**	**15**
16:00 17:00	16	19	**35**	10	21	**31**	**66**
17:00 17:15	3	9	**12**	3	3	**6**	**18**
17:15 17:30	2	1	**3**	0	1	**1**	**4**
17:30 17:45	5	14	**19**	3	5	**8**	**27**
17:45 18:00	6	7	**13**	4	5	**9**	**22**
17:00 18:00	16	31	**47**	10	14	**24**	**71**
Total	73	174	**247**	73	118	**191**	**438**

Comment:

Transportation Services - Traffic Services

Work Order 36566

Turning Movement Count - Full Study Summary Report

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

AADT Factor 1.00

Full Study

	WOODROFFE AVE									RICHMOND RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	92	232	75	**399**	28	349	57	**434**	**833**	126	567	175	**868**	50	129	14	**193**	**1061**	**1894**
08:00 09:00	109	249	96	**454**	41	305	63	**409**	**863**	145	753	209	**1107**	63	241	20	**324**	**1431**	**2294**
09:00 10:00	151	197	81	**429**	13	218	41	**272**	**701**	88	400	231	**719**	91	244	13	**348**	**1067**	**1768**
11:30 12:30	190	212	109	**511**	19	207	40	**266**	**777**	76	309	245	**630**	114	293	25	**432**	**1062**	**1839**
12:30 13:30	201	242	101	**544**	18	203	44	**265**	**809**	80	281	240	**601**	128	318	24	**470**	**1071**	**1880**
15:00 16:00	230	379	90	**699**	34	346	70	**450**	**1149**	82	294	178	**554**	153	533	37	**723**	**1277**	**2426**
16:00 17:00	232	402	88	**722**	25	340	62	**427**	**1149**	83	322	175	**580**	217	627	31	**875**	**1455**	**2604**
17:00 18:00	239	324	97	**660**	32	356	76	**464**	**1124**	78	344	163	**585**	181	604	22	**807**	**1392**	**2516**
Sub Total	1444	2237	737	**4418**	210	2324	453	**2987**	**7405**	758	3270	1616	**5644**	997	2989	186	**4172**	**9816**	**17221**
U Turns				**0**				**0**	**0**				**0**				**1**	**1**	**1**
Total	1444	2237	737	**4418**	210	2324	453	**2987**	**7405**	758	3270	1616	**5644**	997	2989	186	**4173**	**9817**	**17222**
EQ 12Hr	2007	3109	1024	**6141**	292	3230	630	**4152**	**10293**	1054	4545	2246	**7845**	1386	4155	259	**5800**	**13645**	**23938**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	2007	3109	1024	**6141**	292	3230	630	**4152**	**10293**	1054	4545	2246	**7845**	1386	4155	259	**5800**	**13645**	**23938**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	2629	4073	1342	**8045**	382	4232	825	**5439**	**13484**	1380	5954	2943	**10277**	1815	5443	339	**7599**	**17876**	**31360**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

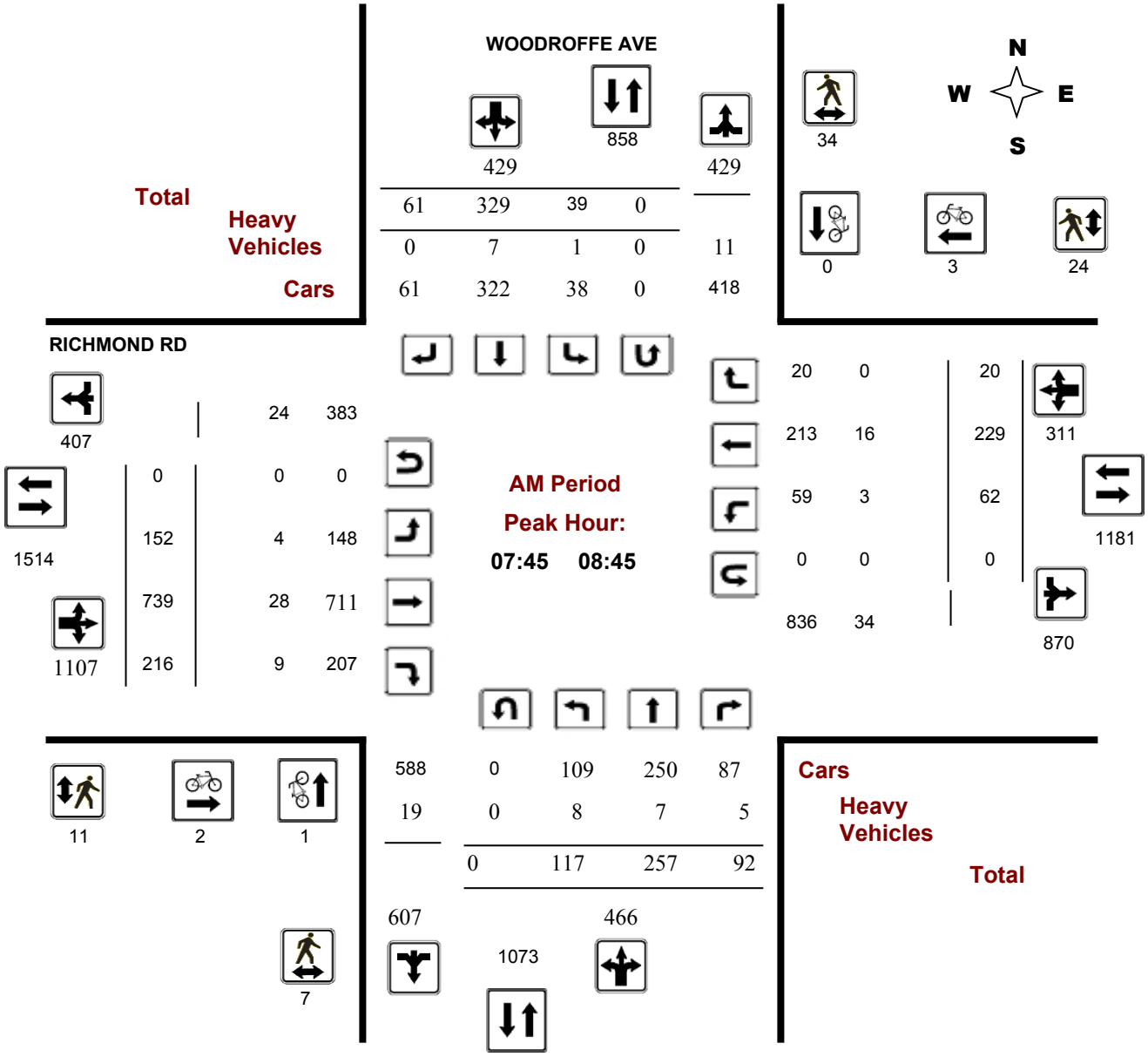
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016 **WO No:** 36566

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



Comments

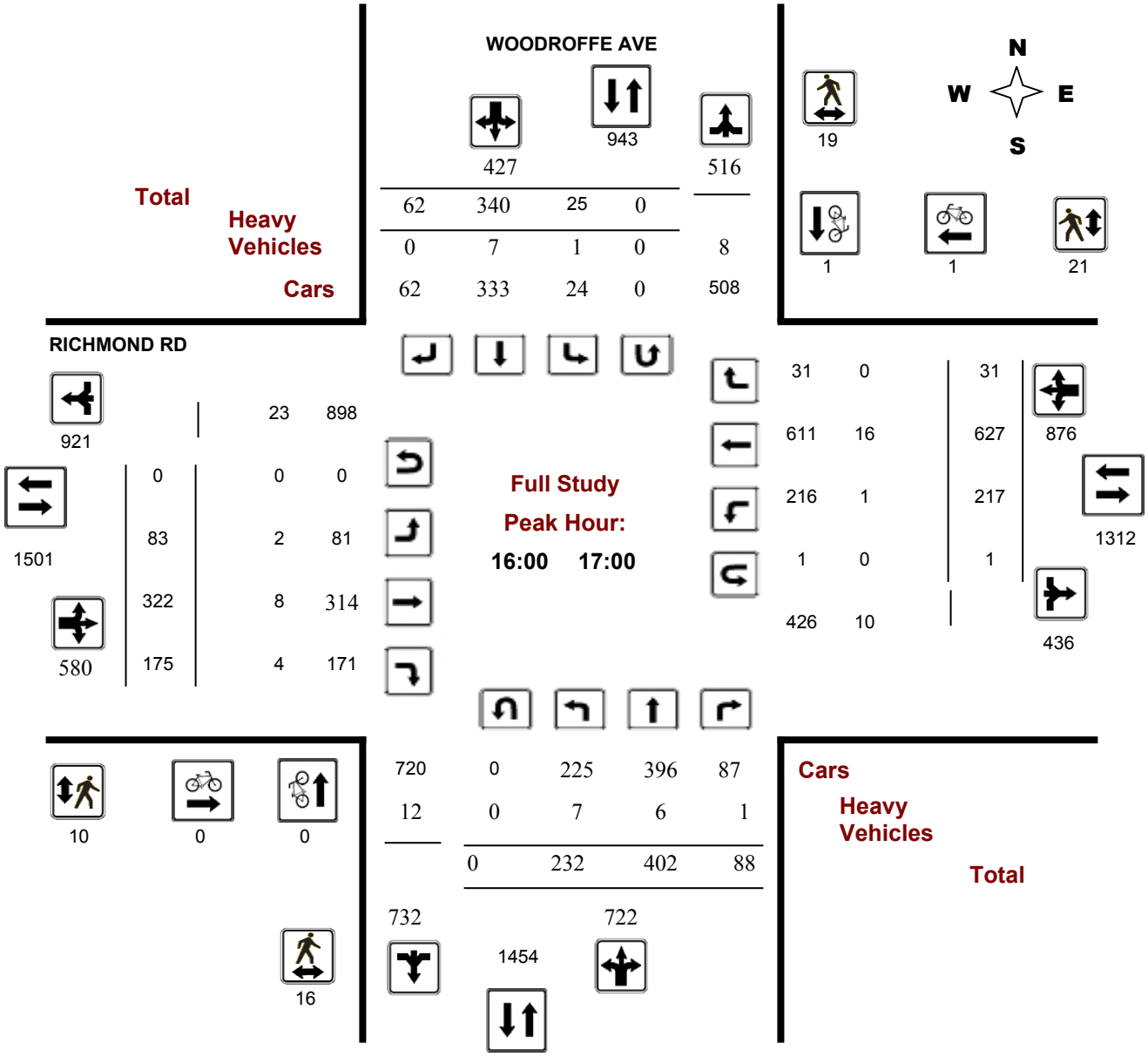
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016 **WO No:** 36566

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



Comments

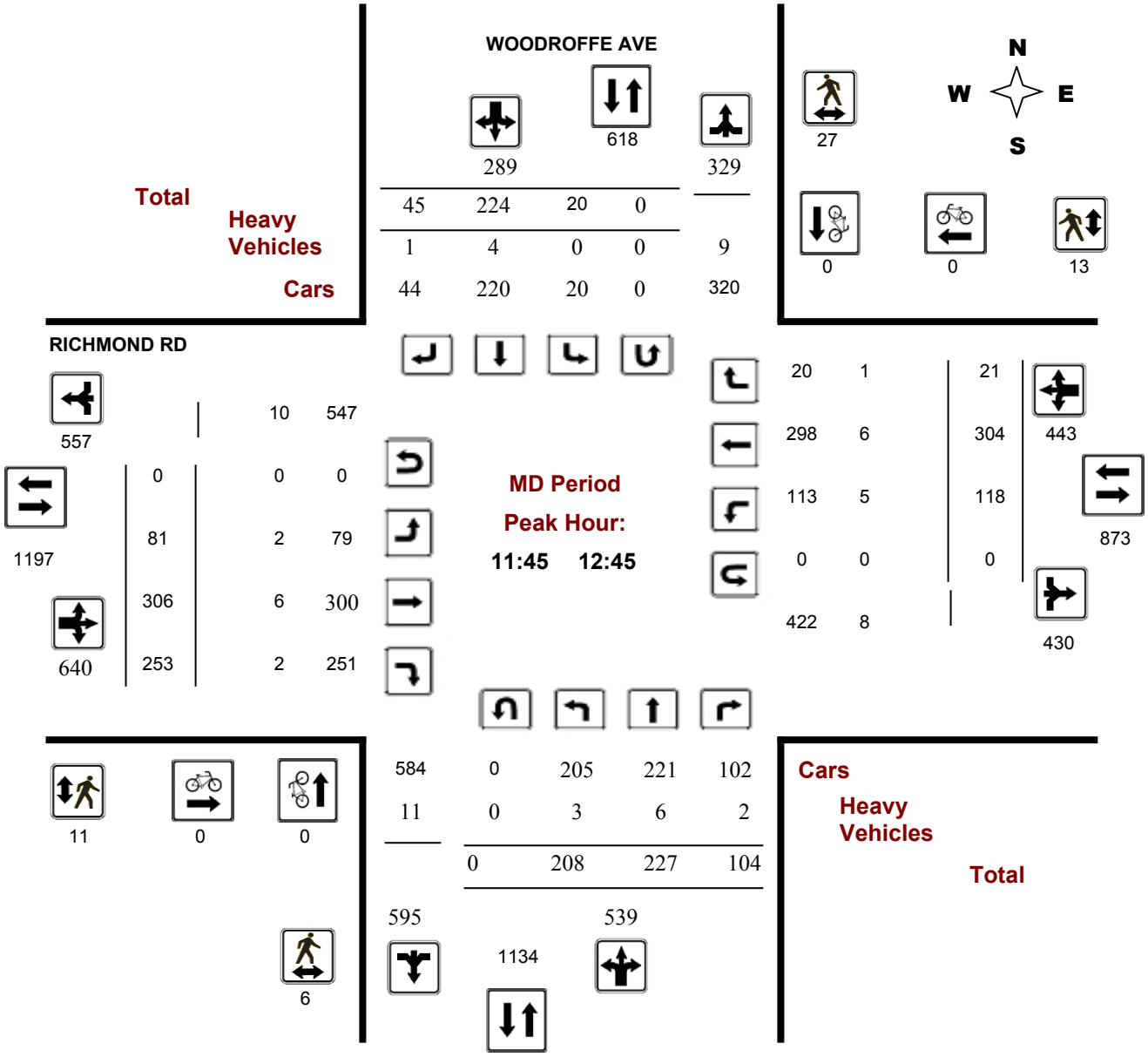
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016 **WO No:** 36566

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



Comments

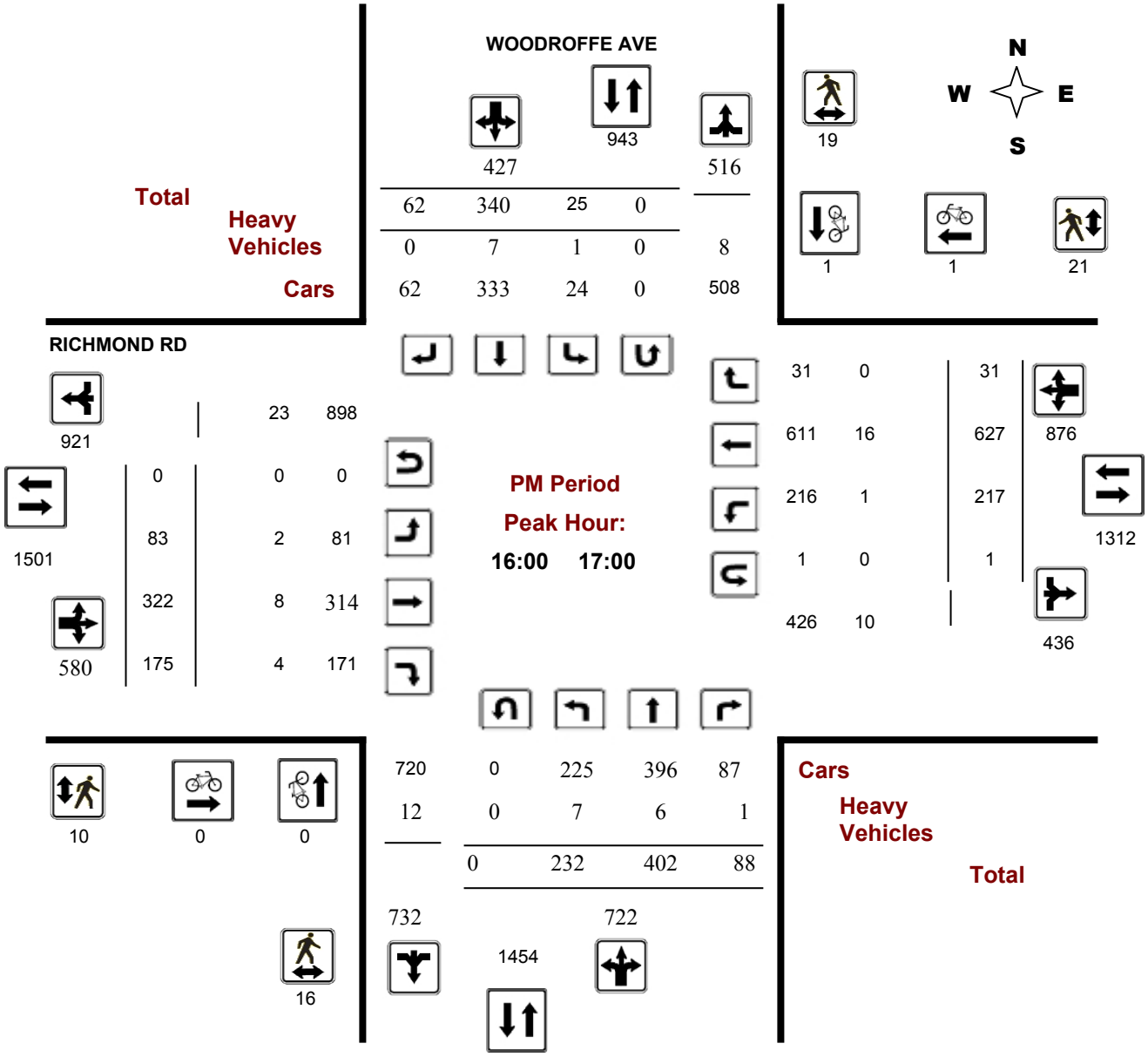
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016 **WO No:** 36566

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



Comments

Transportation Services - Traffic Services

Work Order
36566

Turning Movement Count - 15 Min U-Turn Total Report

RICHMOND RD @ WOODROFFE AVE

Survey Date: Thursday, December 01, 2016

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	1	1
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	1	1

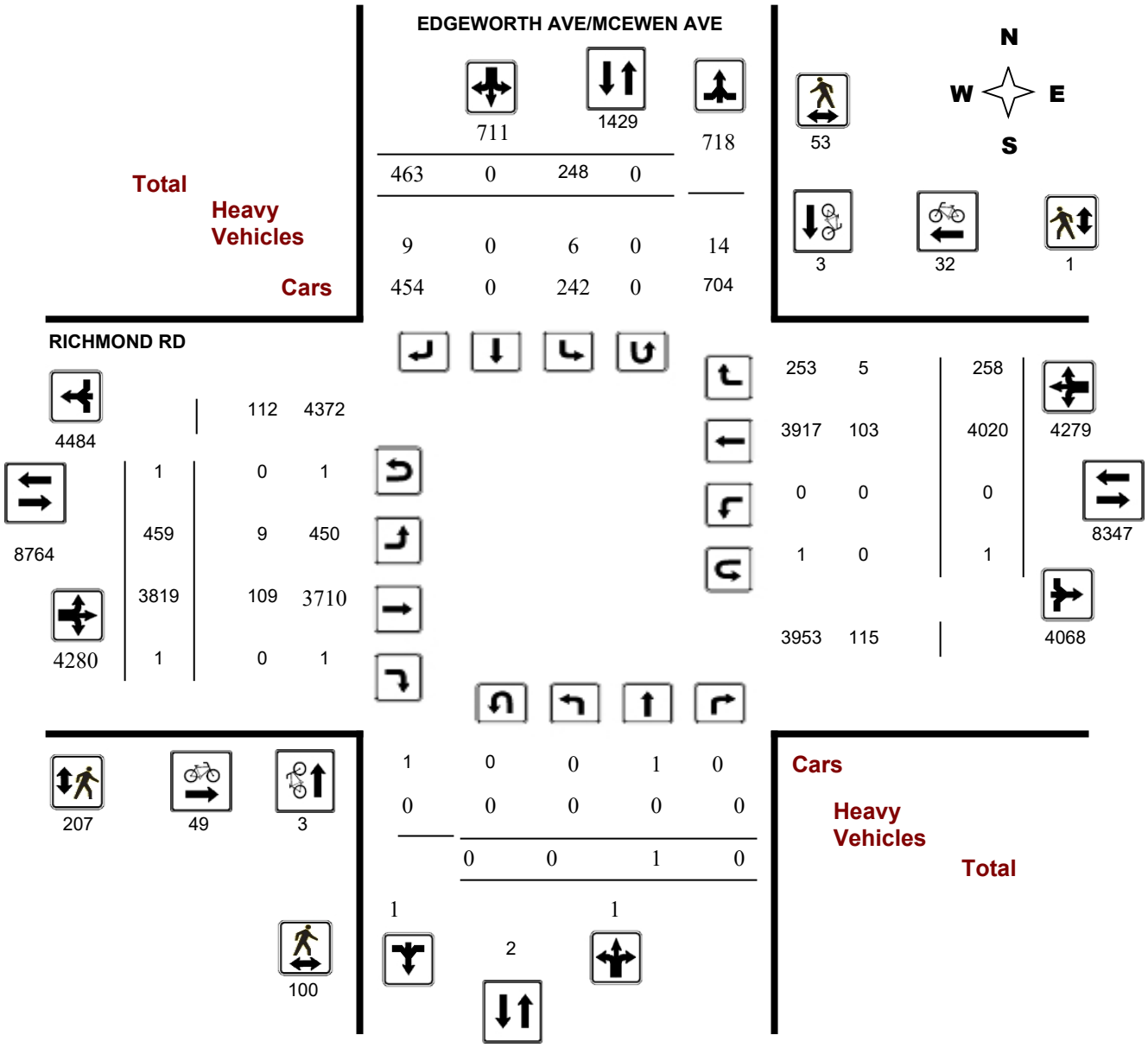
Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016
Start Time: 07:00
WO No: 36242
Device: Miovision

Full Study Diagram



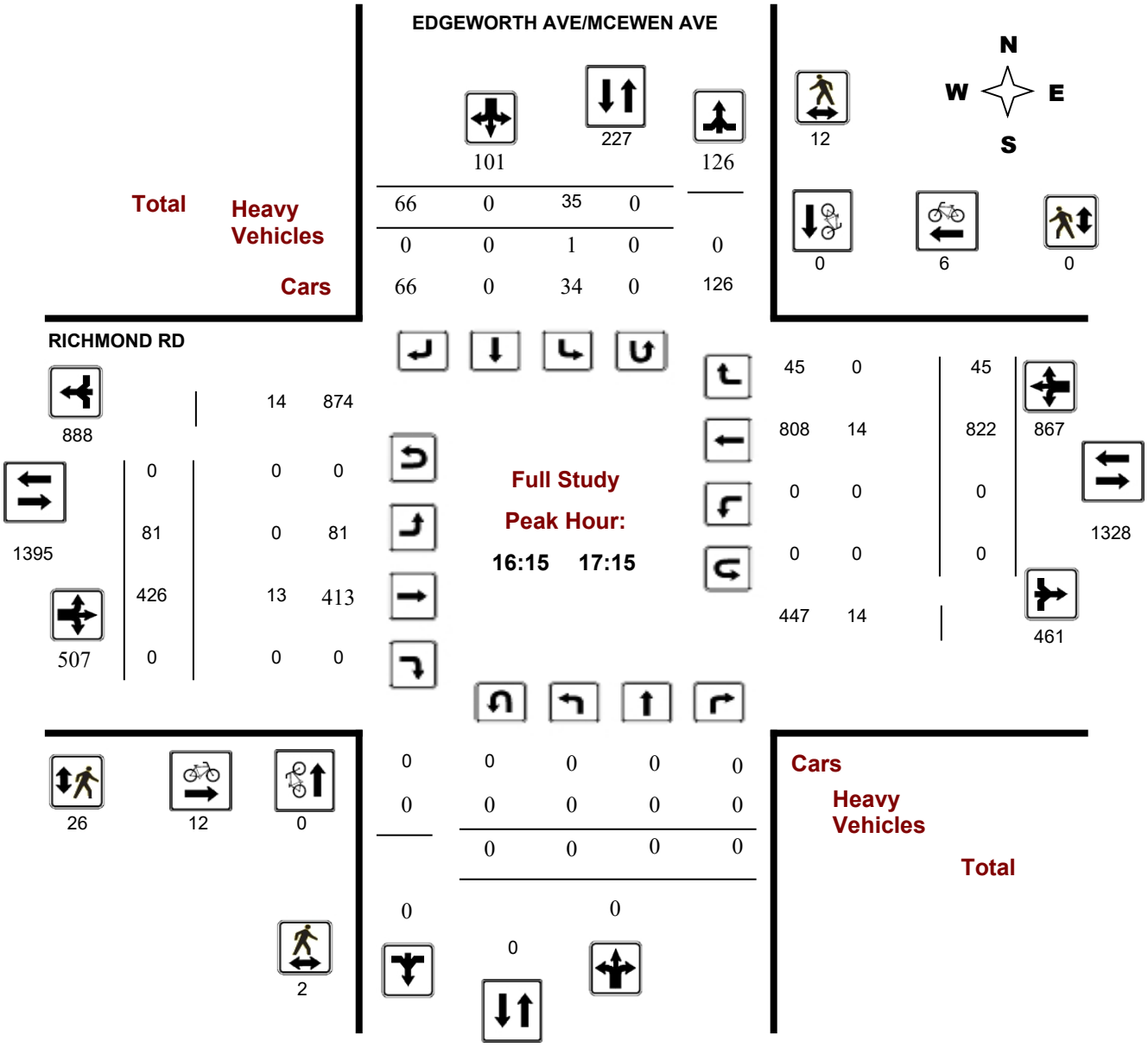
Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016
Start Time: 07:00
WO No: 36242
Device: Miovision

Full Study Peak Hour Diagram



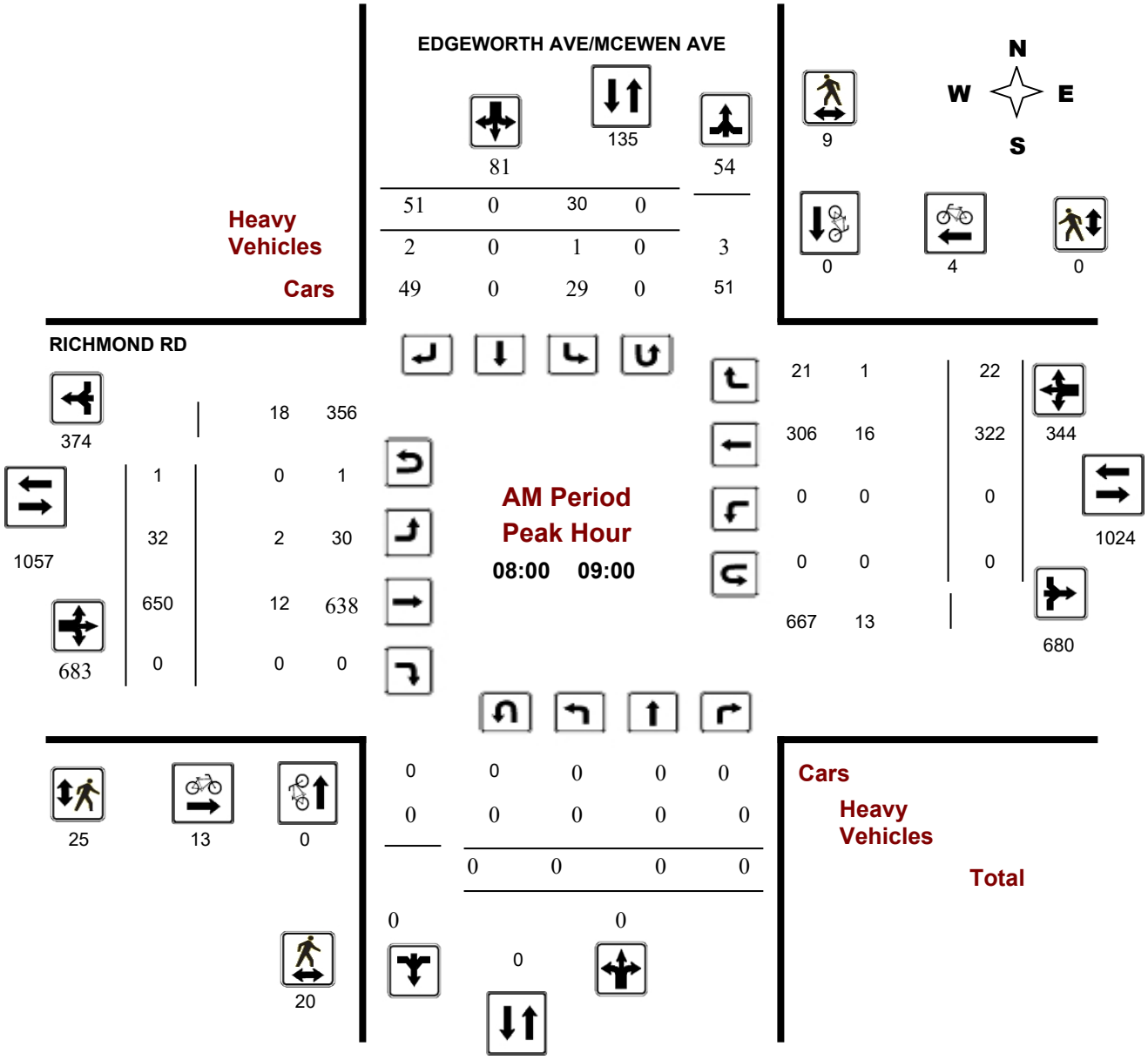
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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



Comments

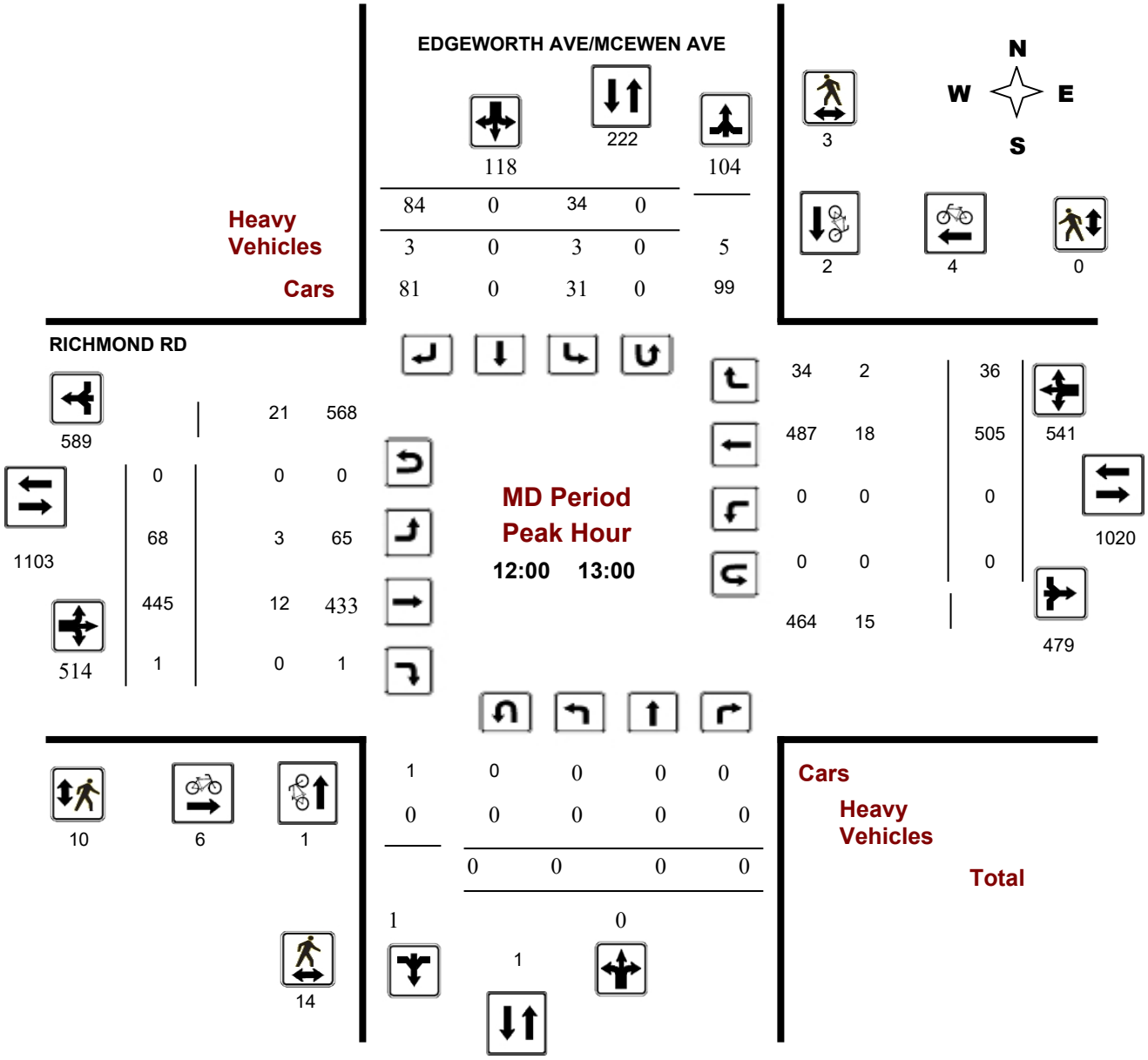
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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



Comments

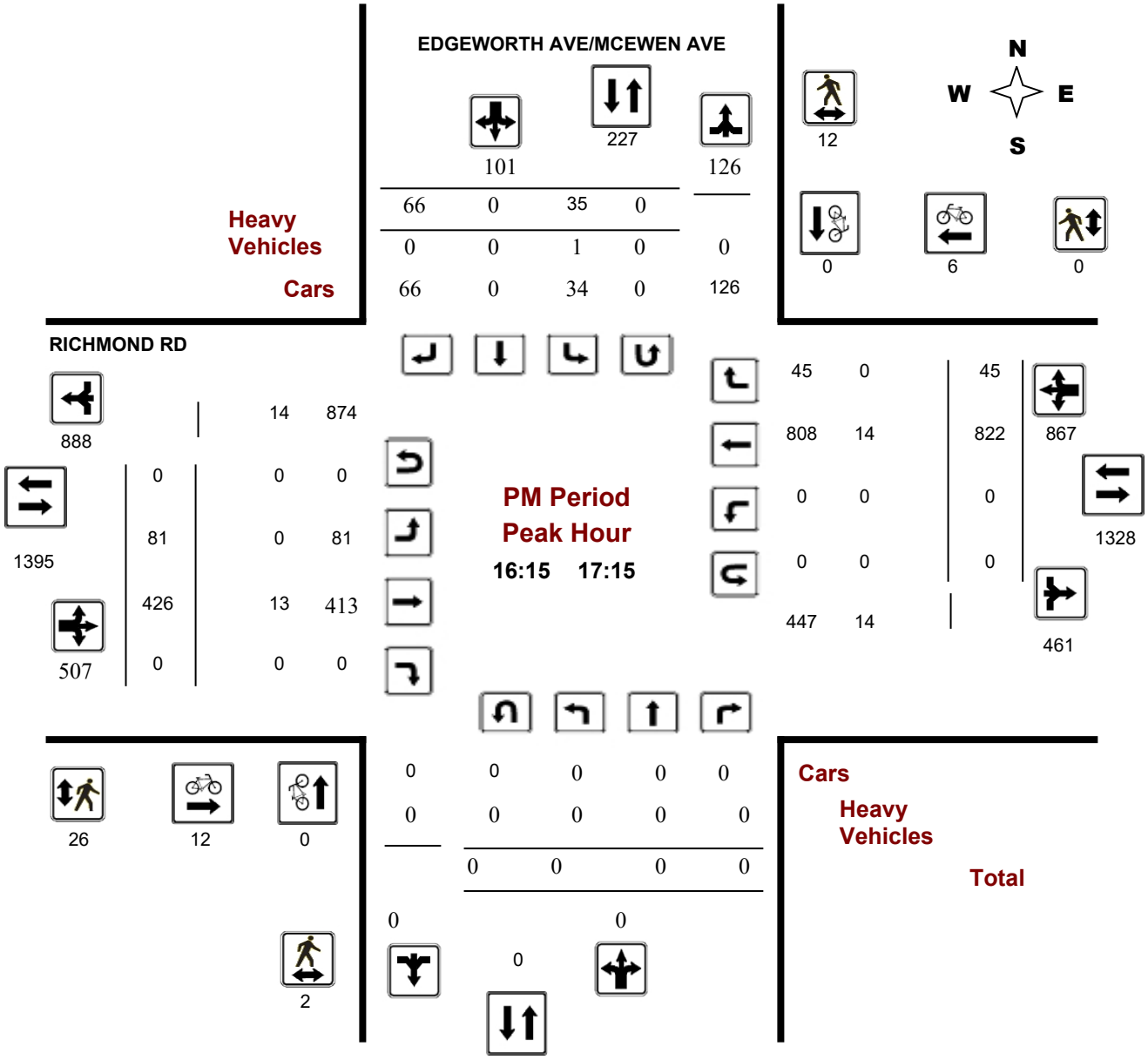
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, August 25, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 1 Westbound: 1

AADT Factor

.90

	EDGEWORTH AVE/MCEWEN AVE									RICHMOND RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	0	0	**0**	24	0	40	**64**	**64**	26	572	0	**598**	0	187	21	**208**	**806**	**870**
08:00 09:00	0	0	0	**0**	30	0	51	**81**	**81**	32	650	0	**682**	0	322	22	**344**	**1026**	**1107**
09:00 10:00	0	0	0	**0**	30	0	59	**89**	**89**	39	428	0	**467**	0	318	28	**346**	**813**	**902**
11:30 12:30	0	0	0	**0**	28	0	71	**99**	**99**	70	460	1	**531**	0	463	36	**499**	**1030**	**1129**
12:30 13:30	0	0	0	**0**	39	0	71	**110**	**110**	70	456	0	**526**	0	461	33	**494**	**1020**	**1130**
15:00 16:00	0	0	0	**0**	31	0	54	**85**	**85**	57	395	0	**452**	0	706	36	**742**	**1194**	**1279**
16:00 17:00	0	0	0	**0**	35	0	60	**95**	**95**	75	404	0	**479**	0	797	39	**836**	**1315**	**1410**
17:00 18:00	0	1	0	**1**	31	0	57	**88**	**89**	90	454	0	**544**	0	766	43	**809**	**1353**	**1442**
Sub Total	0	1	0	**1**	248	0	463	**711**	**712**	459	3819	1	**4279**	0	4020	258	**4278**	**8557**	**9269**
U Turns	0			**0**	0			**0**	**0**	**1**			**1**	1			**1**	**2**	**2**
Total	0	1	0	**1**	248	0	463	**711**	**712**	460	3819	1	**4280**	1	4020	258	**4279**	**8559**	**9271**
EQ 12Hr	0	1	0	**1**	345	0	644	**989**	**990**	639	5308	1	**5948**	1	5588	359	**5948**	**11896**	**12886**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	1	0	**1**	310	0	580	**890**	**891**	575	4777	1	**5353**	1	5029	323	**5353**	**10706**	**11597**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	0	1	0	**1**	406	0	760	**1166**	**1167**	753	6258	1	**7012**	1	6588	423	**7012**	**14024**	**15191**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

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

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study 15 Minute Increments

		EDGEWORTH AVE/MCEWEN AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	0	4	0	7	11	**11**	3	105	0	108	0	34	4	38	**146**	**157**
07:15	07:30	0	0	0	0	3	0	11	14	**14**	4	149	0	153	0	39	10	49	**202**	**216**
07:30	07:45	0	0	0	0	9	0	11	20	**20**	12	165	0	177	0	53	5	58	**235**	**255**
07:45	08:00	0	0	0	0	8	0	11	19	**19**	7	153	0	160	0	61	2	63	**223**	**242**
08:00	08:15	0	0	0	0	5	0	16	21	**21**	11	142	0	153	0	61	9	70	**223**	**244**
08:15	08:30	0	0	0	0	6	0	12	18	**18**	10	163	0	173	0	80	6	86	**259**	**277**
08:30	08:45	0	0	0	0	11	0	9	20	**20**	4	189	0	193	0	84	3	87	**280**	**300**
08:45	09:00	0	0	0	0	8	0	14	22	**22**	8	156	0	164	0	97	4	101	**265**	**287**
09:00	09:15	0	0	0	0	7	0	16	23	**23**	7	121	0	128	0	74	9	83	**211**	**234**
09:15	09:30	0	0	0	0	5	0	14	19	**19**	16	115	0	131	0	82	9	91	**222**	**241**
09:30	09:45	0	0	0	0	12	0	13	25	**25**	8	95	0	103	0	89	5	94	**197**	**222**
09:45	10:00	0	0	0	0	6	0	16	22	**22**	8	97	0	105	0	73	5	78	**183**	**205**
11:30	11:45	0	0	0	0	8	0	16	24	**24**	13	116	0	129	0	106	9	115	**244**	**268**
11:45	12:00	0	0	0	0	5	0	16	21	**21**	21	139	0	160	0	100	8	108	**268**	**289**
12:00	12:15	0	0	0	0	7	0	19	26	**26**	18	96	1	115	0	129	8	137	**252**	**278**
12:15	12:30	0	0	0	0	8	0	20	28	**28**	18	109	0	127	0	128	11	139	**266**	**294**
12:30	12:45	0	0	0	0	8	0	23	31	**31**	16	116	0	132	0	112	7	119	**251**	**282**
12:45	13:00	0	0	0	0	11	0	22	33	**33**	16	124	0	140	0	136	10	146	**286**	**319**
13:00	13:15	0	0	0	0	8	0	11	19	**19**	14	98	0	112	1	105	9	115	**227**	**246**
13:15	13:30	0	0	0	0	12	0	15	27	**27**	24	118	0	142	0	108	7	115	**257**	**284**
15:00	15:15	0	0	0	0	11	0	16	27	**27**	13	83	0	96	0	130	8	138	**234**	**261**
15:15	15:30	0	0	0	0	6	0	16	22	**22**	17	100	0	117	0	168	8	176	**293**	**315**
15:30	15:45	0	0	0	0	6	0	12	18	**18**	10	112	0	122	0	198	5	203	**325**	**343**
15:45	16:00	0	0	0	0	8	0	10	18	**18**	17	100	0	117	0	210	15	225	**342**	**360**
16:00	16:15	0	0	0	0	8	0	9	17	**17**	14	109	0	123	0	186	7	193	**316**	**333**
16:15	16:30	0	0	0	0	8	0	20	28	**28**	23	93	0	116	0	210	16	226	**342**	**370**
16:30	16:45	0	0	0	0	11	0	16	27	**27**	17	101	0	118	0	180	11	191	**309**	**336**
16:45	17:00	0	0	0	0	8	0	15	23	**23**	21	101	0	122	0	221	5	226	**348**	**371**
17:00	17:15	0	0	0	0	8	0	15	23	**23**	20	131	0	151	0	211	13	224	**375**	**398**
17:15	17:30	0	1	0	1	8	0	19	27	**28**	22	104	0	126	0	182	14	196	**322**	**350**
17:30	17:45	0	0	0	0	7	0	10	17	**17**	24	99	0	123	0	202	11	213	**336**	**353**
17:45	18:00	0	0	0	0	8	0	13	21	**21**	24	120	0	144	0	171	5	176	**320**	**341**
Total:		0	1	0	1	248	0	463	711	**712**	460	3819	1	4280	1	4020	258	4279	**712**	**9,271**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study Cyclist Volume

Time Period		EDGEWORTH AVE/MCEWEN AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	2	1	**3**	**3**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	1	1	**2**	**2**
08:00	08:15	0	0	**0**	5	1	**6**	**6**
08:15	08:30	0	0	**0**	2	2	**4**	**4**
08:30	08:45	0	0	**0**	4	1	**5**	**5**
08:45	09:00	0	0	**0**	2	0	**2**	**2**
09:00	09:15	0	0	**0**	1	1	**2**	**2**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	3	0	**3**	**3**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	1	1	**2**	**2**
11:45	12:00	0	0	**0**	1	2	**3**	**3**
12:00	12:15	0	1	**1**	1	2	**3**	**4**
12:15	12:30	0	0	**0**	1	0	**1**	**1**
12:30	12:45	0	0	**0**	1	0	**1**	**1**
12:45	13:00	1	1	**2**	3	2	**5**	**7**
13:00	13:15	0	0	**0**	4	0	**4**	**4**
13:15	13:30	0	0	**0**	0	2	**2**	**2**
15:00	15:15	1	1	**2**	2	0	**2**	**4**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	1	**1**	**1**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	3	**3**	**3**
16:15	16:30	0	0	**0**	2	1	**3**	**3**
16:30	16:45	0	0	**0**	3	2	**5**	**5**
16:45	17:00	0	0	**0**	3	1	**4**	**4**
17:00	17:15	0	0	**0**	4	2	**6**	**6**
17:15	17:30	0	0	**0**	0	1	**1**	**1**
17:30	17:45	1	0	**1**	0	2	**2**	**3**
17:45	18:00	0	0	**0**	3	3	**6**	**6**
Total		3	3	**6**	49	32	**81**	**87**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study Pedestrian Volume

	EDGEWORTH AVE/MCEWEN AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	0	0	**0**	6	0	**6**	**6**
07:15 07:30	0	0	**0**	8	0	**8**	**8**
07:30 07:45	0	0	**0**	7	0	**7**	**7**
07:45 08:00	0	1	**1**	8	0	**8**	**9**
08:00 08:15	6	3	**9**	7	0	**7**	**16**
08:15 08:30	2	1	**3**	2	0	**2**	**5**
08:30 08:45	5	2	**7**	9	0	**9**	**16**
08:45 09:00	7	3	**10**	7	0	**7**	**17**
09:00 09:15	1	2	**3**	6	0	**6**	**9**
09:15 09:30	7	1	**8**	10	0	**10**	**18**
09:30 09:45	5	2	**7**	6	0	**6**	**13**
09:45 10:00	3	0	**3**	5	0	**5**	**8**
11:30 11:45	2	3	**5**	6	0	**6**	**11**
11:45 12:00	5	0	**5**	8	0	**8**	**13**
12:00 12:15	2	0	**2**	1	0	**1**	**3**
12:15 12:30	5	2	**7**	5	0	**5**	**12**
12:30 12:45	3	1	**4**	3	0	**3**	**7**
12:45 13:00	4	0	**4**	1	0	**1**	**5**
13:00 13:15	4	1	**5**	8	0	**8**	**13**
13:15 13:30	3	6	**9**	4	1	**5**	**14**
15:00 15:15	1	0	**1**	3	0	**3**	**4**
15:15 15:30	7	3	**10**	8	0	**8**	**18**
15:30 15:45	2	5	**7**	10	0	**10**	**17**
15:45 16:00	5	1	**6**	6	0	**6**	**12**
16:00 16:15	3	0	**3**	6	0	**6**	**9**
16:15 16:30	1	4	**5**	2	0	**2**	**7**
16:30 16:45	0	2	**2**	3	0	**3**	**5**
16:45 17:00	0	2	**2**	10	0	**10**	**12**
17:00 17:15	1	4	**5**	11	0	**11**	**16**
17:15 17:30	4	1	**5**	10	0	**10**	**15**
17:30 17:45	5	2	**7**	12	0	**12**	**19**
17:45 18:00	7	1	**8**	9	0	**9**	**17**
Total	100	53	**153**	207	1	**208**	**361**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study Heavy Vehicles

EDGEWORTH AVE/MCEWEN AVE **RICHMOND RD**

Time Period		Northbound				Southbound					Eastbound				Westbound					
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	1	0	**1**	**7**	**7**
07:15	07:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	1	0	**1**	**3**	**3**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	5	0	**5**	**10**	**10**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	2	0	**2**	**6**	**6**
08:00	08:15	0	0	0	**0**	0	0	0	**0**	**0**	1	2	0	**3**	0	5	0	**5**	**8**	**8**
08:15	08:30	0	0	0	**0**	1	0	1	**2**	**2**	0	2	0	**2**	0	4	1	**5**	**7**	**9**
08:30	08:45	0	0	0	**0**	0	0	0	**0**	**0**	1	2	0	**3**	0	2	0	**2**	**5**	**5**
08:45	09:00	0	0	0	**0**	0	0	1	**1**	**1**	0	6	0	**6**	0	5	0	**5**	**11**	**12**
09:00	09:15	0	0	0	**0**	0	0	1	**1**	**1**	0	5	0	**5**	0	2	1	**3**	**8**	**9**
09:15	09:30	0	0	0	**0**	0	0	1	**1**	**1**	0	3	0	**3**	0	4	0	**4**	**7**	**8**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	4	0	**4**	**8**	**8**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	1	1	**2**	**4**	**4**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	7	0	**7**	**14**	**14**
11:45	12:00	0	0	0	**0**	0	0	1	**1**	**1**	0	8	0	**8**	0	5	0	**5**	**13**	**14**
12:00	12:15	0	0	0	**0**	0	0	0	**0**	**0**	2	2	0	**4**	0	8	0	**8**	**12**	**12**
12:15	12:30	0	0	0	**0**	0	0	1	**1**	**1**	0	3	0	**3**	0	3	0	**3**	**6**	**7**
12:30	12:45	0	0	0	**0**	0	0	1	**1**	**1**	1	5	0	**6**	0	2	1	**3**	**9**	**10**
12:45	13:00	0	0	0	**0**	3	0	1	**4**	**4**	0	2	0	**2**	0	5	1	**6**	**8**	**12**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	1	7	0	**8**	0	2	0	**2**	**10**	**10**
13:15	13:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
15:00	15:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	3	0	**3**	**5**	**5**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	1	6	0	**7**	0	8	0	**8**	**15**	**15**
15:30	15:45	0	0	0	**0**	1	0	0	**1**	**1**	0	3	0	**3**	0	2	0	**2**	**5**	**6**
15:45	16:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	1	0	**1**	**2**	**2**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	1	1	0	**2**	0	1	0	**1**	**3**	**3**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	3	0	**3**	**6**	**6**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	4	0	**4**	**7**	**7**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	2	0	**2**	**4**	**4**
17:00	17:15	0	0	0	**0**	1	0	0	**1**	**1**	0	5	0	**5**	0	5	0	**5**	**10**	**11**
17:15	17:30	0	0	0	**0**	0	0	1	**1**	**1**	0	0	0	**0**	0	1	0	**1**	**1**	**2**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	2	0	**2**	**4**	**4**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	1	1	0	**2**	0	1	0	**1**	**3**	**3**
Total:	None	0	0	0	**0**	6	0	9	**15**	**15**	9	109	0	**118**	0	103	5	**108**	**226**	**241**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Survey Date: Thursday, August 25, 2016 **WO No:** 36242

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

Full Study 15 Minute U-Turn Total

EDGEWORTH AVE/MCEWEN AVE **RICHMOND RD**

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	1	0	**1**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	1	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		0	0	1	1	**2**

Appendix D:

Collision Data

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	25	6	2	8	1	4	0	1	47	73%
Non-fatal injury	5	3	1	5	0	3	0	0	17	27%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**30**	**9**	**3**	**13**	**1**	**7**	**0**	**1**	**64**	100%
	#1 or 47%	#3 or 14%	#5 or 5%	#2 or 20%	#6 or 2%	#4 or 11%	#8 or 0%	#6 or 2%		

AMBLESIDE DR/NEW ORCHARD AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	2	0	0	0	0	2	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	100%
	0%	0%	0%	100%	0%	0%	0%	0%		

ANCASTER AVE/RICHMOND RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	0%
Non-fatal injury	2	0	0	0	0	0	0	0	2	100%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

NEW ORCHARD AVE/RICHMOND RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	7	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	3	2	0	0	0	0	0	0	5	71%
Non-fatal injury	1	1	0	0	0	0	0	0	2	29%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	100%
	57%	43%	0%	0%	0%	0%	0%	0%		

NEW ORCHARD AVE, END to AMBLESIDE DR

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	1	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	100%
	0%	0%	0%	100%	0%	0%	0%	0%		

RICHMOND RD/EDGEWORTH AVE/MCEWEN AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	5	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	3	0	0	0	0	0	0	0	3	60%
Non-fatal injury	0	0	0	1	0	1	0	0	2	40%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**3**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**5**	100%
	60%	0%	0%	20%	0%	20%	0%	0%		

RICHMOND RD/HARTLEIGH AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

RICHMOND RD/WOODROFFE AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	30	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	17	2	2	1	0	1	0	0	23	77%
Non-fatal injury	0	2	0	4	0	1	0	0	7	23%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**17**	**4**	**2**	**5**	**0**	**2**	**0**	**0**	**30**	100%
	57%	13%	7%	17%	0%	7%	0%	0%		

RICHMOND RD, ANCASTER AVE to WOODROFFE AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	1	0	0	0	1	0	0	3	75%
Non-fatal injury	0	0	1	0	0	0	0	0	1	25%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**4**	100%
	25%	25%	25%	0%	0%	25%	0%	0%		

RICHMOND RD, MCEWEN AVE to HARTLEIGH AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	2	0	0	2	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	100%
	0%	0%	0%	0%	0%	100%	0%	0%		

RICHMOND RD, NEW ORCHARD AVE to ANCASTER AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	9	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	1	0	4	1	0	0	1	7	78%
Non-fatal injury	1	0	0	0	0	1	0	0	2	22%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**1**	**0**	**4**	**1**	**1**	**0**	**1**	**9**	100%
	11%	11%	0%	44%	11%	11%	0%	11%		

RICHMOND RD, RICHARDSON AVE to NEW ORCHARD AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	0%
Non-fatal injury	1	0	0	0	0	0	0	0	1	100%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

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Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: AMBLESIDE DR @ NEW ORCHARD AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-May-04, Thu,07:56	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Jul-04, Sat,10:05	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: ANCASTER AVE @ RICHMOND RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Oct-06, Fri,16:31	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-30, Fri,07:27	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Location: NEW ORCHARD AVE @ RICHMOND RD

Traffic Control: Traffic signal **Total Collisions:** 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Oct-08, Sun,09:35	Clear	Turning movement	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Cyclist	0
					North	Going ahead	Bicycle	Other motor vehicle	
2017-Dec-11, Mon,14:50	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Aug-25, Sat,20:14	Clear	Turning movement	P.D. only	Dry	West	Turning right	Passenger van	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

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From: January 1, 2017 **To:** December 31, 2021

Location: NEW ORCHARD AVE @ RICHMOND RD

Traffic Control: Traffic signal **Total Collisions:** 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Sep-05, Wed,16:30	Clear	Turning movement	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2021-Jan-10, Sun,09:50	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2021-Dec-04, Sat,15:28	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2021-Dec-22, Wed,12:15	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Stopped	Truck - dump	Other motor vehicle	

Location: NEW ORCHARD AVE btwn END & AMBLESIDE DR

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Apr-13, Fri,09:07	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Traffic Control: Traffic signal **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Mar-02, Thu,18:44	Clear	SMV other	Non-fatal injury	Dry	West	Unknown	Unknown	Pedestrian	1
2018-May-31, Thu,17:10	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
					West	Stopped	Unknown	Other motor vehicle	
2018-Sep-22, Sat,09:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: RICHMOND RD @ EDGEWORTH AVE/MCEWEN AVE

Traffic Control: Traffic signal **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-02, Wed,17:00	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Jun-10, Wed,11:03	Rain	Angle	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	

Location: RICHMOND RD @ HARTLEIGH AVE

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-May-19, Fri,04:06	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: RICHMOND RD @ WOODROFFE AVE

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
2017-Feb-18, Sat,13:04	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping	Construction equipment	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2017-Apr-19, Wed,13:15	Rain	Rear end	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Aug-26, Sat,11:29	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Oct-13, Fri,11:48	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Oct-23, Mon,14:26	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: RICHMOND RD @ WOODROFFE AVE

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
2017-Nov-29, Wed,11:49	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-15, Fri,20:53	Snow	Turning movement	P.D. only	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-02, Fri,18:50	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-09, Fri,13:12	Snow	Rear end	P.D. only	Loose snow	North	Going ahead	Delivery van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Apr-26, Thu,18:11	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2018-May-07, Mon,17:45	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-15, Sat,18:26	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-28, Fri,14:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Delivery van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-03, Sat,09:10	Rain	Rear end	P.D. only	Wet	North	Going ahead	Unknown	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-06, Thu,16:00	Clear	Rear end	P.D. only	Wet	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-20, Sun,00:15	Clear	Rear end	P.D. only	Ice	East	Unknown	Unknown	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	

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From: January 1, 2017 **To:** December 31, 2021

Location: RICHMOND RD @ WOODROFFE AVE

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
2019-Jun-28, Fri,17:35	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-27, Tue,08:57	Clear	Sideswipe	P.D. only	Dry	North	Going ahead	Truck - dump	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Nov-16, Sat,15:08	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2020-Jan-13, Mon,15:58	Clear	Rear end	P.D. only	Slush	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Feb-18, Tue,11:06	Snow	Rear end	P.D. only	Slush	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2020-May-20, Wed,18:24	Clear	Rear end	P.D. only	Dry	East	Unknown	Automobile, station wagon	Other motor vehicle	0
					East	Unknown	Pick-up truck	Other motor vehicle	
2020-May-29, Fri,22:01	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Ambulance	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2020-Jun-07, Sun,12:55	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Jun-23, Tue,13:50	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2020-Jul-06, Mon,15:36	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Sep-16, Wed,08:23	Clear	SMV other	P.D. only	Dry	North	Turning left	Pick-up truck	Building or wall	0

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From: January 1, 2017 **To:** December 31, 2021

Location: RICHMOND RD @ WOODROFFE AVE

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
2020-Dec-10, Thu,09:18	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2021-Jun-12, Sat,10:36	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Pedestrian	1
2021-Dec-04, Sat,14:07	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: RICHMOND RD btwn ANCASTER AVE & WOODROFFE AVE

Traffic Control: No control **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Aug-13, Sun,23:46	Clear	Sideswipe	Non-fatal injury	Dry	West	Unknown	Unknown	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2017-Oct-18, Wed,11:12	Clear	Turning movement	P.D. only	Dry	East	Making "U" turn	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Dec-05, Tue,04:12	Clear	SMV other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Ran off road	0
2021-Mar-19, Fri,12:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	

Location: RICHMOND RD btwn MCEWEN AVE & HARTLEIGH AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Mar-07, Tue,03:48	Freezing Rain	SMV other	P.D. only	Ice	East	Going ahead	Pick-up truck	Skidding/sliding	0
2019-Jan-02, Wed,23:03	Snow	SMV other	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Skidding/sliding	0

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From: January 1, 2017 **To:** December 31, 2021

Location: RICHMOND RD btwn NEW ORCHARD AVE & ANCASTER AVE

Traffic Control: No control **Total Collisions:** 9

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Feb-09, Thu,10:23	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Passenger van	Pedestrian	1
2017-Mar-23, Thu,16:49	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2017-May-30, Tue,09:10	Clear	Angle	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Oct-11, Wed,16:57	Clear	Other	P.D. only	Dry	East	Reversing	Truck - closed	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-04, Tue,07:17	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-02, Sun,14:49	Clear	Approaching	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2019-Jul-09, Tue,08:33	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Sep-10, Thu,14:30	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Nov-03, Wed,17:51	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Slowing or stopping	Delivery van	Other motor vehicle	

Location: RICHMOND RD btwn RICHARDSON AVE & NEW ORCHARD AVE

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Nov-21, Thu,07:30	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Appendix E:

Historical Growth Regression Analysis

Richmond/New Orchard
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Wednesday, August 19	823	594	1	1	3639	4238	3783	3413	16492
2011	Thursday, July 14	807	746	1	1	4467	5691	5347	4184	21244
2016	Thursday, August 25	856	721	1	1	4708	4848	4269	4264	19668

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	594	823	1417	16492				
2011	746	807	1553	21244	25.6%	-1.9%	9.6%	28.8%
2016	721	856	1577	19668	-3.4%	6.1%	1.5%	-7.4%

Regression Estimate	2009	646	812	1458
Regression Estimate	2016	742	851	1593
Average Annual Change		**2.00%**	**0.69%**	**1.28%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	3783	3413	7196	16492				
2011	5347	4184	9531	21244	41.3%	22.6%	32.4%	28.8%
2016	4269	4264	8533	19668	-20.2%	1.9%	-10.5%	-7.4%

Regression Estimate	2009	4422	3650	8072
Regression Estimate	2016	4525	4359	8884
Average Annual Change		**0.33%**	**2.57%**	**1.38%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	4238	3639	7877	16492				
2011	5691	4467	10158	21244	34.3%	22.8%	29.0%	28.8%
2016	4848	4708	9556	19668	-14.8%	5.4%	-5.9%	-7.4%

Regression Estimate	2009	4812	3873	8685
Regression Estimate	2016	5078	4802	9879
Average Annual Change		**0.77%**	**3.12%**	**1.86%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1	1	2	16492				
2011	1	1	2	21244	0.0%	0.0%	0.0%	28.8%
2016	1	1	2	19668	0.0%	0.0%	0.0%	-7.4%

Regression Estimate	2009	1	1	2
Regression Estimate	2016	1	1	2
Average Annual Change		**0.00%**	**0.00%**	**0.00%**

Richmond/New Orchard
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Wednesday, August 19	142	37	1	1	373	788	662	352	2356
2011	Thursday, July 14	137	55	1	1	388	854	748	364	2548
2016	Thursday, August 25	133	57	1	1	392	795	688	361	2428

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	37	142	179	2356				
2011	55	137	192	2548	48.6%	-3.5%	7.3%	8.1%
2016	57	133	190	2428	3.6%	-2.9%	-1.0%	-4.7%

Regression Estimate	2009	43	141	183
Regression Estimate	2016	59	133	192
Average Annual Change		**4.85%**	**-0.87%**	**0.64%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	662	352	1014	2356				
2011	748	364	1112	2548	13.0%	3.4%	9.7%	8.1%
2016	688	361	1049	2428	-8.0%	-0.8%	-5.7%	-4.7%

Regression Estimate	2009	697	356	1053
Regression Estimate	2016	702	363	1065
Average Annual Change		**0.10%**	**0.26%**	**0.15%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	788	373	1161	2356				
2011	854	388	1242	2548	8.4%	4.0%	7.0%	8.1%
2016	795	392	1187	2428	-6.9%	1.0%	-4.4%	-4.7%

Regression Estimate	2009	817	377	1194
Regression Estimate	2016	806	394	1200
Average Annual Change		**-0.18%**	**0.61%**	**0.07%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1	1	2	2356				
2011	1	1	2	2548	0.0%	0.0%	0.0%	8.1%
2016	1	1	2	2428	0.0%	0.0%	0.0%	-4.7%

Regression Estimate	2009	1	1	2
Regression Estimate	2016	1	1	2
Average Annual Change		**0.00%**	**0.00%**	**0.00%**

Richmond/New Orchard
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Wednesday, August 19	104	86	1	1	710	502	441	667	2512
2011	Thursday, July 14	97	108	1	1	895	630	597	851	3180
2016	Thursday, August 25	92	139	1	1	970	553	499	869	3124

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	86	104	190	2512				
2011	108	97	205	3180	25.6%	-6.7%	7.9%	26.6%
2016	139	92	231	3124	28.7%	-5.2%	12.7%	-1.8%

Regression Estimate	2009	89	102	191
Regression Estimate	2016	140	91	232
Average Annual Change		**6.70%**	**-1.62%**	**2.75%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	441	667	1108	2512				
2011	597	851	1448	3180	35.4%	27.6%	30.7%	26.6%
2016	499	869	1368	3124	-16.4%	2.1%	-5.5%	-1.8%

Regression Estimate	2009	504	724	1227
Regression Estimate	2016	524	892	1416
Average Annual Change		**0.57%**	**3.03%**	**2.06%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	502	710	1212	2512				
2011	630	895	1525	3180	25.5%	26.1%	25.8%	26.6%
2016	553	970	1523	3124	-12.2%	8.4%	-0.1%	-1.8%

Regression Estimate	2009	553	760	1313
Regression Estimate	2016	573	990	1563
Average Annual Change		**0.52%**	**3.85%**	**2.53%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1	1	2	2512				
2011	1	1	2	3180	0.0%	0.0%	0.0%	26.6%
2016	1	1	2	3124	0.0%	0.0%	0.0%	-1.8%

Regression Estimate	2009	1	1	2
Regression Estimate	2016	1	1	2
Average Annual Change		**0.00%**	**0.00%**	**0.00%**

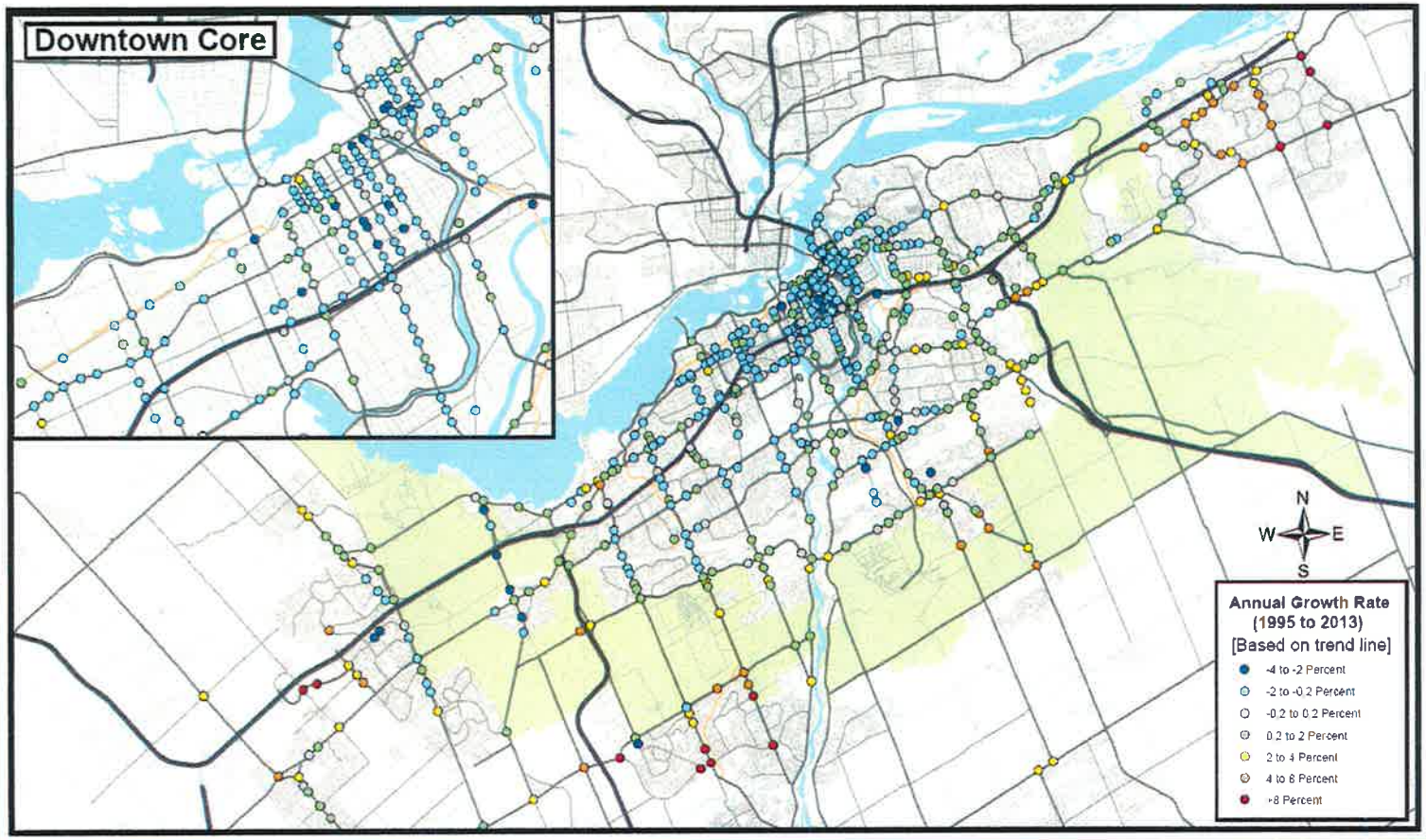
Appendix F:

City of Ottawa Regional Transportation Model

3.2 Background Traffic:
Background Growth

INTERSECTION TRAFFIC GROWTH RATES, AM PEAK PERIOD (0700 to 0900)

Total Vehicular Volume Entering the Intersection, 1995 to 2013, Scenario F AM 2



- Growth rates vary by location
- In some areas, traffic has been declining
- Growth rate must be justified

Appendix G:

TDM Checklists

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

Legend

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

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

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

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☑
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☑
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☑
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

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

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:

Truck Turning Templates

Page Setup: ....

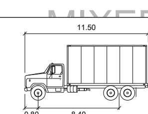
Plot Date: Tuesday, April 08, 2025 16:22:06

Consultant's Information:

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: FIRE TRUCK IN/OUT

Client:

Date: Apr 8, 2024

Figure Number: 001

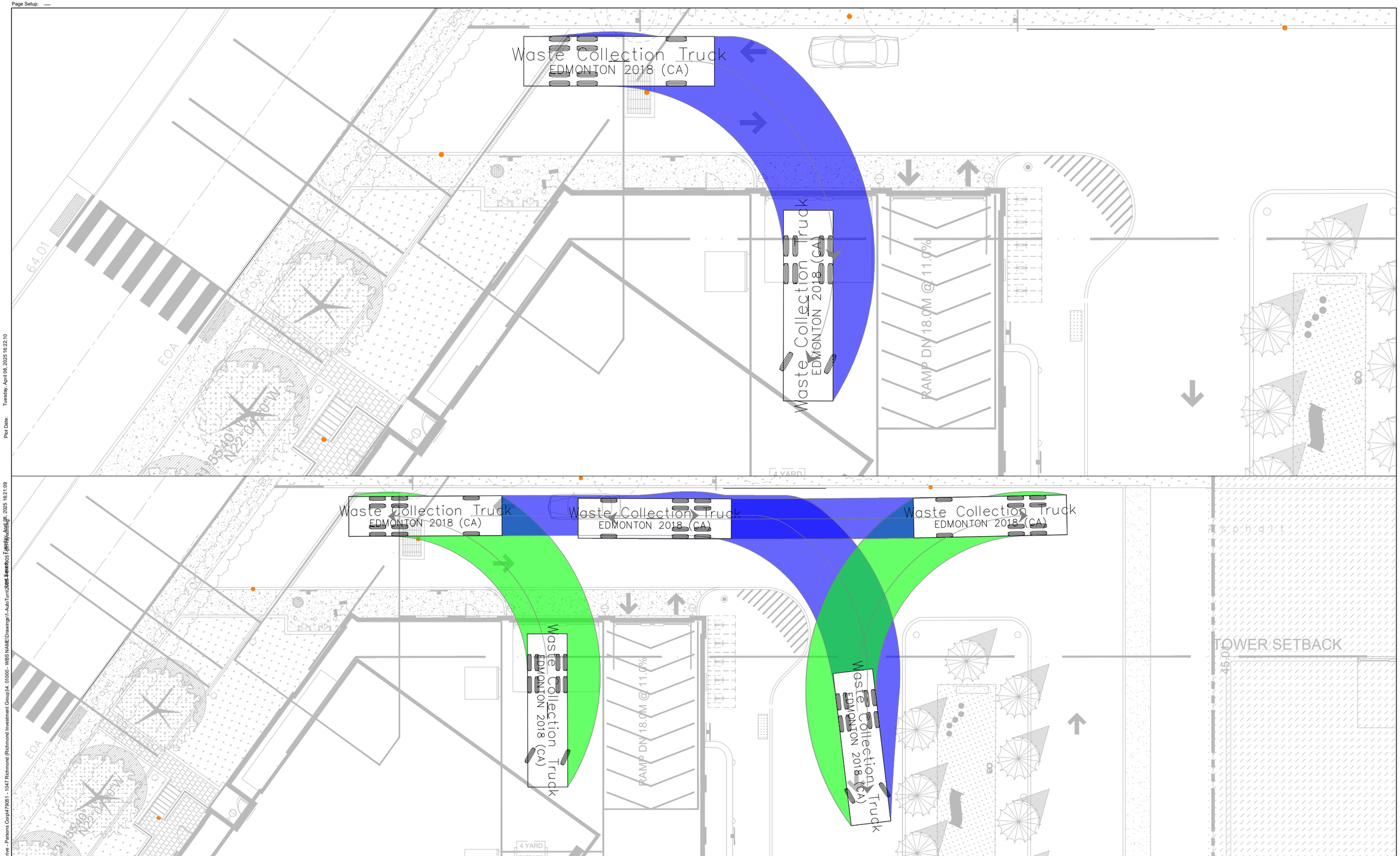
Project Number: 479051

Project Description: 1047 Richmond Rd Site Plan

Page Setup: ----

Plot Date: Tuesday, April 08, 2025 16:22:10

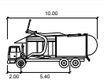
Consultant's Information: C:\Users\jp00428\1HOneDrive - Parsons Corp\479051 - 1047 Richmond (Richmond Investment Group)\4_01000 - WBS NAME\Drawings\11-Auto Turn\2025-04-08 Tuesday, April 08, 2025 16:21:09



PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



Waste Collection Truck

	meters
Width	2.60
Track	2.60
Lock to Lock Time	6.0
Steering Angle	27.7

Not to Scale

Drawing Description: FRONT LOADING GARBAGE TRUCK IN/OUT

Client:

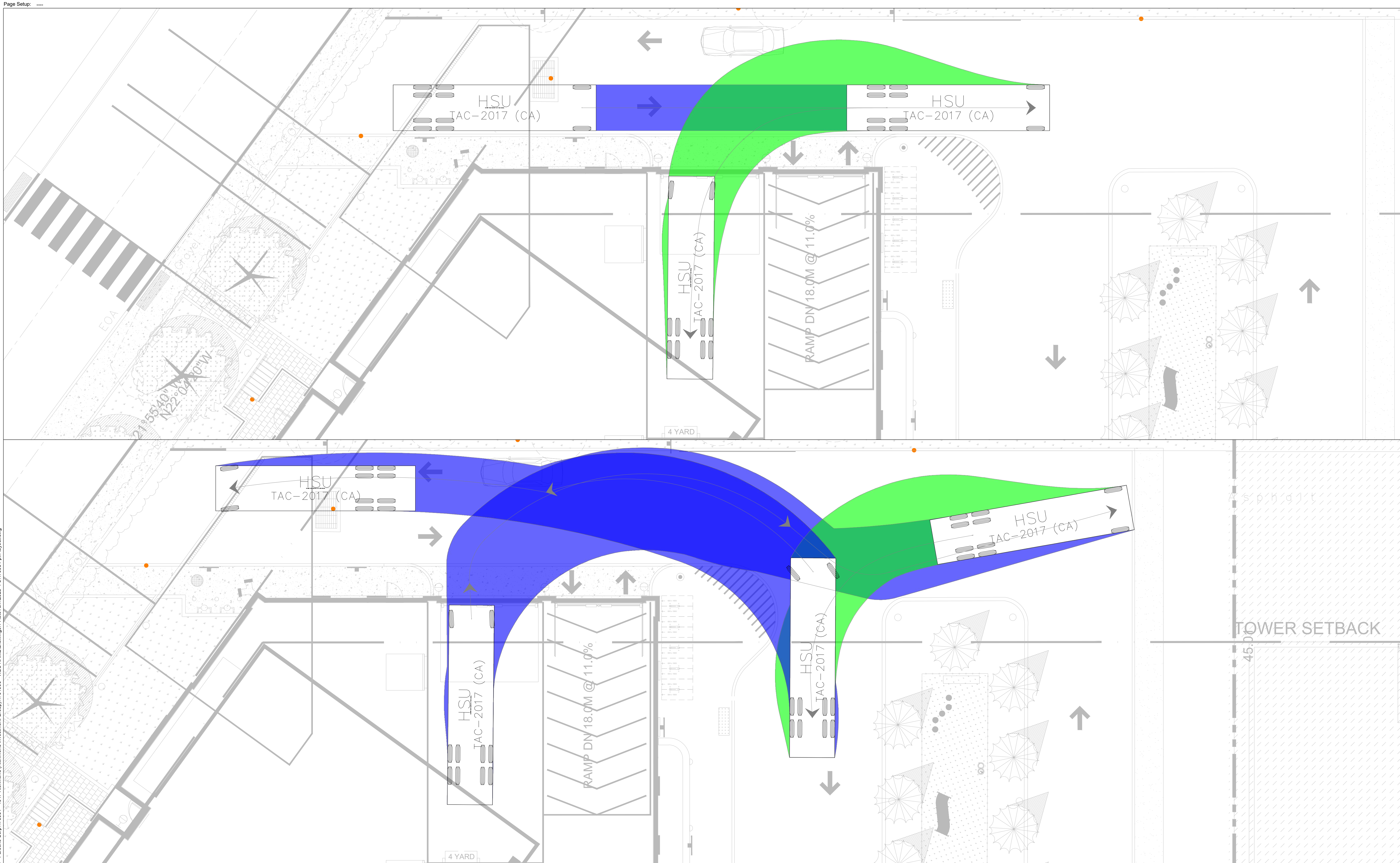
Date: Apr 8, 2024

Figure Number: 002

Project Number: 479051

Project Description: 1047 Richmond Rd Site Plan

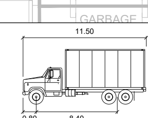
Page Setup:



PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: LOADING IN/OUT		
Client	Date: Apr 8, 2024	Figure Number: 003
Project Number: 479051	Project Description: 1047 Richmond Rd Site Plan	

Plot Date: Tuesday, April 08, 2025 16:22:15

Consultant's Information:

Appendix I:

MMLOS Segment Analysis

Multi-Modal Level of Service - Segments Form

Consultant	**Parsons**	**Project**	**479051 - 1047 Richmond Rd**
Scenario	**Existing**	**Date**	**7/30/2024**
Comments			**Update - 12/2/2024**

SEGMENTS		**Street A**	Richmond Rd New Orchard - Woodroffe		New Orchard Ave Richmond - Ambleside						Section 9
Pedestrian	Sidewalk Width Boulevard Width	**F**	1.8 m < 0.5 m		1.8 m < 0.5 m						
	Avg Daily Curb Lane Traffic Volume		> 3000		> 3000						
	Operating Speed On-Street Parking		> 50 to 60 km/h no		> 30 to 50 km/h no						
	Exposure to Traffic PLoS		**F**	-	**D**	-	-	-	-	-	-
	Effective Sidewalk Width		1.5 m		1.2 m						
	Pedestrian Volume		250 ped/hr		250 ped/hr						
	Crowding PLoS		**B**	-	**B**	-	-	-	-	-	-
	Level of Service		**F**	**-**	**D**	**-**	**-**	**-**	**-**	**-**	**-**
Bicycle	Type of Cycling Facility	**E**	Mixed Traffic		Mixed Traffic						
	Number of Travel Lanes		2-3 lanes total		2-3 lanes total						
	Operating Speed		≥ 50 to 60 km/h		≤ 40 km/h						
	# of Lanes & Operating Speed LoS		**E**	-	**B**	-	-	-	-	-	-
	Bike Lane (+ Parking Lane) Width										
	Bike Lane Width LoS		-	-	-	-	-	-	-	-	-
	Bike Lane Blockages										
	Blockage LoS		-	-	-	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge		< 1.8 m refuge						
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes		≤ 3 lanes						
	Sidestreet Operating Speed		≤ 40 km/h		≤ 40 km/h						
	Unsignalized Crossing - Lowest LoS		**A**	-	**A**	-	-	-	-	-	-
	Level of Service		**E**	**-**	**B**	**-**	**-**	**-**	**-**	**-**	**-**
Transit	Facility Type	**D**	Mixed Traffic		Mixed Traffic						
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8		Vt/Vp ≥ 0.8						
	Level of Service		**D**	**-**	**D**	**-**	**-**	**-**	**-**	**-**	**-**
Truck	Truck Lane Width	**C**	≤ 3.5 m								
	Travel Lanes per Direction		1								
	Level of Service		**C**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Multi-Modal Level of Service - Segments Form

Consultant	**Parsons**	**Project**	**1047 Richmond Rd**
Scenario	**Future Background**	**Date**	**7/30/2024**
Comments	**Assume LRT and Richmond Rd to be done construction**		**Updated - 12/2/2024**

SEGMENTS		**Street**	Richmond Rd		New Orchard Ave						Section
			New Orchard-Woodroffe		Richmond-Ambleside						9
Pedestrian	Sidewalk Width Boulevard Width	**D**	≥ 2 m 0.5 - 2 m		≥ 2 m < 0.5						
	Avg Daily Curb Lane Traffic Volume		> 3000		≤ 3000						
	Operating Speed On-Street Parking		> 50 to 60 km/h no		> 30 to 50 km/h no						
	Exposure to Traffic PLoS		**D**	-	**B**	-	-	-	-	-	-
	Effective Sidewalk Width		3.0 m		2.0 m						
	Pedestrian Volume		250 ped/hr		250 ped/hr						
	Crowding PLoS		**A**	-	**B**	-	-	-	-	-	-
	Level of Service		**D**	-	**B**	-	-	-	-	-	-
Bicycle	Type of Cycling Facility	**B**	Physically Separated		Mixed Traffic						
	Number of Travel Lanes				2-3 lanes total						
	Operating Speed				≤ 40 km/h						
	# of Lanes & Operating Speed LoS		-	-	**B**	-	-	-	-	-	-
	Bike Lane (+ Parking Lane) Width										
	Bike Lane Width LoS		-	-	-	-	-	-	-	-	-
	Bike Lane Blockages										
	Blockage LoS		-	-	-	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)				< 1.8 m refuge						
	No. of Lanes at Unsignalized Crossing				≤ 3 lanes						
	Sidestreet Operating Speed				≤ 40 km/h						
	Unsignalized Crossing - Lowest LoS		**A**	-	**A**	-	-	-	-	-	-
	Level of Service		**A**	-	**B**	-	-	-	-	-	-
Transit	Facility Type	**D**	Segregated ROW		Mixed Traffic						
	Friction or Ratio Transit:Posted Speed				Vt/Vp ≥ 0.8						
	Level of Service		**A**	-	**D**	-	-	-	-	-	-
Truck	Truck Lane Width	**C**	≤ 3.5 m								
	Travel Lanes per Direction		1								
	Level of Service		**C**	-	-	-	-	-	-	-	-