



Engineers, Planners & Landscape Architects

### Engineering

Land/Site  
Development  
  
Municipal  
Infrastructure  
  
Environmental/  
Water Resources  
  
Traffic/  
Transportation  
  
Recreational

### Planning

Land/Site  
Development  
  
Planning Application  
Management  
  
Municipal Planning  
  
Urban Design  
  
Expert      Witness  
(OLT)  
  
Wireless Industry

### Landscape Architecture

Streetscapes & Public  
Amenities  
  
Open Space, Parks &  
Recreation  
  
Community      &  
Residential  
  
Commercial      &  
Institutional  
  
Environmental  
Restoration

## Proposed Residential Development

5331 Fernbank Road

Transportation Impact Assessment

Prepared for: Claridge Homes

Engineering excellence.

Planning progress.

Liveable landscapes.

**Proposed Residential Development**  
**5331 Fernbank Road**  
**Transportation Impact Assessment**

Prepared By:

**NOVATECH**

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

June 03, 2021

*Revised: November 08, 2021*

*Revised: November 18, 2025*

*Revised: June 25, 2026*

Novatech File: 121011

Ref: R-2021-081

June 25, 2026

City of Ottawa  
Planning, Development and Building Services Department  
110 Laurier Ave. W. 4<sup>th</sup> Floor  
Ottawa, ON K1P 1J1

**Attention: Ms. Josiane Gervais**  
**Project Manager, Infrastructure Approvals**

Dear Ms. Gervais:

**Reference: 5331 Fernbank Road**  
**Transportation Impact Assessment**  
**Novatech File No.: 121011**

---

We are pleased to submit the following revised Transportation Impact Assessment (TIA) in support of Site Plan Control (SPC) application for 5331 Fernbank Road. A TIA as part of SPC application was previously submitted to the city in 2021 and was approved. However, post approval of the TIA, the client has revised the proposed site plan including changes to the type of units they want to be constructed. Considering that the city has also revised its TIA Guidelines, Transportation Master Plan and Official Plan after 2021, a revision to this TIA has been made. The structure and format of this report is in accordance with the City of Ottawa 2017 TIA Guidelines and its 2023 revision.

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

Yours truly,

**NOVATECH**



Mohammed Talha, M. Eng.  
Engineering Intern | Transportation

# Table of Contents

|                                                                      |           |
|----------------------------------------------------------------------|-----------|
| <b>1.0 SCREENING</b>                                                 | <b>1</b>  |
| 1.1 Introduction                                                     | 1         |
| 1.2 Proposed Development                                             | 2         |
| 1.3 Screening Form                                                   | 2         |
| <b>2.0 SCOPING</b>                                                   | <b>2</b>  |
| 2.1 Existing Conditions                                              | 2         |
| 2.1.1 Roadways                                                       | 2         |
| 2.1.2 Study Intersections                                            | 3         |
| 2.1.3 Driveways                                                      | 4         |
| 2.1.4 Pedestrian and Cycling Facilities                              | 4         |
| 2.1.5 Transit                                                        | 4         |
| 2.1.6 Area Traffic Management                                        | 6         |
| 2.1.7 Existing Traffic Volumes                                       | 6         |
| 2.1.8 Collision Records                                              | 7         |
| 2.2 Planned Conditions                                               | 8         |
| 2.2.1 Transportation Projects                                        | 8         |
| 2.2.2 Other Area Developments                                        | 9         |
| 2.3 Study Area and Time Periods                                      | 9         |
| 2.4 Development Generated Travel Demand                              | 10        |
| 2.4.1 Trip Generation                                                | 10        |
| 2.4.2 Trip Distribution                                              | 11        |
| 2.5 Access Design                                                    | 12        |
| 2.6 Exemptions Review                                                | 20        |
| <b>3.0 FORECASTING</b>                                               | <b>21</b> |
| 3.1 Background Traffic                                               | 21        |
| 3.1.1 Other Area Developments                                        | 21        |
| 3.1.2 Background Growth Rate                                         | 22        |
| 3.1.3 Traffic Redistribution due to Micheal Cowpland Drive Extension | 22        |
| 3.1.4 Future Traffic Conditions                                      | 22        |
| <b>4.0 ANALYSIS</b>                                                  | <b>25</b> |
| 4.1 Development Design                                               | 25        |
| 4.1.1 Design for Sustainable Modes                                   | 25        |
| 4.1.2 Circulation                                                    | 26        |
| 4.2 Parking                                                          | 26        |
| 4.3 Boundary Streets                                                 | 31        |
| 4.4 Transportation Demand Management                                 | 31        |
| 4.4.1 Context for TDM                                                | 31        |
| 4.4.2 Need and Opportunity                                           | 32        |
| 4.4.3 TDM Program                                                    | 32        |
| <b>5.0 CONCLUSIONS AND RECOMMENDATIONS</b>                           | <b>32</b> |

## Figures

|                                                                                           |    |
|-------------------------------------------------------------------------------------------|----|
| Figure 1: View of the Subject Land                                                        | 1  |
| Figure 2: OC Transpo Bus Stop Locations                                                   | 5  |
| Figure 3: Existing Traffic Volumes                                                        | 6  |
| Figure 4: Site Generated Traffic Volumes                                                  | 12 |
| Figure 5: Stopping Sight Distance for Eastbound Vehicle at the Proposed Cope Drive Access | 14 |
| Figure 6: Stopping Sight Distance for Westbound Vehicle at the Proposed Cope Drive Access | 15 |
| Figure 7: Stopping Sight Distance for Northbound Vehicle at the Proposed Terry Fox Access | 16 |

|                                                                                                                    |    |
|--------------------------------------------------------------------------------------------------------------------|----|
| Figure 8: Intersection Sight Distance for Vehicle Making Right Turn from the Proposed Cope Drive Access .....      | 17 |
| Figure 9: Intersection Sight Distance for Vehicle Making Left Turn from the Proposed Cope Drive Access .....       | 18 |
| Figure 10: Intersection Sight Distance for Vehicle Making Right Turn from the Proposed Terry Fox Access .....      | 19 |
| Figure 11: Traffic Redistribution due to Micheal Cowpland Drive Extension .....                                    | 22 |
| Figure 12: Background 2030 Traffic Volumes .....                                                                   | 23 |
| Figure 13: Background 2035 Traffic Volumes .....                                                                   | 23 |
| Figure 14: Total 2030 Traffic Volumes .....                                                                        | 24 |
| Figure 15: Total 2035 Traffic Volumes .....                                                                        | 24 |
| Figure 16: Turning Movement for Garbage Truck.....                                                                 | 27 |
| Figure 17: Turning Movement for Garbage Truck.....                                                                 | 28 |
| Figure 18: Turning Movement for Fire Truck Making Right-in Turn at the Proposed Terry Fox Drive RIRO Access .....  | 29 |
| Figure 19: Turning Movement for Fire Truck Making Right-out Turn at the Proposed Terry Fox Drive RIRO Access ..... | 30 |

## Tables

|                                                              |    |
|--------------------------------------------------------------|----|
| Table 1: OC Transpo Route Information .....                  | 5  |
| Table 2: Collision History .....                             | 7  |
| Table 3: Peak Period Person Trip Generation .....            | 10 |
| Table 4: Peak Period Person Trips by Modal Share .....       | 10 |
| Table 5: Peak Hour Person Trips Generated by Mode Share..... | 11 |
| Table 6: TIA Exemptions .....                                | 20 |
| Table 7: Minimum Parking Requirements.....                   | 26 |
| Table 8: Segment MMLOS Summary.....                          | 31 |

## Appendices

|                                                               |
|---------------------------------------------------------------|
| Appendix A: Proposed Site Plan                                |
| Appendix B: TIA Screening Form                                |
| Appendix C: OC Transpo Maps                                   |
| Appendix D: Traffic Count Data                                |
| Appendix E: Collision Records                                 |
| Appendix F: Other Area Developments TIA Excerpts              |
| Appendix G: TDM Checklists                                    |
| Appendix H: Detailed MMLOS Analysis                           |
| Appendix I: MTO Left Turn Lane Warrants                       |
| Appendix J: Functional Design of Left Turn Lane on Cope Drive |

## EXECUTIVE SUMMARY

Novatech has been retained by Claridge Homes to prepare a Transportation Impact Assessment (TIA) in support of a Site Plan Control (SPC) application to allow for the development of the lands known as 5331 Fernbank Road.

The subject site is currently zoned General Mixed-Use (GM[2411]) in Zoning By-law 2008-250 and permits the proposed development. The development consists of 15 buildings (terrace homes) with 12 units in each building, making a total of 180 residential two-bedroom units and 252 parking spaces. Two accesses to the subject site will be provided and are described as follows:

- Full movement access along Cope Drive opposite to Shelleright Street which leads to the under construction residential subdivision at 5331 Fernbank Road and 1039 Terry Fox Drive north of Cope Drive (City File Number: D07-16-18-0027), approximately 120m east of Terry Fox Drive and 75m west of Northgraves Crescent.
- Right-in/right-out access along Terry Fox Drive, approximately 165m north of Fernbank Road and 190m south of Cope Drive.

The proposed development will be constructed in one phase, with an estimated completion date of 2030.

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

### Trip Generation

- The proposed development is anticipated to generate 77 person trips (31 vehicle trips) during the AM peak and 79 person trips (42 vehicle trips) during the PM peak.

### Access Intersections Design

- One new all movement access is proposed on Cope Drive, opposite Shelleright Street leading to the subdivision north of Cope Drive, and a right-in right-out access to Terry Fox Drive. The sidewalk along Cope Drive will be depressed and continuous through the proposed accesses, per City of Ottawa Specification 7.1.
- The width of the Cope Drive access conforms to the requirements of the City's Private Approach By-law and Zoning By-law.
- As the width of the Terry Fox Drive access is required to accommodate the proposed pork chop right-in right-out island, a waiver to Section 25 (c) of the Private Approach By-law is requested.
- The location of both accesses meet the requirements of the Private Approach By-law.
- A maximum grade of 2% is proposed for a distance of 9m within the private property at the proposed Cope Drive access, conforming to the requirements of the Private Approach By-law. A maximum grade of 4% in the direction of the property is proposed at the proposed Terry Fox Drive access. Since it is not anticipated to impact sight lines or create a traffic hazard, a waiver to section 25 (u) is requested for the proposed Terry Fox Drive access.
- Based on the projected northbound right turn volumes at the Terry Fox Drive access, a right turn lane is not recommended. A pork chop island will be provided to restrict this access to right-in right-out.
- Based on the projected eastbound right turn volumes at the Cope Drive access, a right turn lane is not recommended.

- To provide improved access operations and safety, a westbound left turn lane will be painted in lieu of the previously proposed gore area runout taper as part of the left turn lane for the subdivision opposite the proposed development.
- The required Stopping Sight Distance and Intersection Sight Distance at both accesses meet TAC requirements.
- The TAC recommended minimum clear throat requirement is met at Cope Drive access. At the proposed Terry Fox Drive access, a clear throat length of 22m is available between the end of the Terry Fox Drive access radii and the main north-south on-site drive aisle. The reduced clear throat length is attributable to the large radii required for the pork chop island. Additionally, it is noted that the egress for the garbage collection area is located within the clear throat length at this access. As there is approximately 40m of queuing space available between Terry Fox Drive and the main north-south drive aisle, and since vehicle movements exiting the garbage area will be infrequent, the proposed clear throat length is not anticipated to result in vehicles queuing onto Terry Fox Drive. Relief from recommended minimum clear throat requirements at the proposed Terry Fox access is requested.
- Side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

#### Development Design

- A network of sidewalks will be provided on site providing connectivity to each of the proposed buildings, existing sidewalks on Cope Drive and Fernbank Road, as well as the existing pathway leading to Patriot Place. Additionally, a paved walking path has been provided at the northwest corner of the site which runs from midway through the site and connects to Terry Fox Drive/Cope Drive intersection.
- Bicycle parking will be in accordance with the minimum requirements of the City's Zoning By-law. Bicycle parking racks will be located near the entrances for each building.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Garbage collection will be conducted on-site. Earth bins will be located on the west side of the main drive aisle in a garbage area beside Building M.

#### Parking

- A total of 252 vehicle parking spaces (216 resident, 36 visitor) and 90 bicycle parking spaces are proposed, meeting the minimum requirements of the City's Zoning By-law.

#### Boundary Street Design

- Cope Drive meets the target PLOS but does not meet the target BLOS for the general urban area. Either a reduction in operating speed combined with bike lanes or a separated cycling facility are required to achieve the target BLOS B. This is identified for the City's consideration.
- Fernbank Road meets the target TkLOS for the general urban area. However, it does not meet a target PLOS C and BLOS C. A boulevard width of 0.5m or greater between the sidewalk and the roadway is required on the north side of the road. A reduction in the operating speed is required to achieve the target PLOS C on the south side of the road. Either a reduction in operating speed or a separated cycling facility are required to achieve the target BLOS C. This is identified for the City's consideration.
- Terry Fox Drive meets the target TkLOS. However, it does not meet the target PLOS and BLOS. While the existing paved shoulders along Terry Fox Drive provide a PLOS F and BLOS E, it is noteworthy that there is a discontinuous MUP on the west side of the road.

The planned Terry Fox Drive Pathway project will connect the missing links in the MUP network. Following implementation of the continuous MUP network, Terry Fox Drive will achieve PLOS D and BLOS A.

#### Transportation Demand Management

- The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, bicycle, and transit systems.
- The following additional TDM measures will be implemented within the proposed development:
  - Unbundle parking from purchase price, and
  - Provide multimodal travel option information package to new residents.

## 1.0 SCREENING

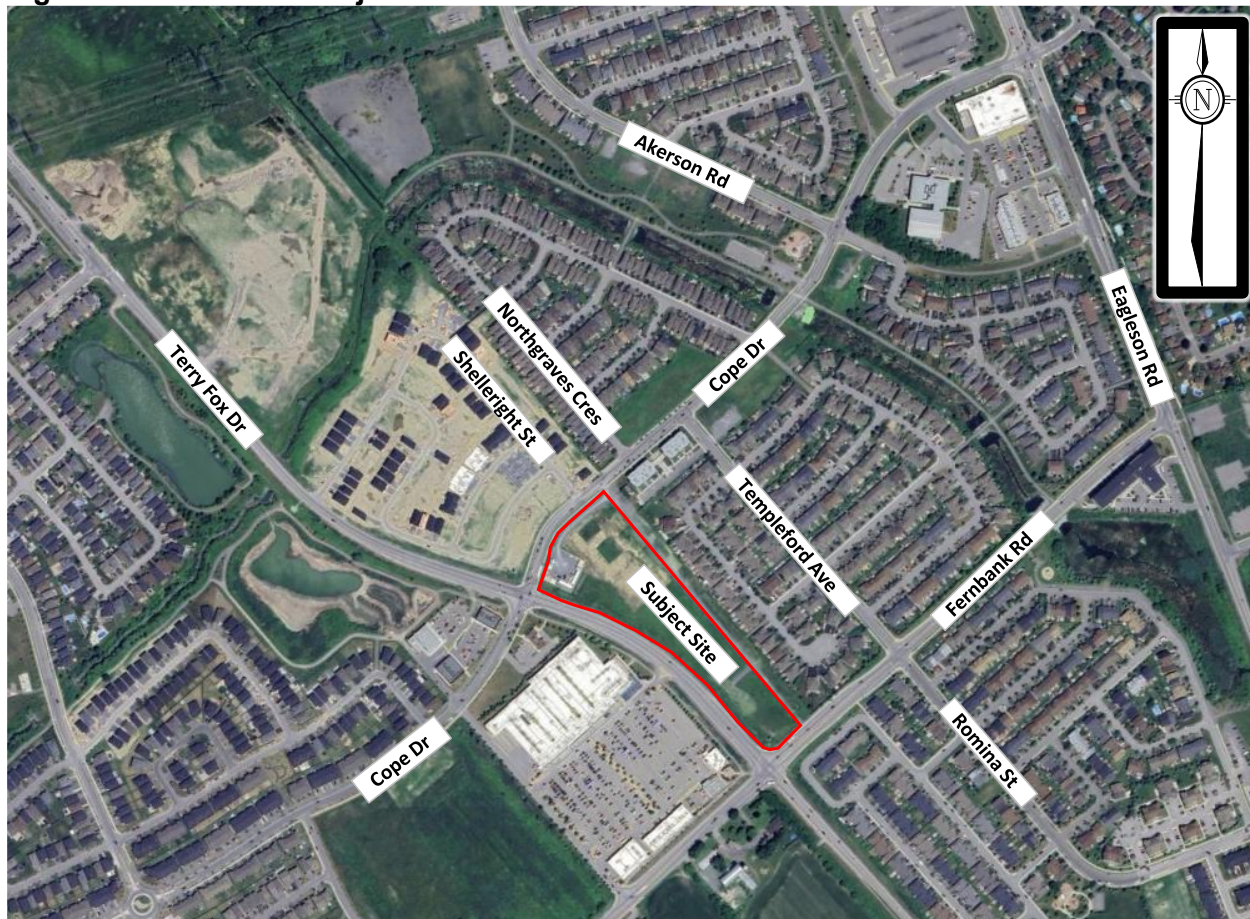
### 1.1 Introduction

Novatech has been retained by Claridge Homes to prepare a Transportation Impact Assessment (TIA) in support of a Site Plan Control (SPC) application to allow for the development of the lands known as 5331 Fernbank Road. The subject site is surrounded by the following:

- Cope Drive and under construction Iron Valley 1 Subdivision to the north;
- Existing residential developments to the east;
- Fernbank Road and existing residential development to the south; and
- Terry Fox Drive and existing commercial retail development in the Fernbank Community Design Plan lands to the west.

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

**Figure 1: View of the Subject Land**



Source: Background aerial snapshotted from Google Earth

## 1.2 Proposed Development

The subject site is currently zoned General Mixed-Use (GM[2411]) in Zoning By-law 2008-250 and permits the proposed development. It has an evolving neighbourhood overlay based on Schedule B5 of the City of Ottawa's Official Plan (OP). In the study area, Terry Fox Drive is also identified as Corridor – Mainstreet within the Schedule B5 of the City's OP.

The development consists of 15 buildings (terrace homes) with 12 units in each building, making a total of 180 residential two-bedroom units and 252 parking spaces. Two accesses to the subject site will be provided and are described as follows:

- Full movement access along Cope Drive opposite to Shelleright Street which leads to the under construction residential subdivision at 5331 Fernbank Road and 1039 Terry Fox Drive north of Cope Drive (City File Number: D07-16-18-0027), approximately 120m east of Terry Fox Drive and 75m west of Northgraves Crescent.
- Right-in/right-out access along Terry Fox Drive, approximately 165m north of Fernbank Road and 190m south of Cope Drive.

The proposed development will be constructed in one phase, with an estimated completion date of 2030. A copy of the site plan is included in **Appendix A**.

## 1.3 Screening Form

The City's Revised TIA Guidelines identify three triggers to satisfy the requirements for the need of a TIA report, including trip generation, location, and safety. The minimum criteria for each trigger are outlined in the City's TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows:

- Trip Generation Trigger – The development is anticipated to generate over 60 peak hour person trips; further assessment **is required** based on this trigger.
- Location Trigger – The development proposes a new driveway to a boundary street that is designated as a Crosstown Bikeway; further assessment **is required** based on this trigger.
- Safety Trigger – The development proposes a driveway within auxiliary lanes of an intersection and is within the area of influence of an adjacent traffic signal; further assessment **is required** based on this trigger.

## 2.0 SCOPING

### 2.1 Existing Conditions

#### 2.1.1 Roadways

All roadways fall within the jurisdiction of the City of Ottawa.

Terry Fox Drive is an arterial roadway that generally runs on a north-south alignment within the study area. Near the subject lands, Terry Fox Drive has a two-lane undivided rural cross section. Terry Fox Drive is designated as a truck route with a posted speed limit of 70 km/hr within the study area. The City's OP's Schedule C16 identifies a 44.5m right-of-way (ROW) to be protected along Terry Fox Drive between Old Rail Line (315m north of Westphalian Ave) and Fernbank Road.

Fernbank Road runs on an east-west alignment between Dwyer Hill Road to Eagleson Road. It is classified as an arterial roadway in proximity of the subject site. Fernbank Road has a two-lane undivided urban cross section with a posted speed limit of 60km/hr between Eagleson Road and Terry Fox Drive. West of Terry Fox Drive, it transitions into a two-lane undivided rural cross section with a posted speed limit of 80km/hr. Schedule C16 of the City's OP identifies a 30m ROW to be protected along Fernbank Road between Terry Fox Drive and Eagleson Road.

Cope Drive generally runs on an east-west alignment between Eagleson Road and west of Robert Grant Avenue. It is classified as a collector roadway between Eagleson Road and Terry Fox Drive. West of Terry Fox Drive, it is classified as a major collector roadway through the Fernbank Community Design Plan (CDP) lands. Cope Drive has a two-lane undivided urban cross section with a posted speed limit of 50km/hr. Schedule C16 of the City's OP identifies a 24m ROW to be protected along the entire length of Cope Drive.

### 2.1.2 Study Intersections

#### Terry Fox Drive/Cope Drive

- Signalized four-legged intersection.
- Northbound Approach (Terry Fox Drive): one left turn lane and one shared through/right lane.
- Southbound Approach (Terry Fox Drive): one left turn lane, one through lane, one bike lane, and one right turn lane.
- Eastbound Approach (Cope Drive): one left turn lane and one through/right lane.
- Westbound Approach (Cope Drive): one left turn lane and one through/right lane.
- Standard crosswalk on all approaches.



#### Terry Fox Drive/Fernbank Road

- Signalized four-legged intersection.
- Northbound Approach (Terry Fox Drive): one left turn lane and one shared through/right line.
- Southbound Approach (Terry Fox Drive): one left turn lane, one through lane, one bike lane, and one right turn lane.
- Eastbound Approach (Fernbank Road): one left turn lane, one through lane, one pocket bike lane, and one right turn lane.
- Westbound Approach (Fernbank Road): one left turn lane, one through lane, one bike lane, and one channelized right turn lane.
- Standard crosswalk on all approaches.



### 2.1.3 Driveways

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

**Terry Dox Drive (East Side)**

- Shelleright Street leading to residential developments in the Iron Valley 1 Subdivision.

**Terry Fox Drive (West Side)**

- One right-in commercial/retail driveway to Smart Centers Plaza at 1150 Terry Fox Drive.
- One right-in right-out commercial/retail driveway to Smart Centers Plaza at 5357 Fernbank Road (located opposite to the proposed site access).

**Cope Drive (North Side)**

- Shelleright Street leading to residential developments in the Iron Valley 1 Subdivision (located opposite to the proposed site access).

**Cope Drive (South Side)**

- No existing driveways.

**Fernbank Road (North Side)**

- No existing driveways.

**Fernbank Road (South Side)**

- No existing driveways.

### 2.1.4 Pedestrian and Cycling Facilities

**Pedestrian Facilities**

- Terry Fox Drive has paved shoulders and a discontinuous Mult-Use Pathway (MUP) on the west side of the road.
- Cope Drive has concrete sidewalks on both sides east of Terry Fox Drive. It has a concrete sidewalk on the south side and MUP on the north side west of Terry Fox Drive.
- Fernbank Road east of Terry Fox Drive has concrete sidewalks on both sides. West of Terry Fox Drive, it has a paved MUP only along the frontage of 5357 Fernbank Road.

**Cycling Facilities**

- Terry Fox Drive is classified as a Crosstown Bikeway and currently contains paved shoulders and a discontinuous MUP on the west side.
- Cope Drive is classified as a suggested route between Terry Fox Drive and Eagleson Road and does not have any cycling facilities (mixed traffic). West of Terry Fox Drive, it has a MUP on the north side of the road.
- Fernbank Road west of Terry Fox Drive has paved shoulders and bike lanes east of it.

### 2.1.5 Transit

OC Transpo bus stops within a walking distance of 400m, or a five-minute walk, of the subject site are summarized as follows:

- Stop #4032 (Cope Drive/Terry Fox Drive) – Serves Route 168
- Stop #4031 (Cope Drive/Northgraves Crescent) – Serves Route 168 and 681
- Stop #1919 (Cope Drive/Templeford Avenue) – Serves Route 256 and 681
- Stop #6933 (Templeford Avenue/Cope Drive) – Serves Route 168
- Stop #1930 (Fernbank Road/Terry Fox Drive) – Serves Route 60 168 and 681

- The location of the bus stops with respect to the subject site are shown in **Figure 2**. Descriptions of the transit routes in proximity of the subject site are provided in **Table 1**. Route maps and existing bus stop utilization data are included in **Appendix C**.

### Table 1: OC Transpo Route Information

| Route | Description                                | Schedule    |              |                                                     |
|-------|--------------------------------------------|-------------|--------------|-----------------------------------------------------|
|       |                                            | Days        | Service      | Headways                                            |
| 60    | Cope ↔ Terry Fox/Tunney's Pasture (Local)  | Weekdays    | All Day      | All Day: 30 min                                     |
| 67    | Cope ↔ Terry Fox/Tunney's Pasture (Local)  | 7 Days/Week | Peak Periods | Morning/Evening: 30 min                             |
| 168   | Hope Side ↔ Terry Fox (Local)              | 7 Days/Week | All Day      | All Day: 30 min                                     |
| 256   | Tunney's Pasture ↔ Bridlewood (Connection) | Weekdays    | Peak Periods | Morning/Evening: 30-40 min                          |
| 681   | Bell H. S. ↔ Kanata (School)               | Weekdays    | School Hours | N/A – Only One Bus to/from School at 8 AM & 3:30 PM |

## 2.1.6 Area Traffic Management

Unit paver crosswalks are provided at the Cope Drive intersections with Northgraves Crescent, Templeford Avenue, and Akerson Road/Carronbridge Circle. There are currently no area traffic management measures in place along any other study area roadways.

## 2.1.7 Existing Traffic Volumes

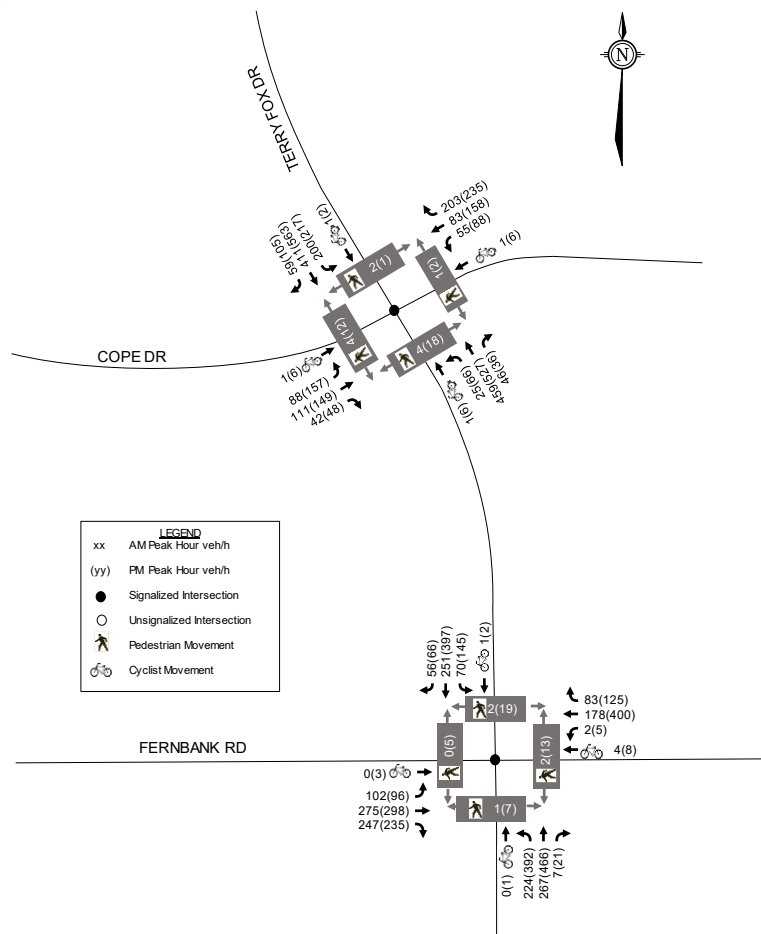
Weekday traffic counts were obtained from the City of Ottawa at the study area intersections to determine the existing pedestrian, cyclist, and vehicular traffic volumes. The traffic counts were completed on the following dates:

- Terry Fox Drive/Cope Drive
- Terry Fox Drive/Fernbank Road

September 07, 2022  
August 14, 2024

Existing traffic volumes along the study area roadways are shown in **Figure 3**. Peak hour summary sheets of the above traffic counts are included in **Appendix D**.

**Figure 3: Existing Traffic Volumes**



### 2.1.8 Collision Records

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

The collision data has been evaluated to determine if there are any identifiable collision patterns, defined in the 2017 TIA Guidelines as 'more than six collisions in five years' for any one movement. The following summarizes the number of collisions at each intersection from January 1, 2019, to December 31, 2024, is summarized in **Table 2** below.

**Table 2: Collision History**

| Intersection/<br>Street Segment                | Impact Types |       |             |           |                     |                               | Total |
|------------------------------------------------|--------------|-------|-------------|-----------|---------------------|-------------------------------|-------|
|                                                | Approach     | Angle | Rear<br>End | Sideswipe | Turning<br>Movement | SMV <sup>(1)</sup> /<br>Other |       |
| Intersection                                   |              |       |             |           |                     |                               |       |
| Cope Drive/Templeford Avenue                   | 0            | 1     | 1           | 0         | 0                   | 0                             | 2     |
| Terry Fox Drive/Cope Drive                     | 0            | 4     | 7           | 1         | 15                  | 3                             | 30    |
| Terry Fox Drive/Fernbank Road                  | 2            | 14    | 17          | 2         | 19                  | 1                             | 55    |
| Street Segment                                 |              |       |             |           |                     |                               |       |
| Terry Fox Drive b/w Cope Drive & Fernbank Road | 1            | 1     | 3           | 1         | 0                   | 1                             | 7     |

1. SMV = Single Motor Vehicle

#### Cope Drive & Templeford Avenue

Only two collisions occurred at this intersection. One of the collisions involved a northbound right turning vehicle and an eastbound cyclist which caused a non-fatal injury.

#### Terry Fox Drive & Cope Drive

Ten of the thirty collisions caused injuries, but none caused fatalities. None involved a cyclist but one involved an eastbound right turning vehicle and a pedestrian.

Of the thirty collisions, twenty-three occurred in clear conditions, three in rainy conditions, two in snowy conditions, and one in freezing rain conditions. Additionally, twenty-two occurred in daylight conditions, five in dark conditions, and three in dusk conditions.

Of the seven rear-end collisions:

- three of the vehicles were heading westbound;
- two of the vehicles were heading northbound; and,
- two of the vehicles were heading southbound.

Of the fifteen turning movement collisions:

- eleven involved southbound left turning vehicles;
- two involved northbound left turning vehicles;
- one involved eastbound left turning vehicle; and,
- one involved eastbound right turning vehicle;

Southbound left turn collisions at this location could be due to insufficient gaps for turning vehicles.

**Terry Fox Drive & Fernbank Road**

Eleven of the fifty-five collisions caused injuries, but none caused fatalities. One of the collisions involved an eastbound right turning vehicle and a southbound cyclist, but none involved a pedestrian.

Of the fifty-five collisions, forty occurred in clear conditions, eight in rainy conditions, six in snowy conditions, and one in foggy, misty, smoke and dust conditions. Additionally, forty-one occurred in daylight conditions, ten in dark conditions, and four in dusk conditions.

Of the fourteen angle collisions

- three involved eastbound and northbound vehicles;
- three involved southbound and eastbound vehicles;
- two involved eastbound and southbound vehicles;
- two involved westbound and southbound vehicles;
- two involved westbound and northbound vehicles;
- one involved southbound and westbound vehicles; and
- one involved northbound and westbound vehicles;

Of the seventeen rear-end collisions

- six involved eastbound vehicles;
- four involved westbound vehicles;
- four involved northbound vehicles; and,
- three involved southbound vehicles.

Of the nineteen turning movement collisions

- six involved southbound left turning vehicles with northbound vehicles;
- four involved northbound left turning vehicles with southbound vehicles;
- two involved eastbound left turning vehicle with northbound vehicle;
- two involved northbound left turning vehicles with southbound vehicles;
- one involved southbound left turning vehicle with northbound vehicle;
- one involved northbound left turning vehicle with westbound left turning vehicle;
- one involved northbound left turning vehicle with westbound vehicle;
- one involved westbound right turning vehicle with westbound vehicle; and
- one involved westbound left turning vehicle with northbound right turning vehicle.

Similar to the Terry Fox/Cope Drive intersection, southbound left turn collisions at this location could be due to insufficient gaps for turning vehicles.

**Terry Fox Drive between Cope Drive and Fernbank Road**

One of the seven collisions caused injuries, but none caused fatalities. None of the collisions involved a pedestrian or a cyclist.

## **2.2 Planned Conditions**

### **2.2.1 Transportation Projects**

As part of the City's approved 2025 Transportation Master Plan's (TMP) Capital Infrastructure Plan (CIP) Needs Based Road Network, Terry Fox Drive is planned to be widened from two to four lanes between Castlefrank Road and Eagleson Road. However, this project was not identified within the Priority Road Network.

The 2025 TMP's CIP includes a cycling project titled 'Terry Fox Drive Pathway' with the following description: "Multi-use Pathway connections along Terry Fox Drive from Westphalian Avenue to Condado Crescent." Per City of Ottawa construction forecast data, this project is anticipated to commence in 1-2 years.

## 2.2.2 Other Area Developments

Other developments within the vicinity of the subject site include:

### 5331 Fernbank Road & 1039 Terry Fox Drive (Iron Valley (IV) 1 Subdivision)

A TIA was prepared by Novatech dated March 2019, followed by an addendum dated October 28, 2020. The proposed development will include 47 single detached dwelling units, 16 semi-detached dwelling units, 109 townhouse units, and 36 back-to-back townhouse units, making a total of 208 residential units. Two driveways are proposed, one RIRO access to Terry Fox Drive and one full movement access to Cope Drive. Full buildout was expected by 2022, however based on June 30, 2025, Google Earth aerial imagery, the subdivision is still under construction.

### 1039 Terry Fox Drive (IV3 Subdivision)

A TIA was prepared by Novatech dated October 02, 2025, for the IV3 subdivision. The proposed development will include residential subdivision including 117 single detached units and 73 townhouse units and a commercial block. It was assumed in the TIA that the commercial block would contain 1,500m<sup>2</sup> of commercial retail. This development includes an extension of Micheal Cowpland Drive which travels through the IV3 site and connects to Terry Fox Drive. This extension of Micheal Cowpland Drive has been anticipated to alter the traffic patterns within the study area. Two driveways are proposed, one RIRO access to Terry Fox Drive and one full movement access to Micheal Cowpland Drive Extension. The development is anticipated to be completed in phases, with ultimate buildout in 2030.

### 80, 110, 140, and 151 Cope Drive; 150 and 170 Akerson Road

These are the last remaining vacant lands within the Cavanaugh Development's Trailwest Subdivision. A Zoning By-law (ZBL) Amendment application was received by the city in 2022, followed by a SPC application in 2023. Both the ZBL Amendment and SPC applications are under process. The applicant's proposal is to allow for the construction of 2 semi-detached, 50 townhouse, and 96 back-to-back townhouse dwellings, making a total of 148 dwellings. A review of the individual TIA Screening forms for all these properties uploaded on the City's Development Application Search tool indicates that the trip generation trigger is not met by any of these properties.

Relevant excerpts from the respective TIAs are included in **Appendix F**.

## 2.3 Study Area and Time Periods

A boundary street review has been conducted for Fernbank Road, Cope Drive, and Terry Fox Drive. The study area intersections are summarized as follows:

- Terry Fox Drive/Cope Drive
- Terry Fox Drive/Fernbank Road

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic.

## 2.4 Development Generated Travel Demand

### 2.4.1 Trip Generation

Based on the revised site plan, the development proposes a total of 180 residential units distributed between fifteen 3-storied buildings. Compared to the site plan included in previous submission, there is a reduction of twelve units. The difference in number of vehicle trips will be negligible and hence the trip generation has not been updated for this submission and is conservative. Both the site plans propose 3-storied buildings (classified as high-rise buildings in TRANS Trip Generation Manual). Trip generation projections are described in the following paragraphs.

Trips generated by the proposed development during the weekday AM and PM peak period have been estimated based on relevant rates presented in the City's 2020 TRANS Trip Generation Manual Summary Report. Peak period person trips, based on the Multi-Unit (High-Rise – 3+ Storey) rates in Table 3 of the TRANS report, are summarized in the following table.

**Table 3: Peak Period Person Trip Generation**

| Land Use                      | TRANS Rate           | Units | AM Peak Period (ppp <sup>(1)</sup> ) |     |     | PM Peak Period (ppp <sup>(1)</sup> ) |     |     |
|-------------------------------|----------------------|-------|--------------------------------------|-----|-----|--------------------------------------|-----|-----|
|                               |                      |       | IN                                   | OUT | TOT | IN                                   | OUT | TOT |
| High-Rise Multifamily Housing | AM: 0.80<br>PM: 0.90 | 192   | 48                                   | 106 | 154 | 100                                  | 73  | 173 |

1. ppp: Person Trips per Peak Period

Table 8 of the TRANS report includes data to estimate the mode shares for high-rise (3+ storey) multifamily housing for the AM and PM peak periods based on district. Based on the TRANS report, the mode shares for the Kanata-Stittsville district are summarized as follows:

- Auto Driver: 43% AM, 55% PM
- Auto Passenger: 26% AM, 19% PM
- Transit: 28% AM, 21% PM
- Cyclist: 0% AM, 0% PM
- Pedestrian: 4% AM, 5% PM

A breakdown of the peak period person trips by modal share is shown in **Table 5**.

**Table 4: Peak Period Person Trips by Modal Share**

| Travel Mode                     | Mode Share |     | AM Peak Period |            |            | PM Peak Period |           |            |
|---------------------------------|------------|-----|----------------|------------|------------|----------------|-----------|------------|
|                                 | AM         | PM  | IN             | OUT        | TOT        | IN             | OUT       | TOT        |
| <b>Peak Period Person Trips</b> |            |     | <b>48</b>      | <b>106</b> | <b>154</b> | <b>100</b>     | <b>73</b> | <b>173</b> |
| Auto Driver                     | 43%        | 55% | 20             | 45         | 65         | 55             | 40        | 95         |
| Auto Passenger                  | 26%        | 19% | 12             | 28         | 40         | 19             | 14        | 33         |
| Transit                         | 28%        | 21% | 13             | 30         | 43         | 21             | 15        | 36         |
| Cyclist                         | 0%         | 0%  | 0              | 0          | 0          | 0              | 0         | 0          |
| Pedestrian                      | 4%         | 5%  | 2              | 4          | 6          | 5              | 4         | 9          |

Table 4 of the TRANS report includes adjustment factors to convert the estimated number of trips generated for each mode from peak period to peak hour. A breakdown of the peak hour trips by mode is shown in **Table 6**.

**Table 5: Peak Hour Person Trips Generated by Mode Share**

| Travel Mode                   | Adj. Factor |      | AM Peak Hour |           |           | PM Peak Hour |           |           |
|-------------------------------|-------------|------|--------------|-----------|-----------|--------------|-----------|-----------|
|                               | AM          | PM   | IN           | OUT       | TOT       | IN           | OUT       | TOT       |
| Auto Driver                   | 0.48        | 0.44 | 10           | 21        | 31        | 24           | 18        | 42        |
| Auto Passenger                | 0.48        | 0.44 | 6            | 13        | 19        | 9            | 6         | 15        |
| Transit                       | 0.55        | 0.47 | 7            | 17        | 24        | 10           | 7         | 17        |
| Cyclist                       | 0.58        | 0.48 | 0            | 0         | 0         | 0            | 0         | 0         |
| Pedestrian                    | 0.58        | 0.52 | 1            | 2         | 3         | 3            | 2         | 5         |
| <b>Peak Hour Person Trips</b> |             |      | <b>24</b>    | <b>53</b> | <b>77</b> | <b>46</b>    | <b>33</b> | <b>79</b> |

From the previous table, the proposed development is estimated to generate 77 person trips (including 31 vehicle trips) during the AM peak hour and 79 person trips (including 42 vehicle trips) during the PM peak hour.

### 2.4.2 Trip Distribution

The distribution of traffic generated by the proposed development has been estimated based on area traffic patterns, the principles of logical trip routing, and a review of distributions for other area developments. The distribution of traffic to the area road network is summarized as follows:

- 40% to/from the north via Terry Fox Drive
- 25% to/from the east via Cope Drive
- 20% to/from the south via Terry Fox Drive
- 15% to/from the west via Fernbank Road and Cope Drive

The assignment of trips to the proposed accesses is summarized as follows:

#### Cope Drive Access

- 60% of trips to the north via Terry Fox Drive
- All trips from the north via Terry Fox Drive
- All trips to/from the east via Cope Drive
- All trips to the south via Terry Fox Drive
- All trips to the west via Fernbank Road
- All trips to/from the west via Cope Drive

#### Terry Fox Access

- 40% of trips to the north via Terry Fox Drive
- All trips from the south via Terry Fox Drive
- All trips from the west via Fernbank Road

Site generated traffic volumes are shown in **Figure 4**.

[illegible]

One new all movement access is proposed on Cope Drive, opposite Shelleright Street which leads to the under construction IV 1 subdivision north of Cope Drive, and a right-in right-out access to Terry Fox Drive. The sidewalk along Cope Drive will be depressed and continuous through the proposed access, per City of Ottawa Specification 7.1.

Section 25 (c) of the City of Ottawa's Private Approach By-law identifies that no private approach intended for two-way vehicular traffic shall exceed 9m in width at the street line. Section 107 (1)(a) of the City's Zoning By-law identifies a driveway serving a parking lot must have a minimum width of 6.7m for a double traffic lane. The width of the Cope Drive access conforms to the requirements of the City's Private Approach By-law and Zoning By-law. As the width of the Terry Fox Drive access is required to accommodate the proposed pork chop right-in right-out island, a waiver to Section 25 (c) of the Private Approach By-law is requested.

Page 12

Section 25 (s) of the City's Private Approach By-law identifies a driveway serving any parking area shall not exceed 2% grade and the grade shall descend in the direction of the roadway. Both the proposed accesses conform to this requirement of the Private Approach By-law.

Section 25 (u) of the City's Private Approach By-law identifies a maximum access grade of 2% for a distance of 9m within the property, where the access leads to 50 or more parking spaces. The proposed Cope Drive access adheres to this requirement. A maximum grade of 4% in the direction of the property is proposed at the proposed Terry Fox Drive access. Since it is not anticipated to impact sight lines or create a traffic hazard, a waiver to section 25 (u) is requested for the proposed Terry Fox Drive access.

Based on the projected northbound right turn volumes at the Terry Fox Drive access, a right turn lane is not recommended. A pork chop island will be provided to restrict this access to right-in right-out. The design of the pork chop island will be in accordance with Transportation Association of Canada (TAC) Geometric Design Guidelines standards.

Based on the projected eastbound right turn volumes at the Cope Drive access, a right turn lane is not recommended. The Ministry of Transportation of Ontario (MTO) left turn lane warrants were reviewed at the Cope Drive access. Based on the MTO graph included in **Appendix I**, a westbound left turn lane is not required. It is noted that an eastbound left turn lane will be provided for the Shelleright Street subdivision access opposite the Cope Drive access, as depicted in the functional design included in **Appendix J**. To provide improved access operations and safety, a westbound left turn lane will be painted in lieu of the previously proposed gore area runout taper. A revised functional design is included in **Appendix J**.

A review of Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD) at both accesses has been conducted in accordance with Transportation Association of Canada (TAC) Geometric Design Guidelines. For design purposes, TAC recommends a driver eye height of 1.08m. TAC identifies the following SSD and ISD requirements for the Cope Drive access, based on a design speed of 60km/hr, and the Terry Fox Drive access, based on a design speed of 80km/hr.

#### Cope Drive

- 85m SSD
- ISD:
  - 130m looking right, to turn left
  - 110m looking left, to turn right

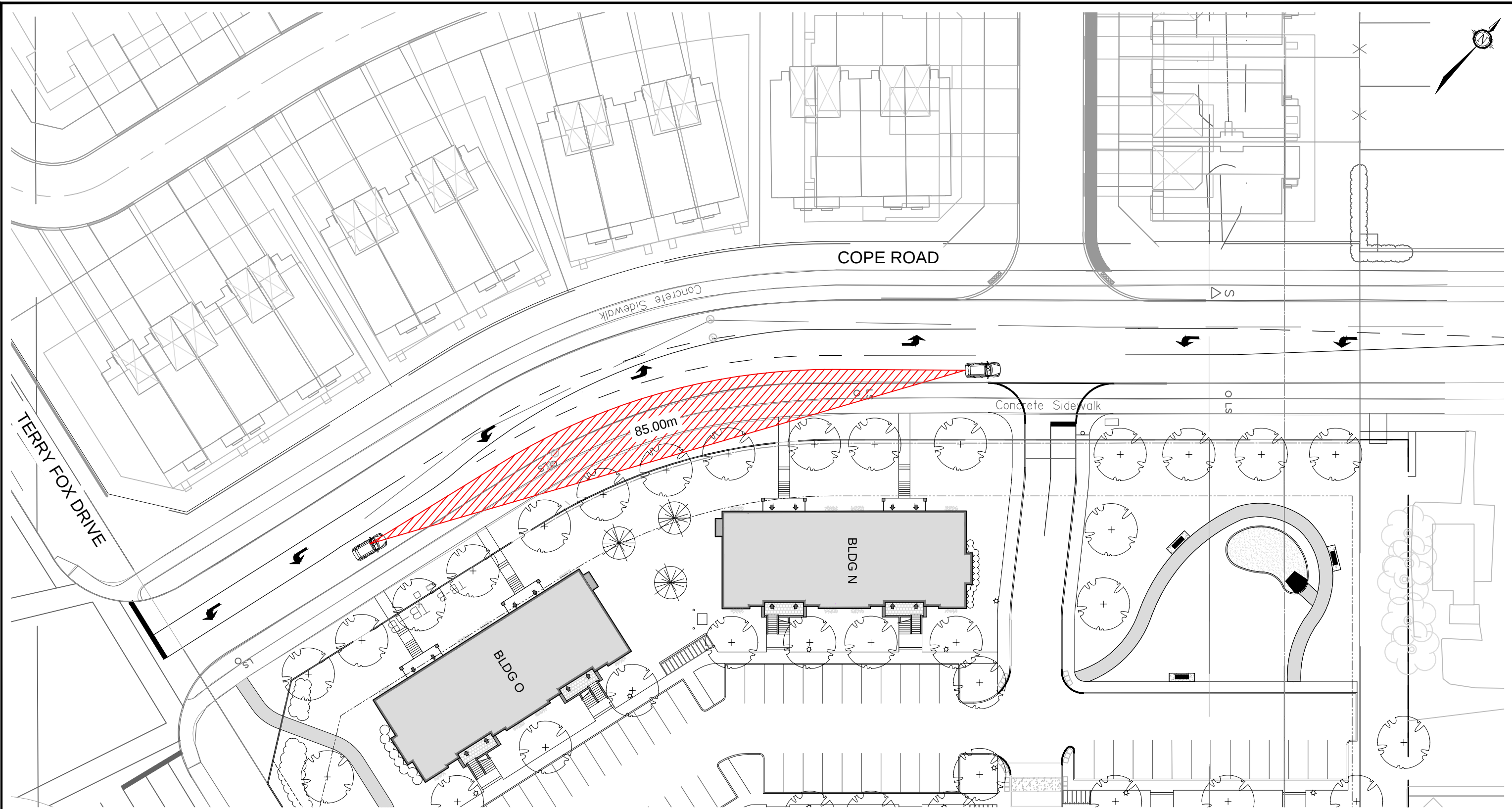
#### Terry Fox Drive

- 130m SSD
- ISD:
  - 145m looking left, to turn right

Based on the landscape plan, all the proposed trees along the Cope Drive right-of-way east and west of the proposed Cope Drive access are deciduous trees that have a high canopy and will not represent an obstruction to sightlines looking around the bend.

The required SSD and ISD at the Cope Drive access meets TAC requirements and is depicted in **Figure 5**, **Figure 6**, **Figure 8**, and **Figure 9**. The required SSD and ISD at the Terry Fox Drive access meets TAC requirements and is depicted in **Figure 7** and **Figure 10**.

C:\Temp\AcPublish\_27536\121011-SD.dwg, FIG5, Nov 18, 2025 - 2:42pm, rhiller



**NOVATECH**

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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)

5331 FERNBANK ROAD

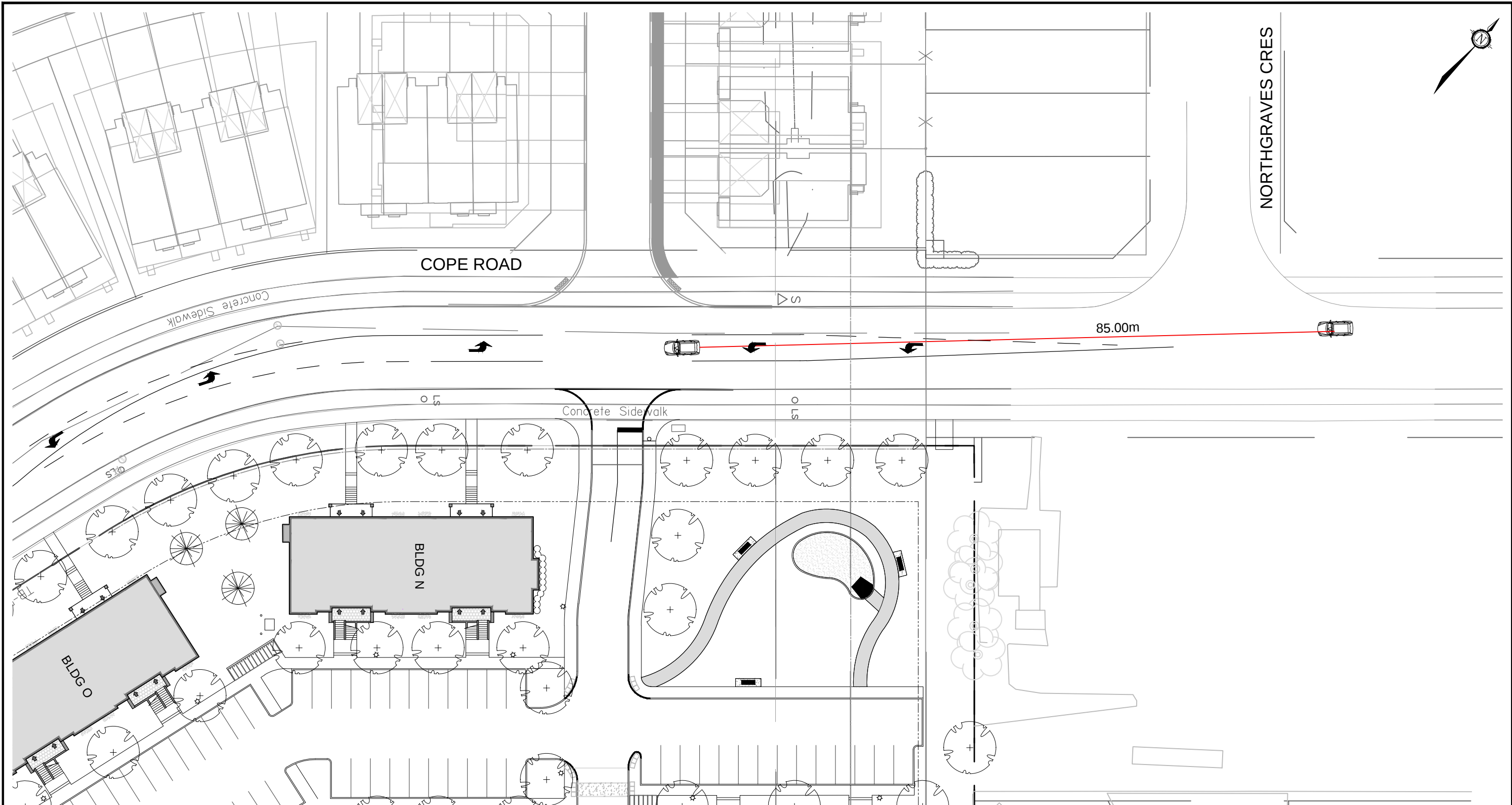
STOPPING SIGHT DISTANCE  
COPE DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE FIGURE 5

CUT11V17 DWG 270mm X 122mm

C:\Temp\AcPublish\_27536\121011-SD.dwg, FIG6, Nov 18, 2025 - 2:42pm, rhiller



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

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

5331 FERNBANK ROAD

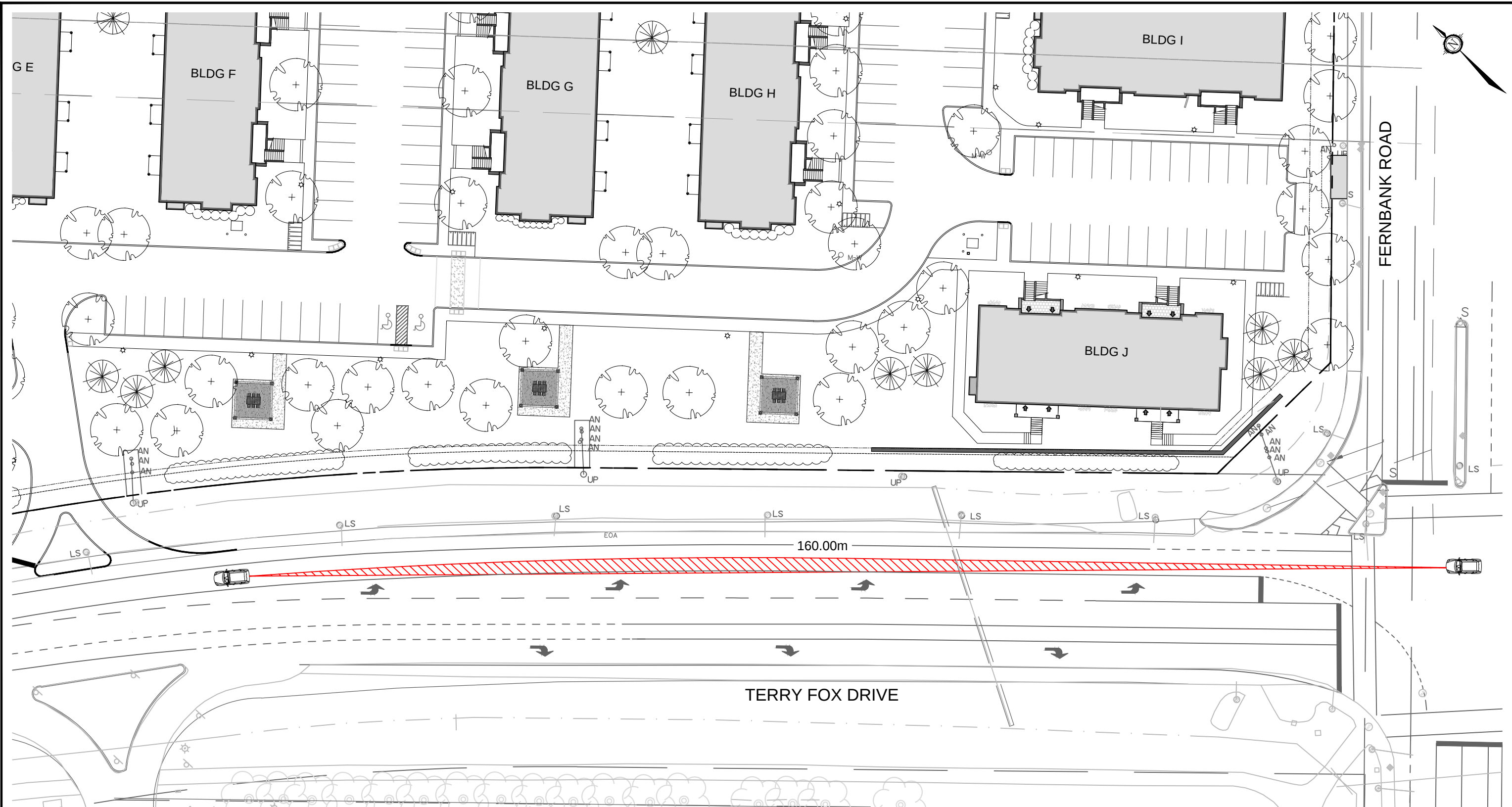
STOPPING SIGHT DISTANCE  
COPE DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE 6

CUT11V17 DWG 270mm X 122mm

C:\Temp\AcPublish\27536\121011-SD.dwg, FIG7, Nov 18, 2025 - 2:42pm, rhiller



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

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

5331 FERNBANK ROAD

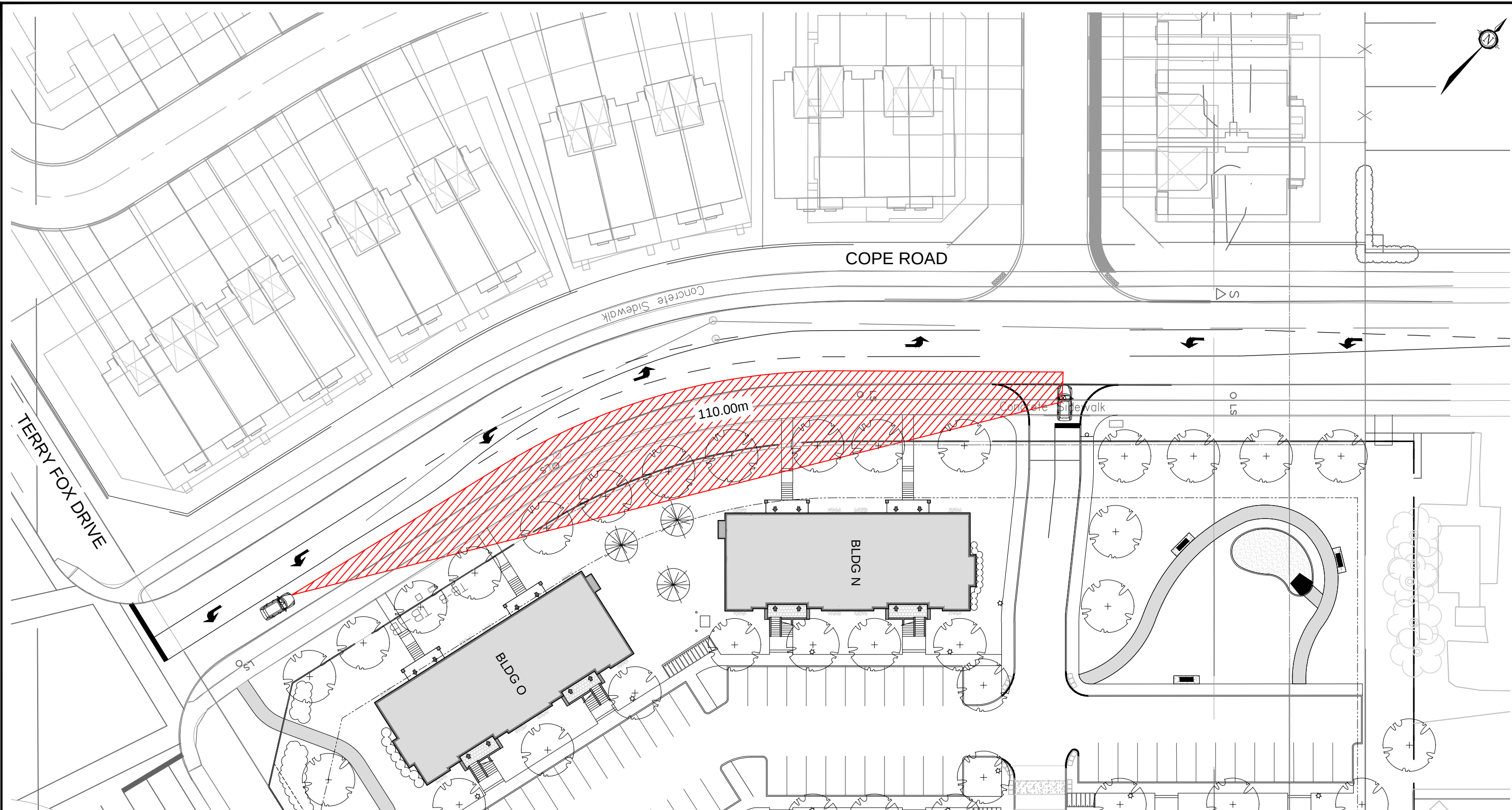
STOPPING SIGHT DISTANCE  
TERRY FOX DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE FIGURE 7

CUT11V17 DWG 270mm V122mm

C:\Temp\AcPublish\_27536\121011-SD.dwg, FIG8, Nov 18, 2025 - 2:42pm, rhiller



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

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

5331 FERNBANK ROAD

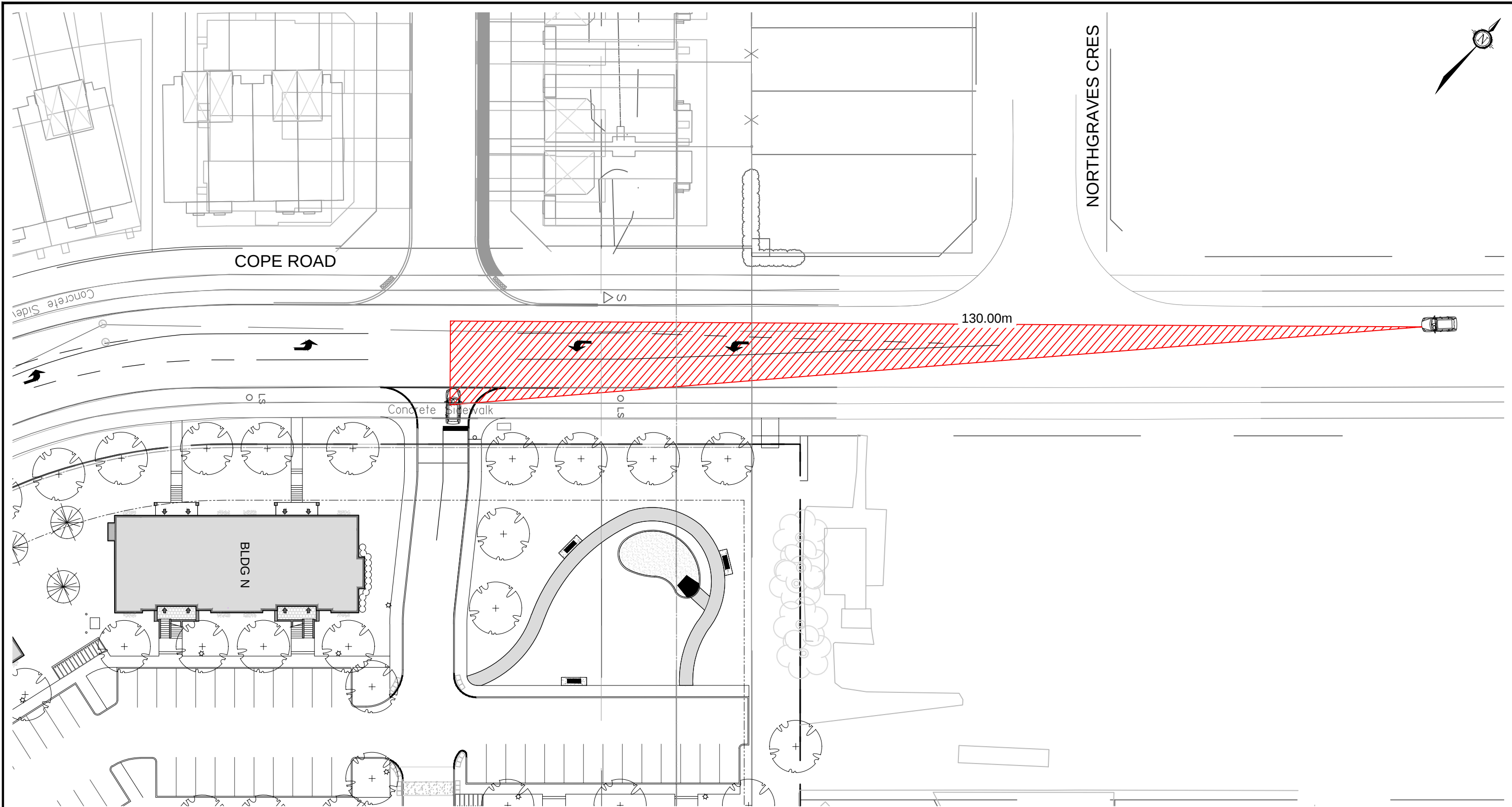
INTERSECTION SIGHT DISTANCE  
COPE DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE 8

CUT11V17 DWG 270mm X 122mm

C:\Temp\AcPublish\_27536\121011-SD.dwg, FIG9, Nov 18, 2025 - 2:42pm, rhiller



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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)

5331 FERNBANK ROAD

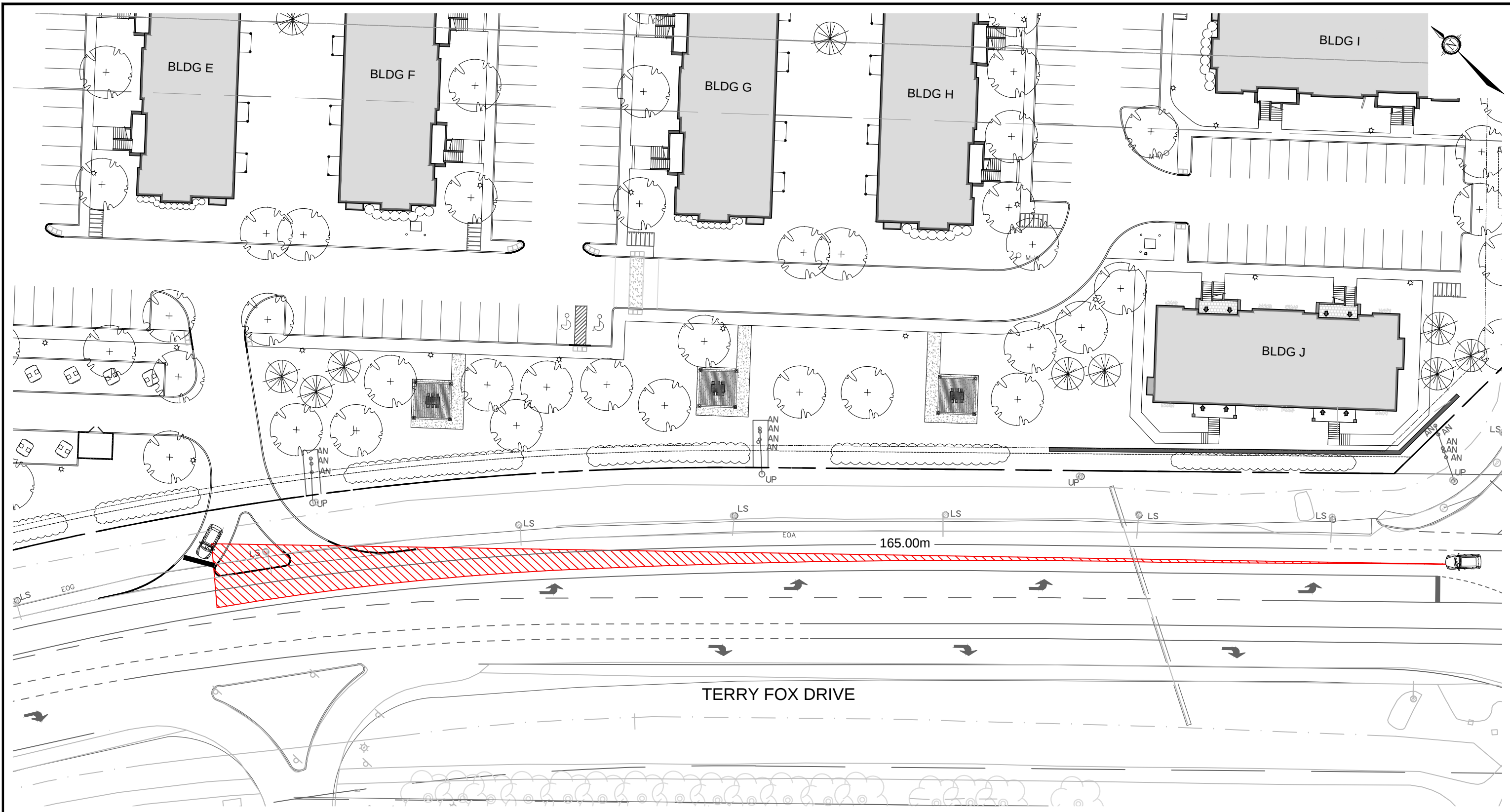
INTERSECTION SIGHT DISTANCE  
COPE DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE FIGURE 9

CUT11V17 DWG 270mm X 122mm

C:\Temp\AcPublish\_27536\121011-SD.dwg, FIG10, Nov 18, 2025 - 2:42pm, rhiller



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

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

5331 FERNBANK ROAD

INTERSECTION SIGHT DISTANCE  
TERRY FOX DRIVE

SCALE 1 : 500 0 5m 10m 20m

DATE JUN 2026 JOB 121011 FIGURE FIGURE 10

CUT11V17 DWG 270mm X 122mm

A review of the minimum clear throat requirements at both the accesses has been conducted in accordance with the *TAC Geometric Design Guidelines*. Based on Table 8.9.3 of *TAC*, for apartment land use with 100-200 units, a minimum clear throat length of 15m is recommended for driveways connecting to collector roadway (Cope Drive) and 25m is recommended for arterial roadway (Terry Fox Drive). This requirement is met for Cope Drive as it has approximately 38m of clear throat length. The minimum recommended clear throat length at the proposed Terry Fox Drive access is not available. A clear throat length of 22m is available between the end of the Terry Fox Drive access radii and the main north-south on-site drive aisle. The reduced clear throat length is attributable to the large radii required for the pork chop island. Additionally, it is noted that the egress for the garbage collection area is located within the clear throat length at this access. As there is approximately 40m of queuing space available between Terry Fox Drive and the main north-south drive aisle, and since vehicle movements exiting the garbage area will be infrequent, the proposed clear throat length is not anticipated to result in vehicles queuing onto Terry Fox Drive. Relief from recommended minimum clear throat requirements at the proposed Terry Fox access is requested.

Side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

## 2.6 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the TIA Guidelines. The applicable exemptions for this site are shown in **Table 6**.

**Table 6: TIA Exemptions**

| Module                                               | Element                                    | Exemption Criteria                                     | Status     |
|------------------------------------------------------|--------------------------------------------|--------------------------------------------------------|------------|
| <b>4.1</b><br>Development<br>Design                  | <i>4.1.1</i> Design for Sustainable Modes. | Required for all.                                      | Not Exempt |
|                                                      | <i>4.1.2</i> Circulation and Access        | Required for site plan and zoning by-law applications. | Not Exempt |
|                                                      | <i>4.1.3</i> New Street Networks           | Required for plans of subdivision.                     | Exempt     |
| <b>4.2</b><br>Parking                                | <i>All elements</i>                        | Required for site plan and zoning by-law applications. | Not Exempt |
| <b>4.3</b><br>Boundary<br>Street Design              | <i>All elements</i>                        | Required for all.                                      | Not Exempt |
| <b>4.5</b><br>Transportation<br>Demand<br>Management | <i>All Elements</i>                        | Required for all.                                      | Not Exempt |

| Module                                         | Element                                       | Exemption Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Status |
|------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>4.6</b><br>Neighbourhood<br>Traffic Calming | <i>All elements</i>                           | Required if all the below criteria are met:<br>1. Access is provided to a collector or local roadway.<br>2. Application is for zoning by-law amendment or draft plan of subdivision.<br>3. Proposed development generates more than 75 vehicle trips.<br>4. Site trip infiltration is expected, and site-generated traffic will increase peak hour volumes by 50%+ along the route between the site and an arterial road.<br>5. The subject street segment is adjacent to two or more of the following significant sensitive land uses:<br>○ School (within 250m walking distance)<br>○ Park<br>○ Retirement/older adult facility<br>○ Licensed childcare centre<br>○ Community centre<br>○ 50+% of adjacent properties along the route(s) are occupied by residential lands and at least ten dwellings are occupied | Exempt |
| <b>4.7</b><br>Transit                          | <b>4.7.1</b><br>Transit Route Capacity        | Required when the proposed development generates more than 75 transit trips.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Exempt |
|                                                | <b>4.7.2</b><br>Transit Priority Requirements | Required when the proposed development generates more than 75 vehicle trips.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Exempt |
| <b>4.8</b><br>Network Concept                  | <i>All elements</i>                           | Required when the proposed development generates >200 person trips during the peak hour in excess of the equivalent volume permitted by the established zoning.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Exempt |
| <b>4.9</b><br>Intersection Design              | <i>All elements</i>                           | Required when the proposed development generates more than 75 vehicle trips.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Exempt |

### 3.0 FORECASTING

#### 3.1 Background Traffic

##### 3.1.1 Other Area Developments

A description of other study area developments is included in section 2.2.2 The following other area developments have been added to the background traffic conditions:

- 5331 Fernbank Road and 1039 Terry Fox Drive (IV1 Subdivision): 100% buildout by 2030
- 1039 Terry Fox Drive (IV3 Subdivision): 100% buildout by 2030

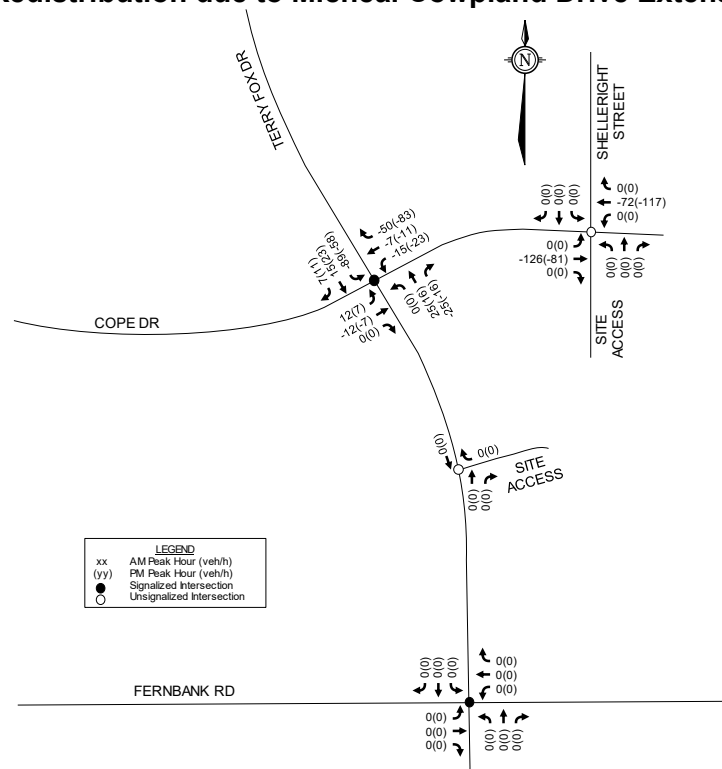
### 3.1.2 Background Growth Rate

Based on the snapshots of the City's long-range model, a growth rate of roughly 2% is expected on Terry Fox Drive, Fernbank Road and Cope Drive. This 2% growth rate is consistent with the Van Gaal Lands Community Transportation Study (CTS) and the recent TIA's completed for 5331 Fernbank and 1039 Terry Fox Drive (IV1 Subdivision), and 1039 Terry Fox Drive (IV3 Subdivision).

### 3.1.3 Traffic Redistribution due to Micheal Cowpland Drive Extension

As stated in section 2.2.2 that as part of the 1039 Terry Fox Drive Subdivision (IV3 Subdivision), Micheal Cowpland Drive to its west will be extended to meet at Terry Fox Drive. This is anticipated to redistribute the traffic within the study area. The redistribution of the traffic was performed within the 1039 Terry Fox Drive TIA and is shown in the **Figure 11**. The traffic on Cope Drive was anticipated to reduce and reassign itself to the Micheal Cowpland Drive extension.

**Figure 11: Traffic Redistribution due to Micheal Cowpland Drive Extension**



### 3.1.4 Future Traffic Conditions

Background traffic volumes for 2030 buildout year 2035 horizon year are shown in **Figure 12** and **Figure 13** respectively. Total traffic volumes for 2030 buildout year and 2035 horizon year are shown in **Figure 14** and **Figure 15**.

Figure 12: Background 2030 Traffic Volumes

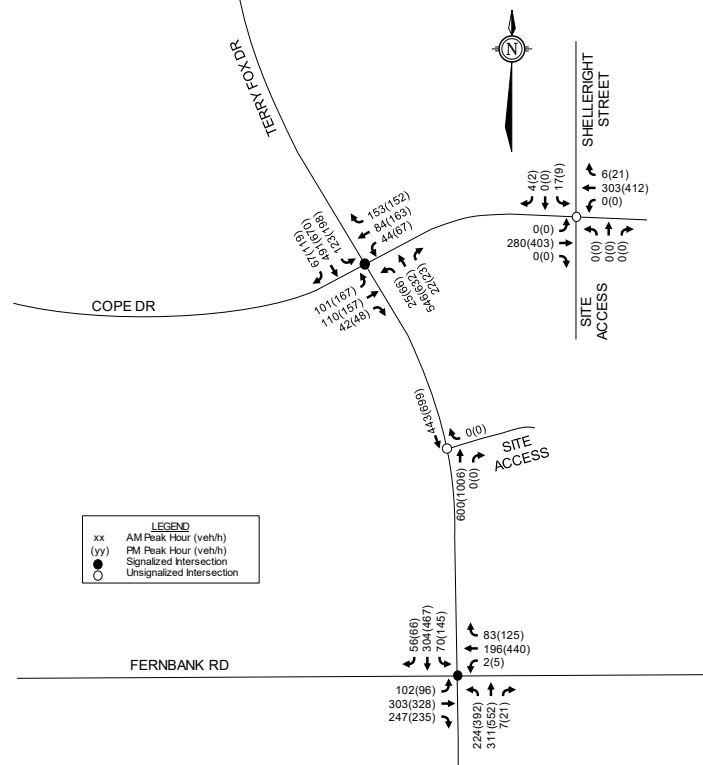


Figure 13: Background 2035 Traffic Volumes

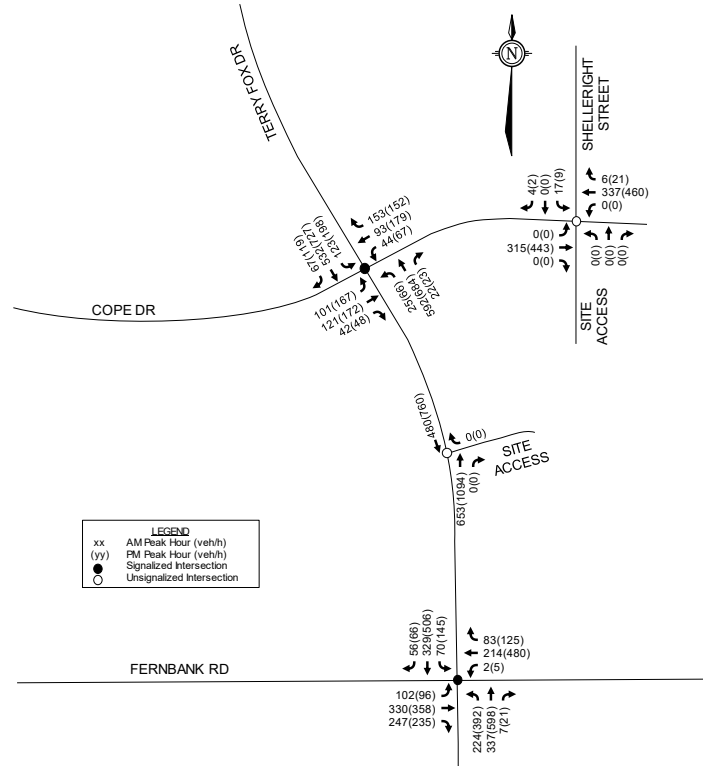


Figure 14: Total 2030 Traffic Volumes

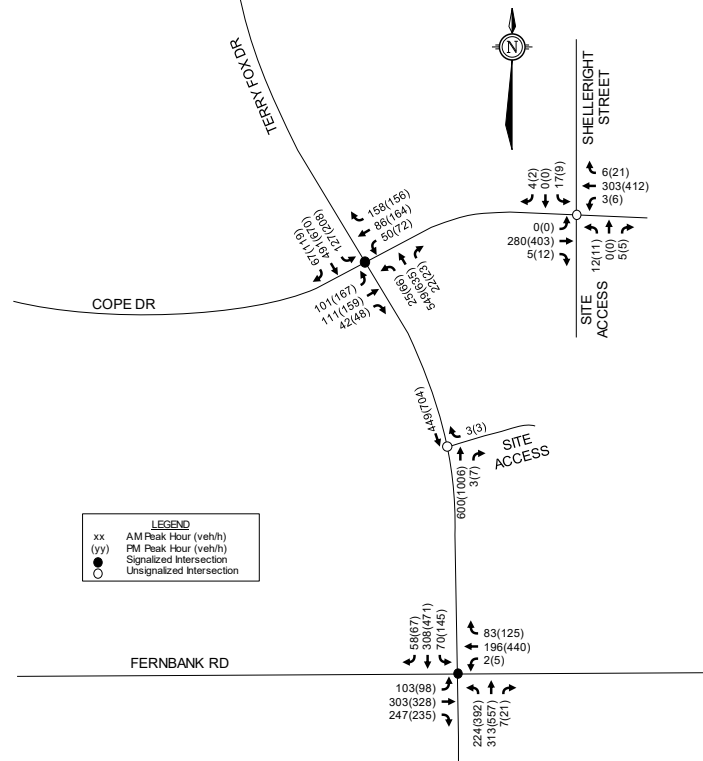
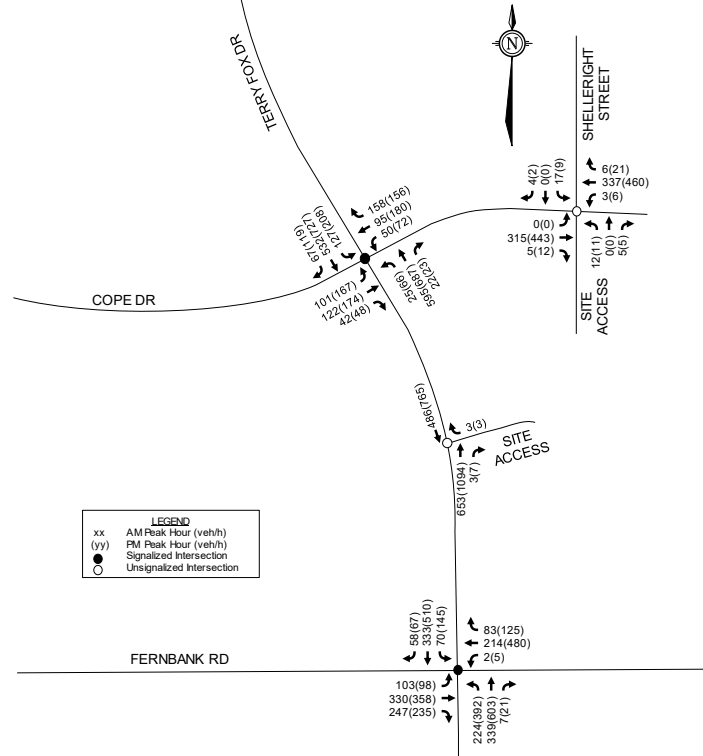


Figure 15: Total 2035 Traffic Volumes



## 4.0 ANALYSIS

### 4.1 Development Design

#### 4.1.1 Design for Sustainable Modes

Sidewalk will be provided along the west side of the main drive-aisle. The buildings on the east side of the main drive-aisle will have sidewalk only along their frontages which will be connected to the sidewalk along the main drive aisle by raised concrete crosswalks with Tactile Walking Surface Indicators (TWSI) and transitions. The buildings on the west side of the main drive-aisle will also have sidewalk along their frontages connecting to the sidewalk along the main drive-aisle. The proposed sidewalks will provide connectivity to the existing sidewalks along Cope Drive and Fernbank Road. The proposed on-site sidewalk network will also provide connectivity to the existing pathway leading to Patriot Place.

No sidewalk connections are proposed to the Terry Fox Drive. Currently there are no sidewalks on Terry Fox Drive and the City's new TMP does not include urbanization or widening in the Priority Road Network (i.e., any improvements will be post 2046). Additionally, there are no bus stops along this stretch of Terry Fox Drive (bus stops are on Cope Drive and Fernbank Road). Any sidewalk connections from the subject site to Terry Fox Drive will promote uncontrolled crossing to Walmart, which is unsafe. The proposed on-site pathway network will direct pedestrians to sidewalks along Cope Drive and Fernbank Road, which provide connectivity across Terry Fox Drive at signalized intersection locations. Additionally, a paved walking path has been provided at the northwest corner of the site which runs from midway through the site and connects to Terry Fox Drive/Cope Drive intersection.

The proposed raised concrete crosswalks along the main drive-aisle will also provide traffic calming by preventing the vehicles from speeding along the long straight drive aisle.

Bicycle parking will be in accordance with the minimum requirements of the City's Zoning By-law. Bicycle parking racks will be located near the entrances for each building.

The closest OC Transpo bus stops to the subject site are #5521, #4031, #1919, and #6933 along Cope Drive, #0154, #1930, and #1933 along Fernbank Road, and #4032 along Terry Fox Drive. These bus stops serve OC Transpo Routes 60, 67, 168, 256, and 681 and can be accessed via the proposed pedestrian connections to Cope Drive and Fernbank Road.

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

- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops

- Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible

#### 4.1.2 Circulation

The main drive aisle will function as the fire route for the development, as shown on the Site Plan in **Appendix A**.

Garbage collection will be conducted on-site. Earth bins will be located on the west side of the main drive aisle beside Building M. The turning movements of a Medium Single Unit Truck, which is representative of a garbage truck, accessing the earth bins are included in **Figure 16** and **Figure 17**.

As the site's fire route includes the proposed Terry Fox Drive entrance, the pork chop has been designed to accommodate the turning movements of a fire truck. Fire Truck turning movements at the Terry Fox Drive access are shown in **Figure 18** and **Figure 19**.

#### 4.2 Parking

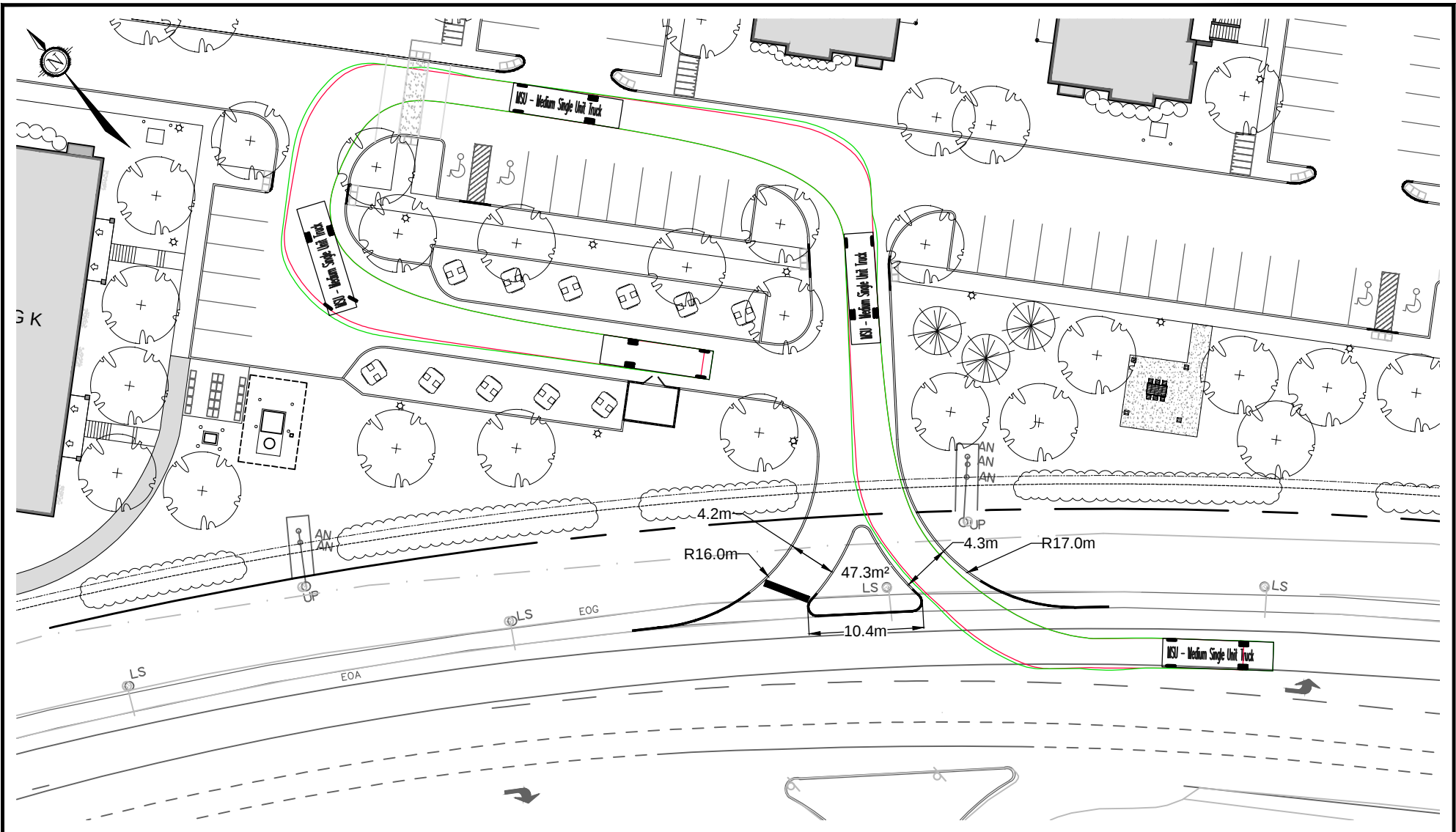
The subject site is located in Area C on Schedule 1 and 1A of the City of Ottawa's Zoning By-Law. Minimum vehicular and bicycle parking rates for the proposed development are identified in the Zoning By-law and are summarized in the **Table 7**.

**Table 7: Minimum Parking Requirements**

| Land Use        | Minimum Parking Rate           | Units | Required | Provided |
|-----------------|--------------------------------|-------|----------|----------|
| Vehicle Parking |                                |       |          |          |
| Apartment       | 1.2 spaces per unit (resident) | 180   | 216      | 216      |
|                 | 0.2 spaces per unit (visitor)  |       | 36       | 36       |
| Total           |                                |       | 252      | 252      |
| Bicycle Parking |                                |       |          |          |
| Apartment       | 0.5 spaces per unit            | 180   | 90       | 90       |
| Total           |                                |       | 90       | 90       |

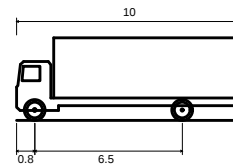
Based on the above table, a total of 216 vehicle parking spaces (216 resident, 36 visitor) and 90 bicycle parking spaces are proposed, meeting the minimum requirements of the City's Zoning By-law.

C:\Temp\AcPublish\_27536\121011-TM.dwg, Fig16, Nov 18, 2025 - 2:04pm, rhiller



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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)



MSU - Medium Single Unit Truck

|                             |         |
|-----------------------------|---------|
| Overall Length              | 10.000m |
| Overall Width               | 2.600m  |
| Overall Body Height         | 3.650m  |
| Min Body Ground Clearance   | 0.445m  |
| Track Width                 | 2.600m  |
| Lock-to-lock time           | 4.00s   |
| Curb to Curb Turning Radius | 11.100m |

5331 FERNBANK ROAD

## TURNING MOVEMENTS (MSU / GARBAGE TRUCK)

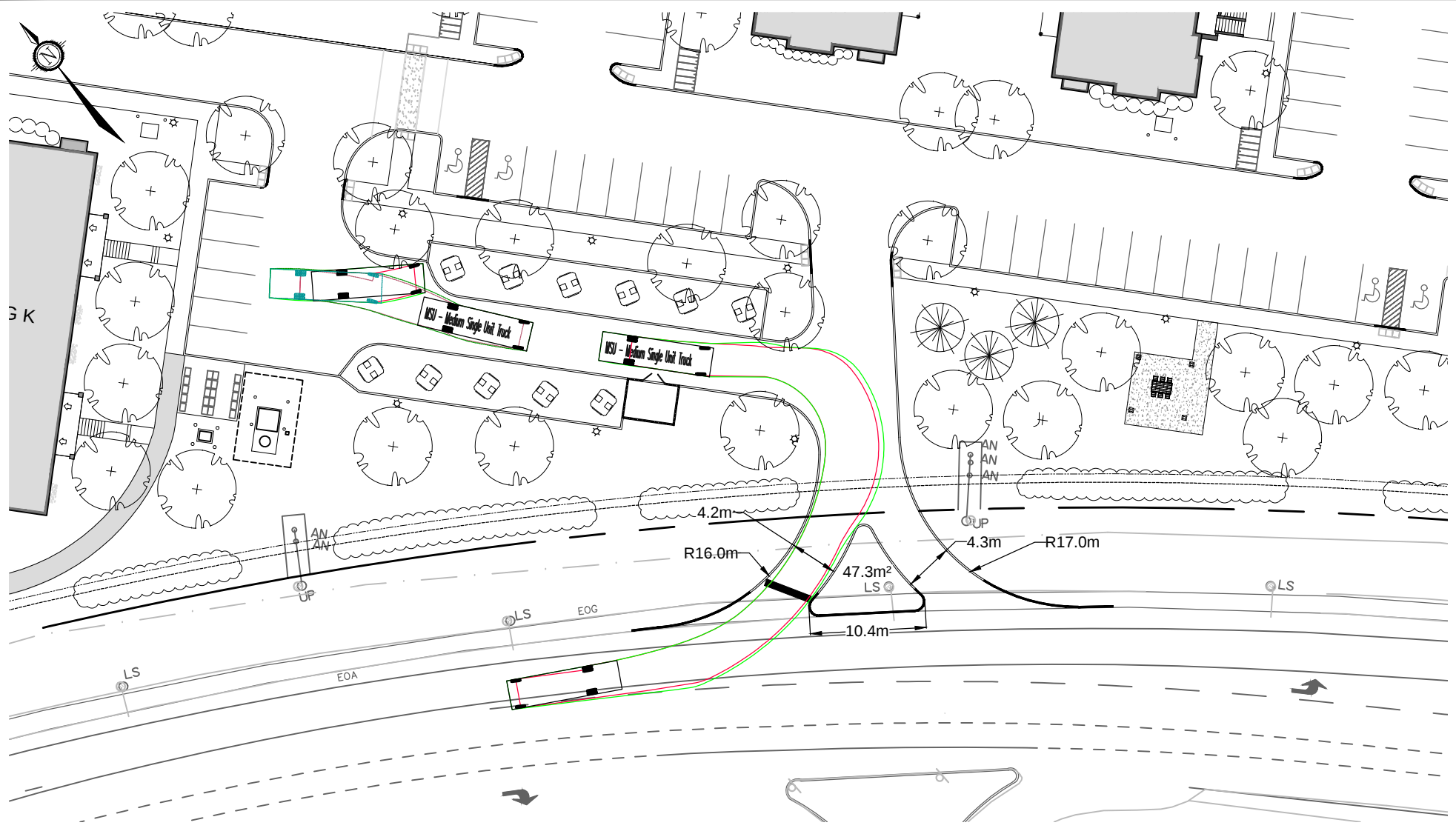
SCALE 1 : 500



DATE JUN 2026

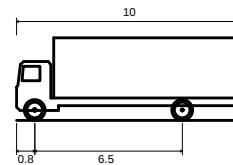
JOB 121011

FIGURE 16



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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)



MSU - Medium Single Unit Truck

|                             |         |
|-----------------------------|---------|
| Overall Length              | 10.000m |
| Overall Width               | 2.600m  |
| Overall Body Height         | 3.650m  |
| Min Body Ground Clearance   | 0.445m  |
| Track Width                 | 2.600m  |
| Lock-to-lock time           | 4.00s   |
| Curb to Curb Turning Radius | 11.100m |

5331 FERNBANK ROAD

## TURNING MOVEMENTS (MSU / GARBAGE TRUCK)

SCALE 1 : 500

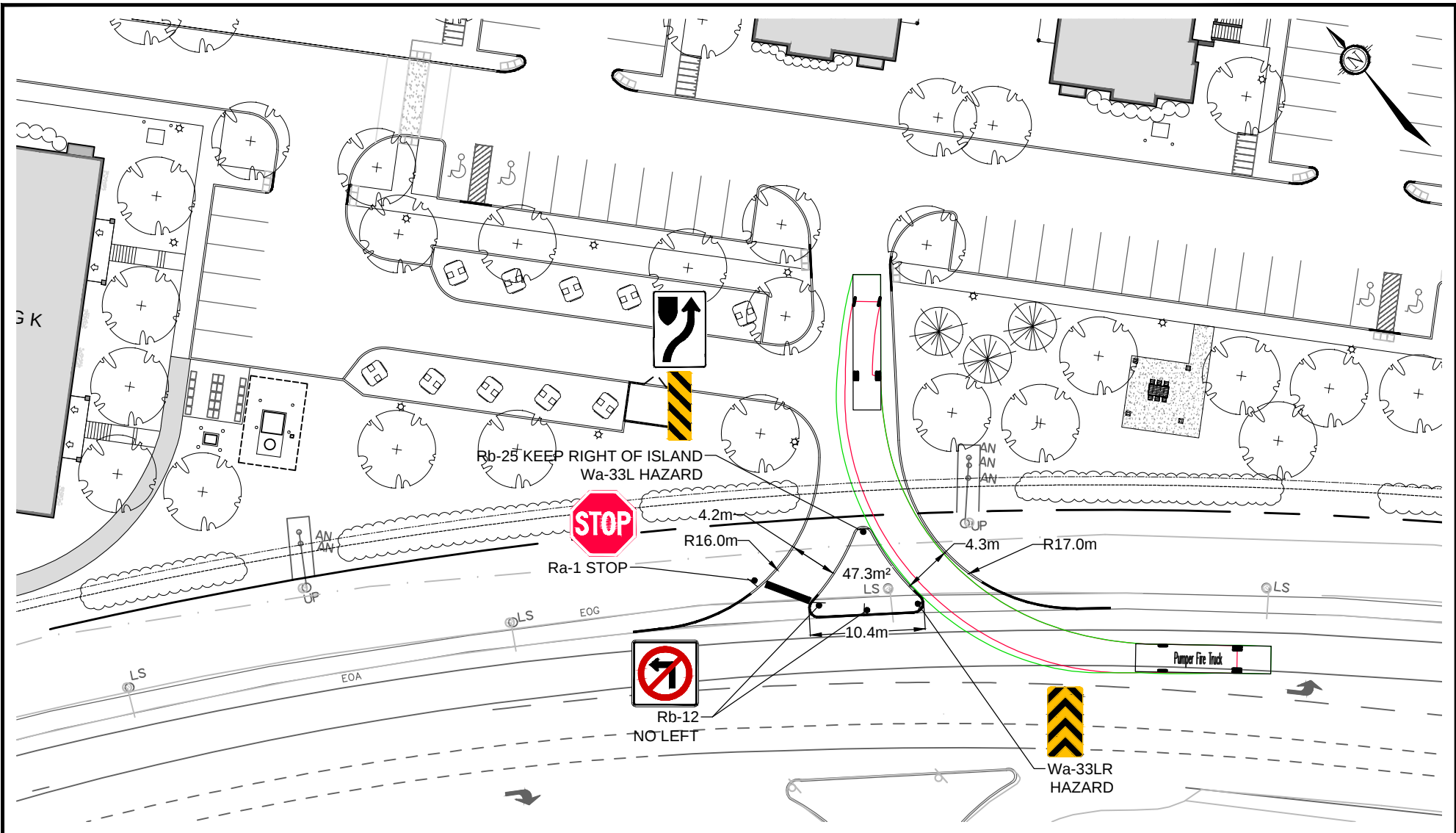


DATE JUN 2026

JOB 121011

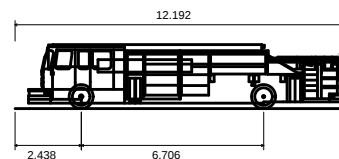
FIGURE 17

C:\Temp\AcPublish\_27536\121011-TM.dwg, Fig18, Nov 18, 2025 - 2:04pm, rhiller



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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)



Pumper Fire Truck

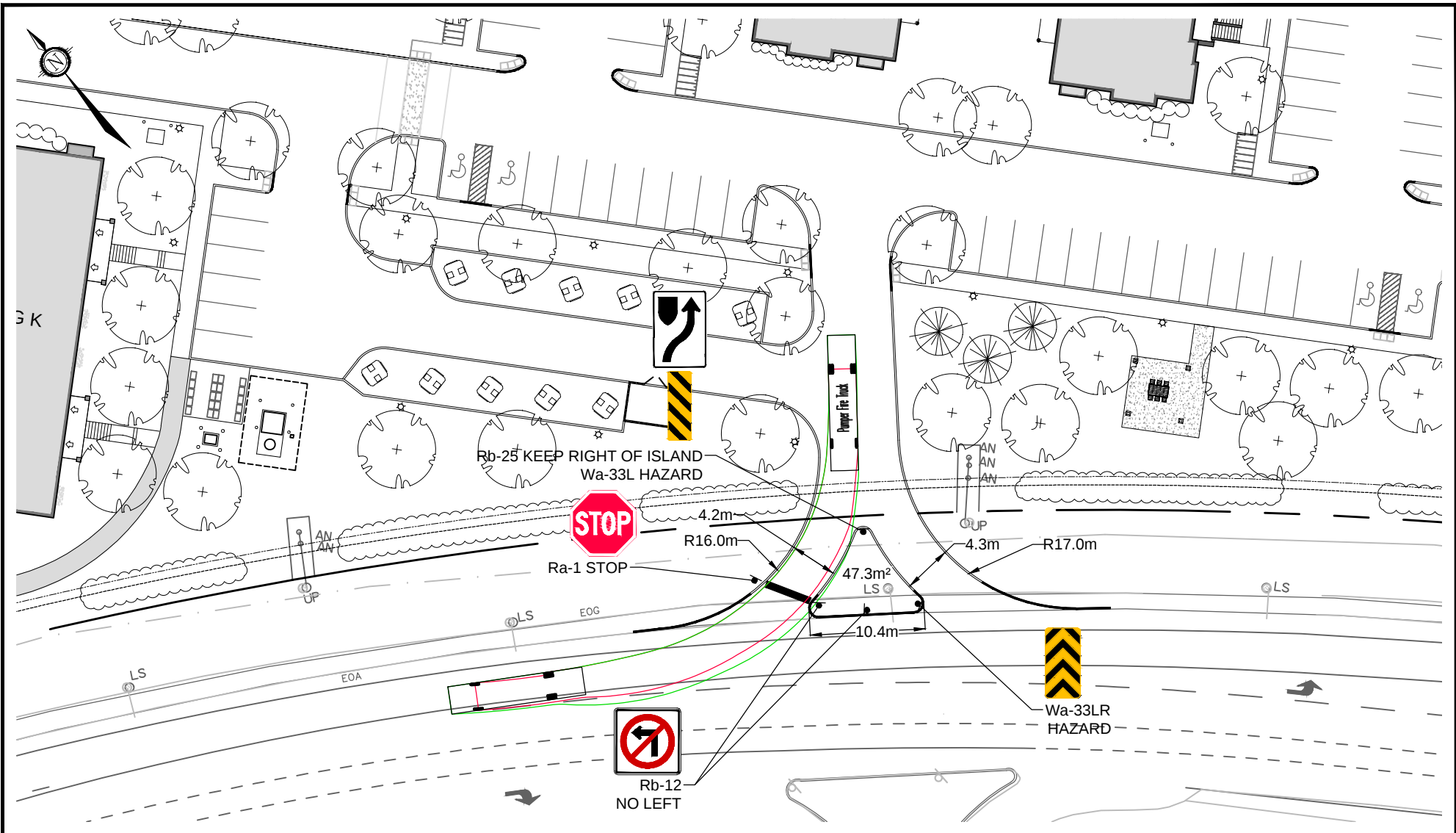
|                           |         |
|---------------------------|---------|
| Overall Length            | 12.192m |
| Overall Width             | 2.489m  |
| Overall Body Height       | 2.361m  |
| Min Body Ground Clearance | 0.200m  |
| Track Width               | 2.489m  |
| Lock-to-lock time         | 5.00s   |
| Max Wheel Angle           | 45.00°  |

5331 FERNBANK ROAD

## TURNING MOVEMENTS (FIRE TRUCK)

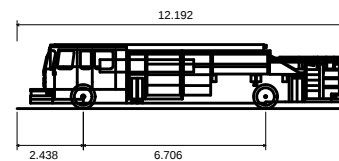
SCALE 1 : 500

DATE JUN 2026 JOB 121011 FIGURE 18



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

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website [www.novatech-eng.com](http://www.novatech-eng.com)



Pumper Fire Truck

|                           |         |
|---------------------------|---------|
| Overall Length            | 12.192m |
| Overall Width             | 2.489m  |
| Overall Body Height       | 2.361m  |
| Min Body Ground Clearance | 0.200m  |
| Track Width               | 2.489m  |
| Lock-to-lock time         | 5.00s   |
| Max Wheel Angle           | 45.00°  |

5331 FERNBANK ROAD

## TURNING MOVEMENTS (FIRE TRUCK)

SCALE 1 : 500

DATE JUN 2026 JOB 121011 FIGURE 19

### 4.3 Boundary Streets

This section provides a review of the boundary streets using complete streets principles. The Multi-Modal Level of Service (MMLOS) guidelines produced by IBI Group in 2015 were used to evaluate the LOS of the boundary roadways for each mode of transportation. Schedule 'B' of the City of Ottawa's Official Plan indicates that Cope Drive, Fernbank Road, and Terry Fox Drive are located within the General Urban Area.

A summary of the results of the segment MMLOS analysis for the boundary roadways is provided in the **Table 8**. Detailed segment MMLOS calculations can be found in **Appendix H**.

**Table 8: Segment MMLOS Summary**

| Segment         | PLOS     | BLOS     | TLOS | TkLOS    |
|-----------------|----------|----------|------|----------|
| Cope Drive      | C        | F        | D    | B        |
| <b>Target</b>   | <b>C</b> | <b>B</b> | -    | -        |
| Fernbank Road   | F        | E        | D    | C        |
| <b>Target</b>   | <b>C</b> | <b>C</b> | -    | <b>E</b> |
| Terry Fox Drive | F        | E        | D    | C        |
| <b>Target</b>   | <b>C</b> | <b>B</b> | -    | <b>D</b> |

Cope Drive meets the target PLOS but does not meet the target BLOS for the general urban area. Based on the criteria in Exhibit 11 of the MMLOS Guidelines, either a reduction in operating speed combined with bike lanes or a separated cycling facility are required to achieve the target BLOS B. This is identified for the City's consideration.

Fernbank Road meets the target TkLOS for the general urban area. However, it does not meet a target PLOS C and BLOS C. Based on Exhibit 4 of the MMLOS Guidelines, a boulevard width of 0.5m or greater between the sidewalk and the roadway is required on the north side of the road. A reduction in the operating speed is required to achieve the target PLOS C on the south side of the road. Based on the criteria in Exhibit 11 of the MMLOS Guidelines, either a reduction in operating speed or a separated cycling facility are required to achieve the target BLOS C. This is identified for the City's consideration.

Terry Fox Drive meets the target TkLOS. However, it does not meet the target PLOS and BLOS. While the existing paved shoulders along Terry Fox Drive provide a PLOS F and BLOS E, it is noteworthy that there is a discontinuous MUP on the west side of the road. As described in Section 2.2.1, the planned Terry Fox Drive Pathway project will connect the missing links in the MUP network. Following implementation of the continuous MUP network, Terry Fox Drive will achieve PLOS D and BLOS A.

### 4.4 Transportation Demand Management

#### 4.4.1 Context for TDM

The proposed development will contain 180 two-bedroom residential units.

#### 4.4.2 Need and Opportunity

The assumed modal shares for the development are consistent with the existing modal shares associated with high-rise (3+ storey) residential developments in the Kanata/Stittsville district. Based on this, the proposed development is anticipated to meet the assumed modal shares.

#### 4.4.3 TDM Program

The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, bicycle, and transit systems as outlined in section 4.1.1. A review of the TDM – Measures Checklist has been conducted and is included in **Appendix G**. The following measures will be implemented within the proposed development:

- Unbundle parking from purchase price, and
- Provide multimodal travel option information package to new residents.

### 5.0 CONCLUSIONS AND RECOMMENDATIONS

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

#### Trip Generation

- The proposed development is anticipated to generate 77 person trips (31 vehicle trips) during the AM peak and 79 person trips (42 vehicle trips) during the PM peak.

#### Access Intersections Design

- One new all movement access is proposed on Cope Drive, opposite Shelleright Street leading to the subdivision north of Cope Drive, and a right-in right-out access to Terry Fox Drive. The sidewalk along Cope Drive will be depressed and continuous through the proposed accesses, per City of Ottawa Specification 7.1.
- The width of the Cope Drive access conforms to the requirements of the City's Private Approach By-law and Zoning By-law.
- As the width of the Terry Fox Drive access is required to accommodate the proposed pork chop right-in right-out island, a waiver to Section 25 (c) of the Private Approach By-law is requested.
- The location of both accesses meet the requirements of the Private Approach By-law.
- A maximum grade of 2% is proposed for a distance of 9m within the private property at the proposed Cope Drive access, conforming to the requirements of the Private Approach By-law. A maximum grade of 4% in the direction of the property is proposed at the proposed Terry Fox Drive access. Since it is not anticipated to impact sight lines or create a traffic hazard, a waiver to section 25 (u) is requested for the proposed Terry Fox Drive access.
- Based on the projected northbound right turn volumes at the Terry Fox Drive access, a right turn lane is not recommended. A pork chop island will be provided to restrict this access to right-in right-out.
- Based on the projected eastbound right turn volumes at the Cope Drive access, a right turn lane is not recommended.
- To provide improved access operations and safety, a westbound left turn lane will be painted in lieu of the previously proposed gore area runout taper as part of the left turn lane for the subdivision opposite the proposed development.

- The required Stopping Sight Distance and Intersection Sight Distance at both accesses meet TAC requirements.
- The TAC recommended minimum clear throat requirement is met at Cope Drive access. At the proposed Terry Fox Drive access, a clear throat length of 22m is available between the end of the Terry Fox Drive access radii and the main north-south on-site drive aisle. The reduced clear throat length is attributable to the large radii required for the pork chop island. Additionally, it is noted that the egress for the garbage collection area is located within the clear throat length at this access. As there is approximately 40m of queuing space available between Terry Fox Drive and the main north-south drive aisle, and since vehicle movements exiting the garbage area will be infrequent, the proposed clear throat length is not anticipated to result in vehicles queuing onto Terry Fox Drive. Relief from recommended minimum clear throat requirements at the proposed Terry Fox access is requested.
- Side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

#### Development Design

- A network of sidewalks will be provided on site providing connectivity to each of the proposed buildings, existing sidewalks on Cope Drive and Fernbank Road, as well as the existing pathway leading to Patriot Place. Additionally, a paved walking path has been provided at the northwest corner of the site which runs from midway through the site and connects to Terry Fox Drive/Cope Drive intersection.
- Bicycle parking will be in accordance with the minimum requirements of the City's Zoning By-law. Bicycle parking racks will be located near the entrances for each building.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Garbage collection will be conducted on-site. Earth bins will be located on the west side of the main drive aisle in a garbage area beside Building M.

#### Parking

- A total of 252 vehicle parking spaces (216 resident, 36 visitor) and 90 bicycle parking spaces are proposed, meeting the minimum requirements of the City's Zoning By-law.

#### Boundary Street Design

- Cope Drive meets the target PLOS but does not meet the target BLOS for the general urban area. Either a reduction in operating speed combined with bike lanes or a separated cycling facility are required to achieve the target BLOS B. This is identified for the City's consideration.
- Fernbank Road meets the target TkLOS for the general urban area. However, it does not meet a target PLOS C and BLOS C. A boulevard width of 0.5m or greater between the sidewalk and the roadway is required on the north side of the road. A reduction in the operating speed is required to achieve the target PLOS C on the south side of the road. Either a reduction in operating speed or a separated cycling facility are required to achieve the target BLOS C. This is identified for the City's consideration.
- Terry Fox Drive meets the target TkLOS. However, it does not meet the target PLOS and BLOS. While the existing paved shoulders along Terry Fox Drive provide a PLOS F and BLOS E, it is noteworthy that there is a discontinuous MUP on the west side of the road. The planned Terry Fox Drive Pathway project will connect the missing links in the MUP network. Following implementation of the continuous MUP network, Terry Fox Drive will achieve PLOS D and BLOS A.

Transportation Demand Management

- The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, bicycle, and transit systems.
- The following additional TDM measures will be implemented within the proposed development:
  - Unbundle parking from purchase price, and
  - Provide multimodal travel option information package to new residents.

**NOVATECH**

Prepared by:



Mohammed Talha, M. Eng.  
Engineering Intern | Transportation

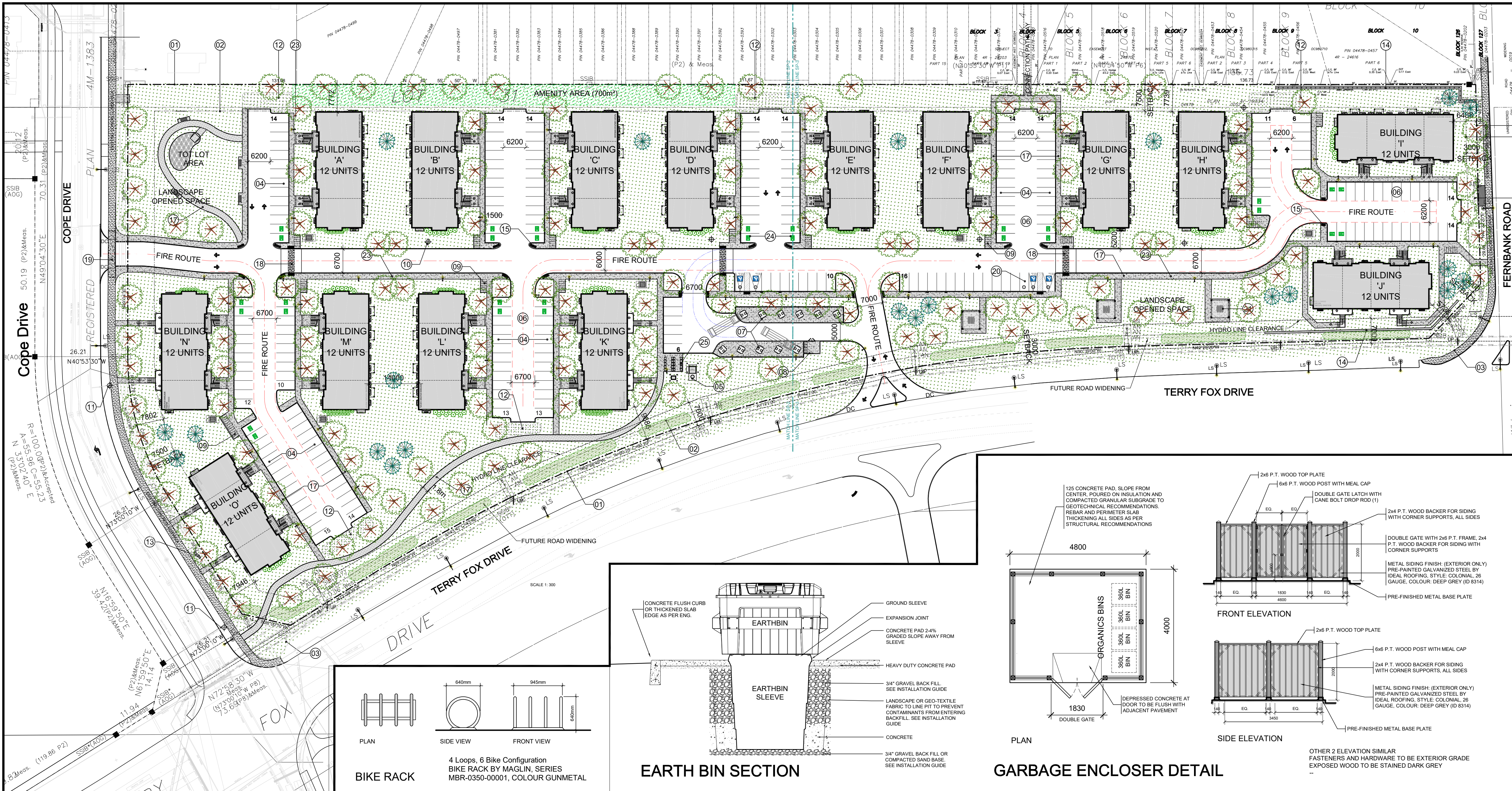
Reviewed by:



Brad Byvelds, P. Eng.  
Senior Project Manager | Transportation

## Appendix A: Proposed Site Plan

---



IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

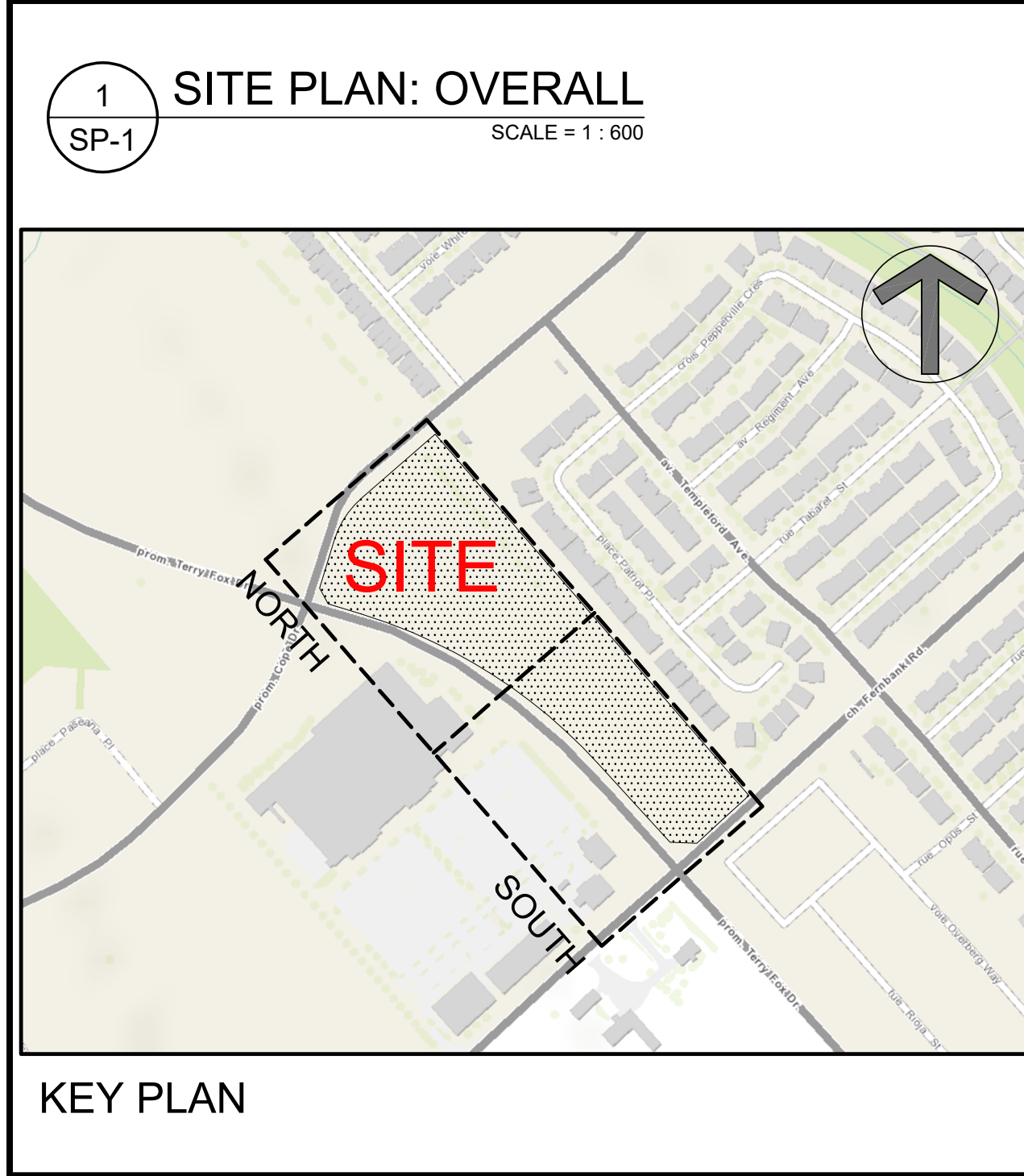
DO NOT SCALE DRAWINGS.

**NOTATION SYMBOLS:**

- INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- INDICATES ASSEMBLY TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER
- TITLE
- SCALE
- DETAIL REFERENCE PAGE

|    |                                           |            |
|----|-------------------------------------------|------------|
| 17 | REVISED AS PER ROUND 2 SPC COMMENTS       | 2026 06 25 |
| 16 | REVISED AS PER CONSULTANT COORDINATION    | 2026 06 22 |
| 15 | REVISED AS PER ELECTRICAL COORDINATION    | 2026 06 11 |
| 14 | REVISED AS PER OWNER / CITY MEETING       | 2026 05 06 |
| 13 | REVISED AS PER ROUND 1 SPC COMMENTS       | 2026 03 16 |
| 12 | ISSUED FOR REVISED SITE PLAN CONTROL APP. | 2025 11 19 |
| 11 | ISSUED FOR REVIEW AND COMMENT             | 2025 10 09 |
| 10 | REVISED DESIGN ISSUED FOR COORDINATION    | 2025 08 27 |
| 9  | SITE PLAN THIRD ROUND COMMENTS            | 2022-04-06 |
| 1  | ISSUED FOR COORDINATION                   | 2021-02-03 |

| No.                                                | DESCRIPTION | DATE |
|----------------------------------------------------|-------------|------|
| REVISIONS:                                         |             |      |
| ARCHITECT SEAL:                                    |             |      |
| ONTARIO ASSOCIATION OF ARCHITECTS                  |             |      |
| ARCHITECT: R. V. REID                              |             |      |
| LICENCE: 8667                                      |             |      |
| SEAL DATE: STAMP DATE                              |             |      |
| CLIENT:                                            |             |      |
| CLARIDGE HOMES                                     |             |      |
| 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:                                     |             |      |
| IRON VALLEY 2 Terrace Homes                        |             |      |
| 5331 FERNBANK ROAD                                 |             |      |
| OTTAWA ONTARIO                                     |             |      |
| SHEET TITLE:                                       |             |      |
| SITE PLAN (OVERALL)                                |             |      |
| DRAWN:                                             |             |      |
| R.V.                                               |             |      |
| CHECKED:                                           |             |      |
| R.V.                                               |             |      |
| SCALE:                                             |             |      |
| 1:600                                              |             |      |
| PROJECT No.                                        |             |      |
| 2101                                               |             |      |
| SHEET No.                                          |             |      |
| SP-1                                               |             |      |



**SURVEYOR**  
**Annis O'Sullivan Vollebakk Ltd.**  
14 Concourse Gate, Suite 500,  
Nepean, Ontario K2E 7S6  
Tel: (613) 727-0850  
E-Mail: [TravisH@aovltd.com](mailto:TravisH@aovltd.com)

**LEGAL DESCRIPTION**  
**TOPOGRAPHICAL PLAN OF**  
PART OF LOT 30 CONCESSION 10, GOULBOURN,  
PART 1 PLAN 4R17373, EXCEPT PART 4, PLAN 4R20112;  
OTTAWA.  
SUBJECT TO AN EASEMENT IN FAVOUR OF HYDRO OTTAWA  
LIMITED OVER PARTS 5, 6, 7, 8 AND 9 PLAN 4R20112 AS IN  
OC455206.

ROAD ALLOWANCE BETWEEN LOTS 30 AND 31  
CONCESSION 10,  
GOULBOURN  
LYING BETWEEN PARTS 3 AND 4 ON 4R17373 AND PART 2  
ON PLAN 4R20112, AS CLOSED BY N599528;  
OTTAWA

PART OF LOT 31, CONCESSION 10, GOULBOURN,  
PART 1 ON PLAN 4R19334  
CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebakk Ltd.  
Field Work Completed December 14, 2020

- DRAWING NOTES**
- PROPERTY LINE
  - BUILDING SETBACKS
  - OVERLAPPING 5x15m SITE TRIANGLE
  - PARKING SPACE: STANDARD SIZE 2.6 x 5.2 METRES
  - PROPOSED HYDRO TRANSFORMER / MINISUB
  - ASPHALT DRIVING SURFACE
  - IN-GROUND WASTE BINS: 6.5m<sup>3</sup> PER
  - ORGANIC WASTE / OVER SIZED GARBAGE ENCLOSURE
  - BICYCLE PARKING SPACES (6) WITH RACK
  - PROPOSED HYDRANT
  - EXISTING FIRE HYDRANT
  - SEASONAL SNOW STORAGE
  - EXISTING BELL UTILITY KIOSK
  - LOW RETAINING WALL
  - DEPRESSED CURB & TWSI AT ALL CROSSINGS
  - 1.2m x 8.2m EASEMENT WITH CONCRETE BUS PAD
  - 1.5m / 1.8m WIDE ASPHALT / CONCRETE WALK, SEE PLAN
  - 1.8m WIDE RAISED CONCRETE CROSS WALK WITH TWSI & TRANSITIONS
  - DEPRESSED STREET CURB & SIDEWALK, CONTINUOUS AND DEPRESSED @ DRIVEWAY
  - ACCESSIBLE PARKING SPACE WITH ACCESS AISLE, DEPRESSED CURB AND TWSI
  - SUNSHADE: SEE LANDSCAPE
  - 
  - PROPOSED SITE LIGHTING, SEE ELECTRICAL SITE PLAN
  - ELECTRICAL VEHICLE SPACE : 2 PER BUILDING
  - CANADA POST MAIL BOXES

- SITE PLAN SYMBOLS**
- CONCRETE UNIT PAVERS PATIOS
  - SOFT LANDSCAPING
  - COMMUNAL AMENITY SPACE
  - SNOW STORAGE
  - CONCRETE WALK / PATH
  - ASPHALT WALKING PATH
  - BIKE RACK / BIKE PARKING SPOT
  - TWO WAY VEHICLE CIRCULATION
  - MAIN ENTRANCE
  - PROPERTY LINE
  - ZONING SETBACKS
  - STANDARD PARKING SPACE
  - VISITOR PARKING SPACE
  - ELECTRICAL VEHICLE READ PARKING SPACE (NO CHARGER)
  - ACCESSIBLE PARKING SPACE

**PROJECT INFORMATION**

|                                |                                    |
|--------------------------------|------------------------------------|
| CURRENT ZONING                 | GM(2411)                           |
| USE                            | PLANNED UNIT DEVELOPMENT           |
| SITE AREA                      | 36,789 sq. m.<br>(395,995) sq. ft. |
| BUILDING HEIGHT                | 18.0 m                             |
| AMENITY AREA PER DWELLING UNIT | 6.0 sq. m                          |
| FRONT YARD SETBACK             | 3.0 M                              |
| CORNER YARD SETBACK            | 3.0 M                              |
| REAR YARD SETBACK              | M                                  |
| INTERIOR SIDE YARD SETBACK     | 7.5 M                              |

**PROJECT STATISTICS**

|                        |                                                                                                                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BUILDING HEIGHT        | 9.8 M                                                                                                                                                                                             |
| REQUIRED AMENITY SPACE | 6.0 m <sup>2</sup> PER UNIT= 1,080.0 m <sup>2</sup><br>50% COMMUNAL AMENITY AREA = 540.0 m <sup>2</sup>                                                                                           |
| PROVIDED AMENITY SPACE | PRIVATE BALCONY / PATIOS = 512.0 m <sup>2</sup><br>COMMUNAL EXTERIOR AREA= 700.0 m <sup>2</sup><br>TOTAL = 1,212.0 m <sup>2</sup>                                                                 |
| SITE COVERAGE          | BUILDING FOOTPRINT = 17.07% 6,280.5 m <sup>2</sup><br>DRIVING SURFACE = 27.3% 10,061.0 m <sup>2</sup><br>LANDSCAPE AREA = 54.5% 20,028.0 m <sup>2</sup><br>TOTAL = 100.0% 36,789.0 m <sup>2</sup> |

**GROSS BUILDING - AREAS**  
(CITY OF OTTAWA'S DEFINITION)

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| PROPOSED BUILDING 'A' | 1,256.0 m <sup>2</sup><br>13,520 ft <sup>2</sup>   |
| PROPOSED BUILDING 'B' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'C' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'D' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'E' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'F' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'G' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'H' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'I' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'J' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'K' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'L' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'M' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'N' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| PROPOSED BUILDING 'O' | 1,254.0 m <sup>2</sup><br>13,500 ft <sup>2</sup>   |
| TOTAL PROPOSED AREA   | 18,842.0 m <sup>2</sup><br>202,820 ft <sup>2</sup> |

**UNIT STATISTICS**  
2 BEDROOM UNIT

|   |     |
|---|-----|
| 2 | 180 |
|---|-----|

**CAR PARKING**

|                           |                            |     |
|---------------------------|----------------------------|-----|
| REQUIRED by ZONING BY-LAW |                            |     |
| RESIDENCE                 | - 1.2 PER UNIT (180 UNITS) | 216 |
| VISITOR                   | - 0.2 PER DWELLING UNIT    | 36  |
| TOTAL                     |                            | 252 |

**PROVIDED**

|           |                         |     |
|-----------|-------------------------|-----|
| RESIDENCE | - 1.2 PER UNIT          | 216 |
| VISITOR   | - 0.2 PER DWELLING UNIT | 36  |
| TOTAL     |                         | 252 |

**BICYCLE PARKING**

|          |                            |    |
|----------|----------------------------|----|
| REQUIRED | - 0.5 PER UNIT (180 UNITS) | 90 |
| PROVIDED |                            | 90 |

**WASTE COLLECTION**

|                                         |                                   |                       |
|-----------------------------------------|-----------------------------------|-----------------------|
| GUIDELINES                              |                                   |                       |
| GARBAGE                                 | - 0.231 YARDS <sup>2</sup> / UNIT | 40 YARDS <sup>2</sup> |
| RECYCLING (GMP)                         | - 0.018 YARDS <sup>2</sup> / UNIT | 4 YARDS <sup>2</sup>  |
| RECYCLING (FIBRE)                       | - 0.062 YARDS <sup>2</sup> / UNIT | 11 YARDS <sup>2</sup> |
| ORGANICS                                | - 240L CONTAINER / 50 UNITS       | 4x 240L               |
| REQUIRED PROVIDED                       |                                   |                       |
| GARBAGE                                 | 7 EARTHbins                       | 7 EARTHbins           |
| RECYCLING (GMP)                         | 1 EARTHbins                       | 2 EARTHbins           |
| RECYCLING (FIBRE)                       | 2 EARTHbins                       | 2 EARTHbins           |
| ORGANICS                                | 4x 240L BINS                      | 4x 240L BINS          |
| LARGE ITEM GARBAGE                      | N/A                               | 8 m <sup>2</sup>      |
| *EARTHbins= (6.5 YARDS <sup>2</sup> )   |                                   |                       |
| SNOW STORAGE                            |                                   |                       |
| TEMPORARILY STORED AND TRUCKED OFF SITE |                                   |                       |



IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

**NOTATION SYMBOLS:**

- 00 INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- 00 INDICATES ASSEMBLY TYPE, REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- 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.

DETAIL NUMBER

00 TITLE SCALE

DETAIL REFERENCE PAGE

|    |                                           |            |
|----|-------------------------------------------|------------|
| 16 | REVISED AS PER ROUND 2 SPC COMMENTS       | 2026 06 25 |
| 15 | REVISED AS PER CONSULTANT COORDINATION    | 2026 06 22 |
| 14 | REVISED AS PER OWNER / CITY COMMENTS      | 2026 06 03 |
| 13 | REVISED AS PER ROUND 1 SPC COMMENTS       | 2026 03 16 |
| 12 | ISSUED FOR REVISED SITE PLAN CONTROL APP. | 2025 11 19 |
| 11 | ISSUED FOR REVIEW AND COMMENT             | 2025 10 09 |
| 10 | REVISED DESIGN ISSUED FOR COORDINATION    | 2025 08 27 |
| 9  | SITE PLAN THIRD ROUND COMMENTS            | 2022-04-06 |
| 1  | ISSUED FOR COORDINATION                   | 2021-02-03 |

REVISIONS:

|     |             |      |
|-----|-------------|------|
| No. | DESCRIPTION | DATE |
|-----|-------------|------|

ARCHITECT SEAL:

ONTARIO ASSOCIATION OF ARCHITECTS

REYNAIR REID

LICENCE 8667

SEAL DATE: STAMP DATE

CLIENT:

**CLARIDGE HOMES**

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:

**IRON VALLEY 2 Terrace Homes**

5331 FERNBANK ROAD

OTTAWA ONTARIO

SHEET TITLE:

**SITE PLAN (NORTH END)**

|             |           |
|-------------|-----------|
| DRAWN:      | CHECKED:  |
| R.V.        | R.V.      |
| SCALE:      | SHEET No. |
| 1:300       | SP-2      |
| PROJECT No. |           |
| 2101        |           |



## Appendix B: TIA Screening Form

---

City of Ottawa 2017 TIA Guidelines TIA Screening

1. Description of Proposed Development

|                                                 |                                                         |
|-------------------------------------------------|---------------------------------------------------------|
| Municipal Address                               | 5331 Fernbank Road                                      |
| Description of Location                         | East side of Terry Fox Dr, b/w Cope Dr & Fernbank Rd    |
| Land Use Classification                         | Residential                                             |
| Development Size (units)                        | 192                                                     |
| Development Size square metre (m <sup>2</sup> ) |                                                         |
| Number of Accesses and Locations                | One full movement to Cope Dr & One RIRO to Terry Fox Dr |
| Phase of Development                            | One                                                     |
| Buildout Year                                   | 2030                                                    |

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) <sup>1</sup>         | 90 units                 |
| Multi-Use Family (High-Rise) <sup>1</sup>        | 150 units                |
| Office <sup>2</sup>                              | 1,400 m <sup>2</sup>     |
| Industrial <sup>2</sup>                          | 7,000 m <sup>2</sup>     |
| Fast-food restaurant or coffee shop <sup>2</sup> | 110 m <sup>2</sup>       |
| Destination retail <sup>2</sup>                  | 1,800 m <sup>2</sup>     |
| Gas station or convenience market <sup>2</sup>   | 90 m <sup>2</sup>        |

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

## 3. Location Triggers

|                                                                                                                                                                            | Yes                                 | No                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| Does the development propose a new driveway to a boundary street that is designated as part of the Transit Priority Network, Rapid Transit network or Cross-Town Bikeways? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)? <sup>2</sup>                                                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

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

## 4. Safety Triggers

|                                                                                                                                                                                                                                   | Yes                                 | No                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| Are posted speed limits on a boundary street are 80 kilometers per hour (km/h) or greater?                                                                                                                                        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?                                                                                                                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 metre [m] of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Is the proposed driveway within auxiliary lanes of an intersection?                                                                                                                                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Does the proposed driveway make use of an existing median break that serves an existing site?                                                                                                                                     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

<sup>2</sup> Hubs are identified in Schedules B1 to B8 of the City of Ottawa Official Plan. PMTSAs are identified in Schedule C1 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.

## Transportation Impact Assessment Guidelines

|                                                                                                                                    | Yes                      | No                                  |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the development include a drive-thru facility?                                                                                | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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

### 5. Summary

| Results of Screening                                      | Yes                                 | No                       |
|-----------------------------------------------------------|-------------------------------------|--------------------------|
| Does the development satisfy the Trip Generation Trigger? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Does the development satisfy the Location Trigger?        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Does the development satisfy the Safety Trigger?          | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

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

## Appendix C: OC Transpo Maps

---



# 60

## COPE

### TERRY FOX TUNNEY'S PASTURE

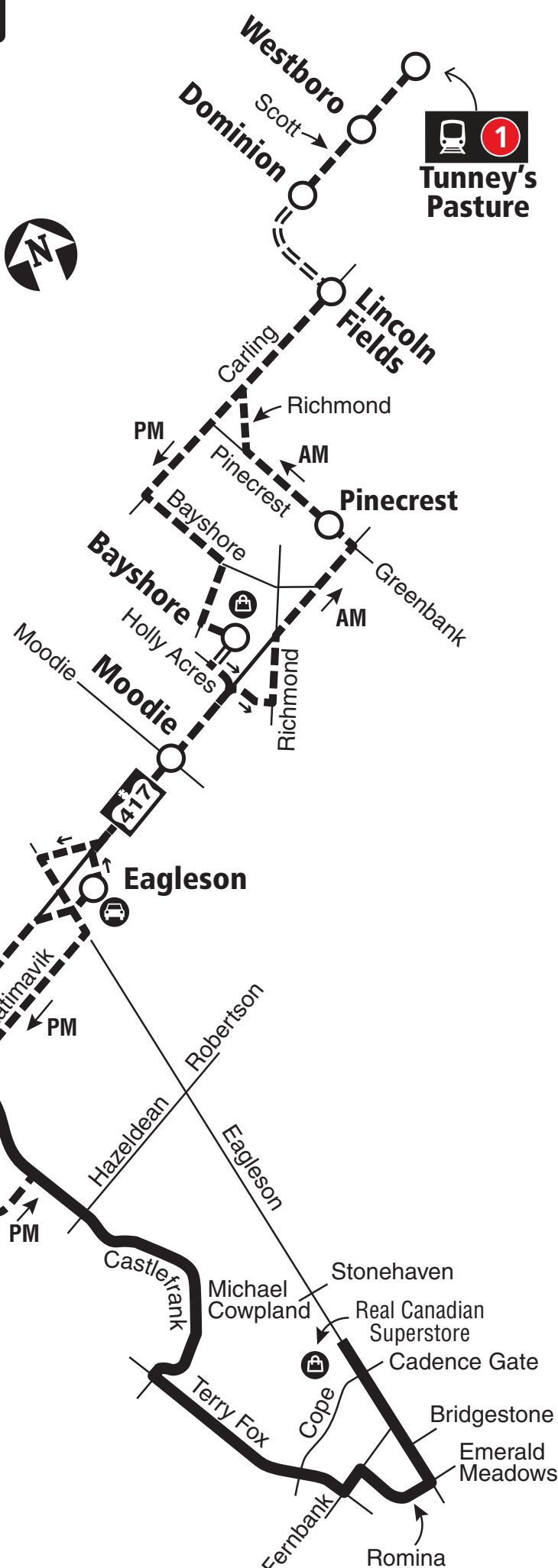
#### Local

**Monday to Friday / Lundi au vendredi**

All day service

Service toute la journée

**TUNNEY'S  
PASTURE**



**TERRY FOX**

**COPE**



Station



Transitway



Peak Periods Only / Périodes de pointe seulement



Park & Ride / Parc relais



Shopping Centre / Centre commercial

04/2025

2025.04

**This route starts on April 27, 2025** when the New Ways to Bus network comes into effect.

**Ce circuit sera mis en service le 27 avril 2025**, lorsque le réseau L'autobus réinventé entrera en vigueur.



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

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

**Transpo**

**octranspo.com**



# 67

## COPE

### TERRY FOX TUNNEY'S PASTURE

## Local

**7 days a week / 7 jours par semaine**

All day service

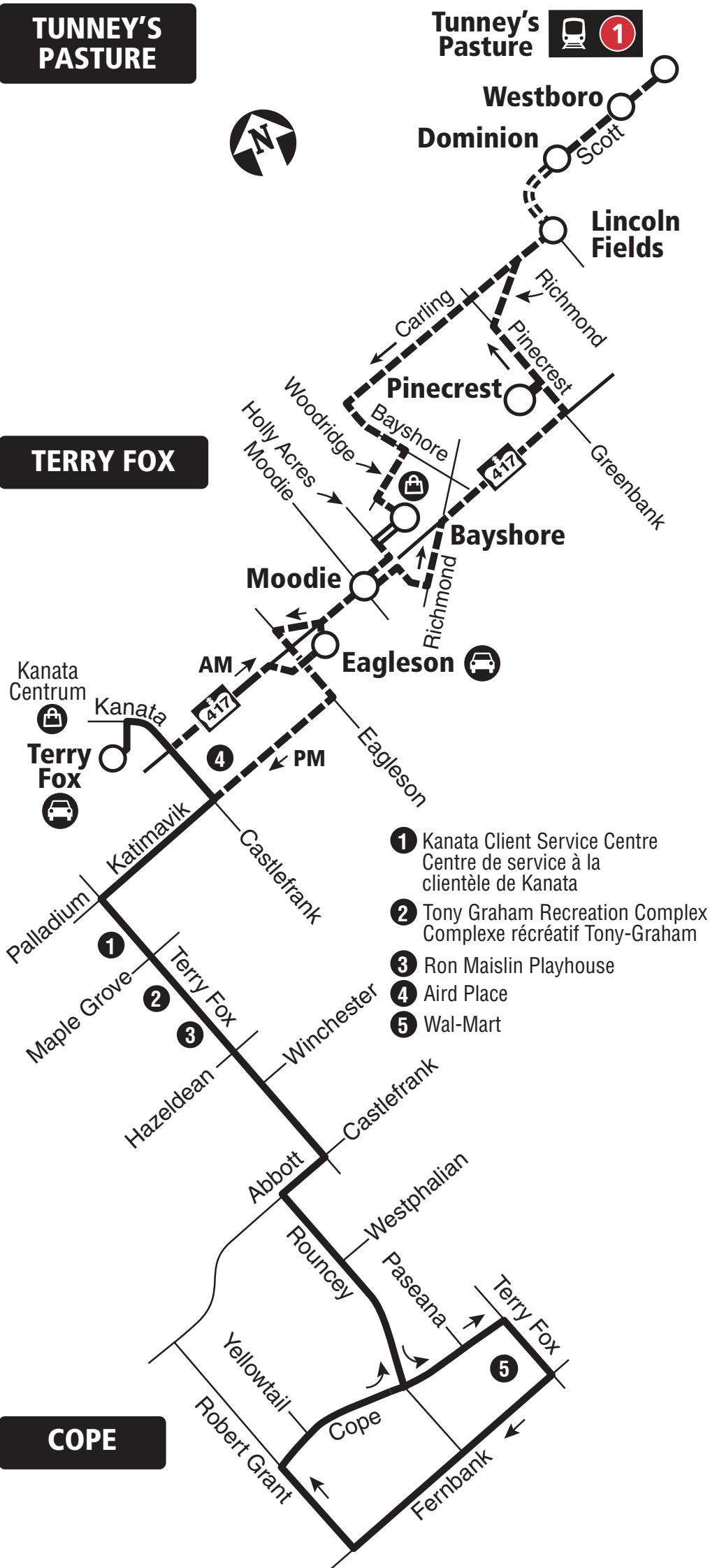
Service toute la journée

**TUNNEY'S  
PASTURE**

**Tunney's  
Pasture**



**TERRY FOX**



**COPE**

2025.04

2025.04

**This route starts on April 27, 2025** when the New Ways to Bus network comes into effect.

**Ce circuit sera mis en service le 27 avril 2025**, lorsque le réseau L'autobus réinventé entrera en vigueur.



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

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

**Transpo**

**octranspo.com**



# 168

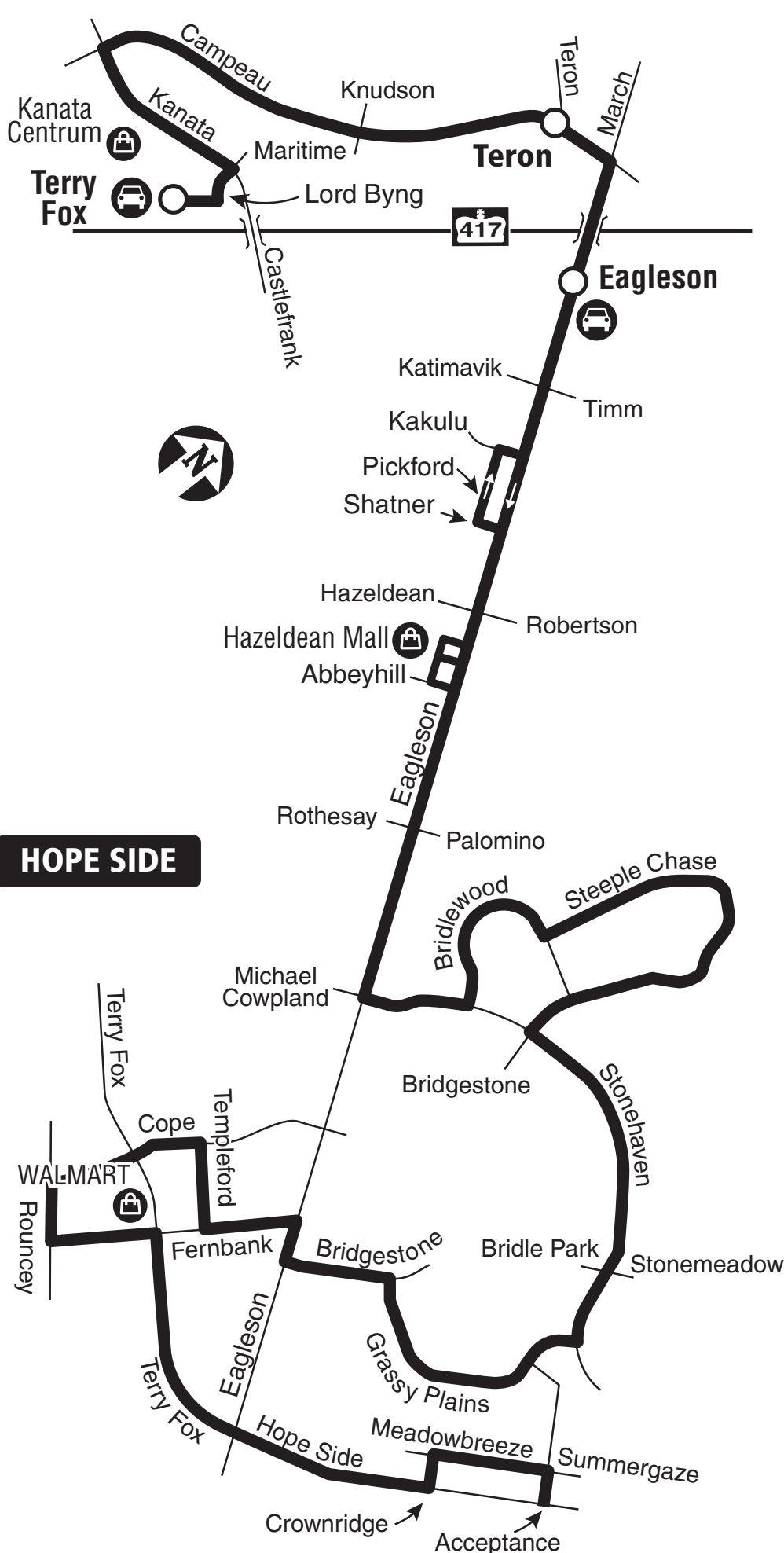
## HOPE SIDE TERRY FOX

*Local*

**7 days a week / 7 jours par semaine**

All day service  
Service toute la journée

### TERRY FOX



### HOPE SIDE



Station



Park & Ride / Parc relais



Shopping Centre / Centre commercial

04.2025

2025.04

**This route starts on April 27, 2025** when the New Ways to Bus network comes into effect.

**Ce circuit sera mis en service le 27 avril 2025**, lorsque le réseau L'autobus réinventé entrera en vigueur.



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

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



**octranspo.com**



# 256

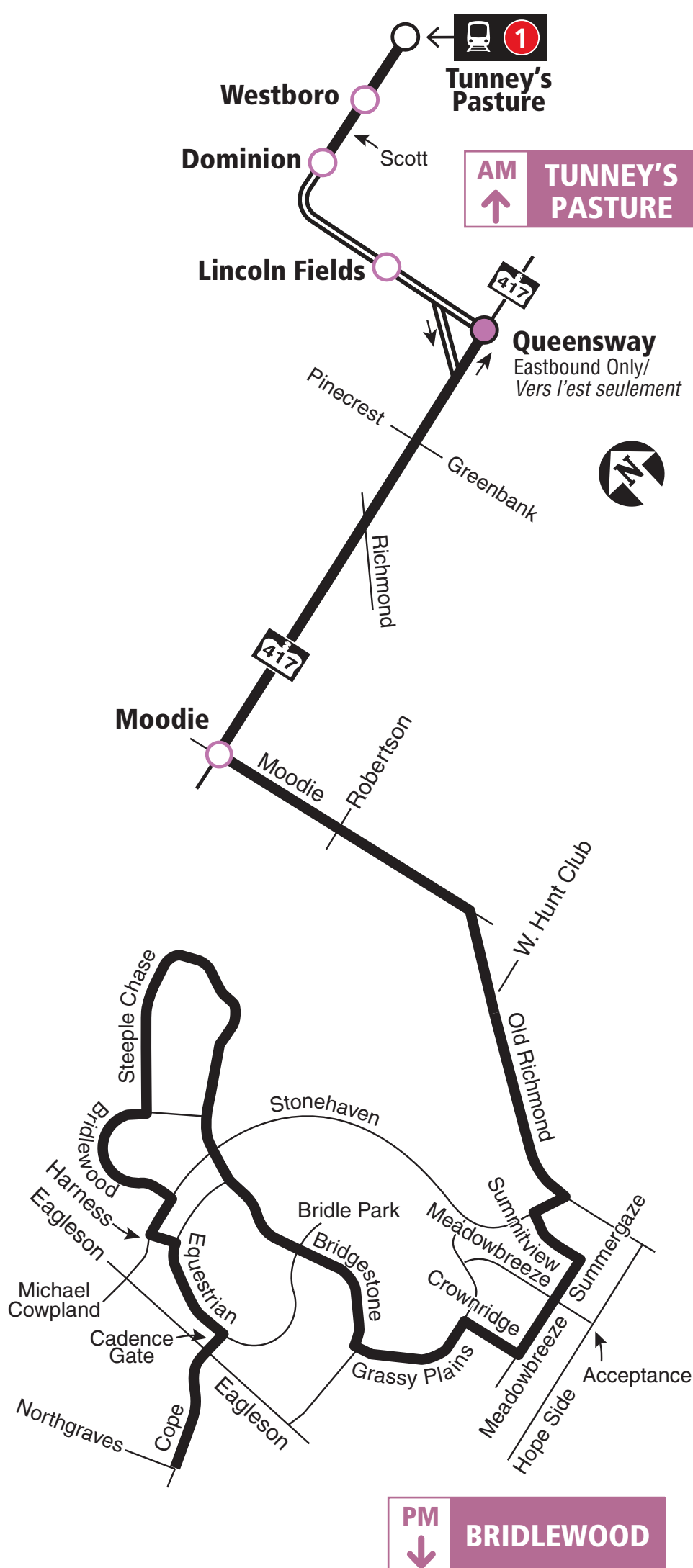
## TUNNEY'S PASTURE BRIDLEWOOD

### Connexion

**Monday to Friday / Lundi au vendredi**

Peak periods only

Périodes de pointe seulement



Transitway & Station



Limited stops: Full service in AM / No stop in PM  
Arrêts limités : Service complet en AM / aucun arrêt en PM



AM: Off only - PM: Full Service  
AM : débarquement seul. - PM : service complet

08.2025

2025.08



**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**

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

Lost & Found.....[octranspo.com/lostandfound](https://www.octranspo.com/lostandfound)

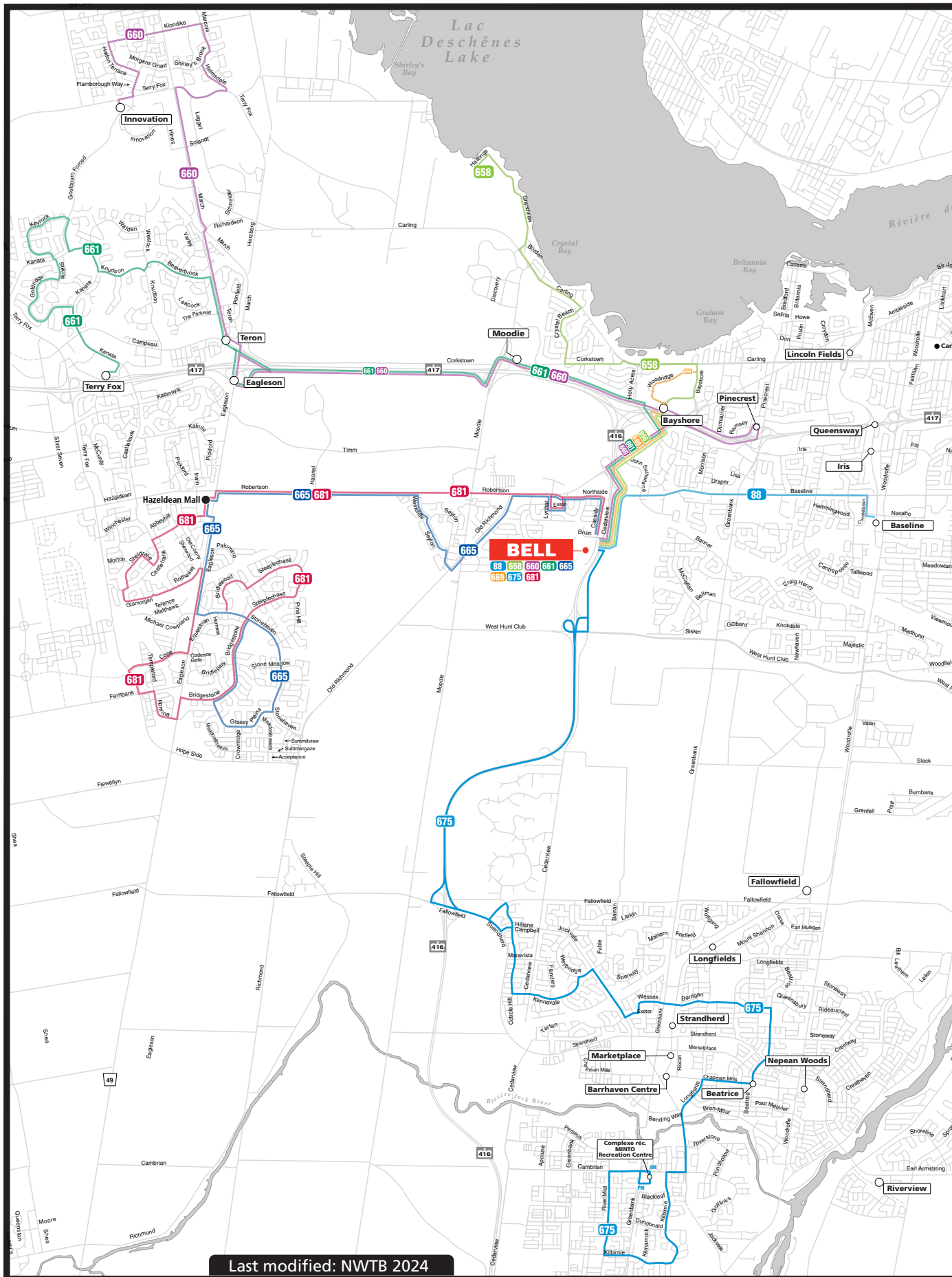
Objets perdus.....[octranspo.com/objetsperdus](https://www.octranspo.com/objetsperdus)



[octranspo.com](https://www.octranspo.com)

Effective August 24, 2025

En vigueur le 24 août 2025



## Appendix D: Traffic Count Data

---

## Turning Movement Count - Peak Hour Diagram

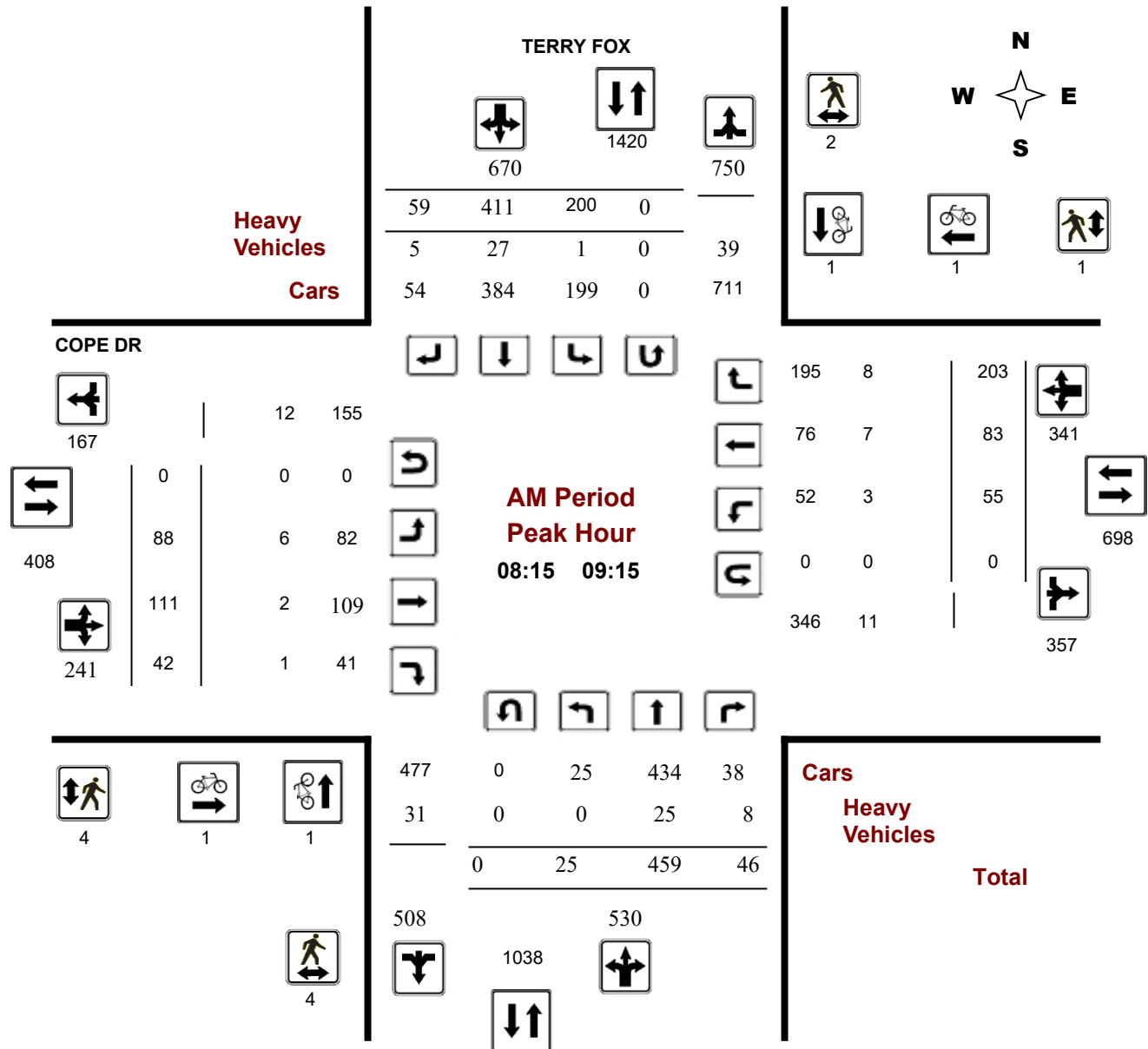
### COPE DR @ TERRY FOX

**Survey Date:** Wednesday, September 07, 2022

**Start Time:** 07:00

**WO No:** 40919

**Device:** Miovision



## Turning Movement Count - Peak Hour Diagram

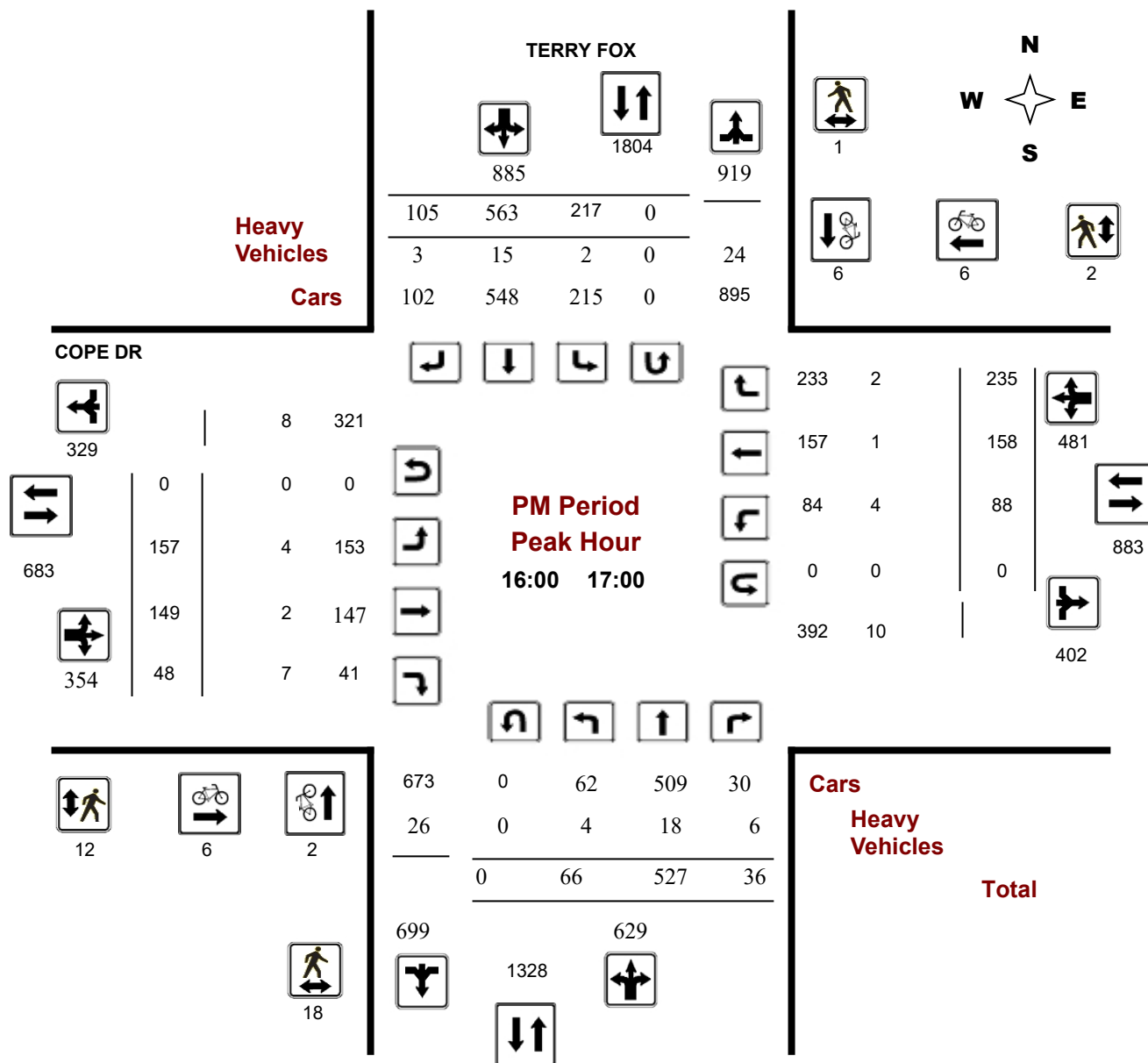
### COPE DR @ TERRY FOX

**Survey Date:** Wednesday, September 07, 2022

**Start Time:** 07:00

**WO No:** 40919

**Device:** Miovision



## Turning Movement Count - Study Results

**TERRY FOX DR @ FERNBANK RD**

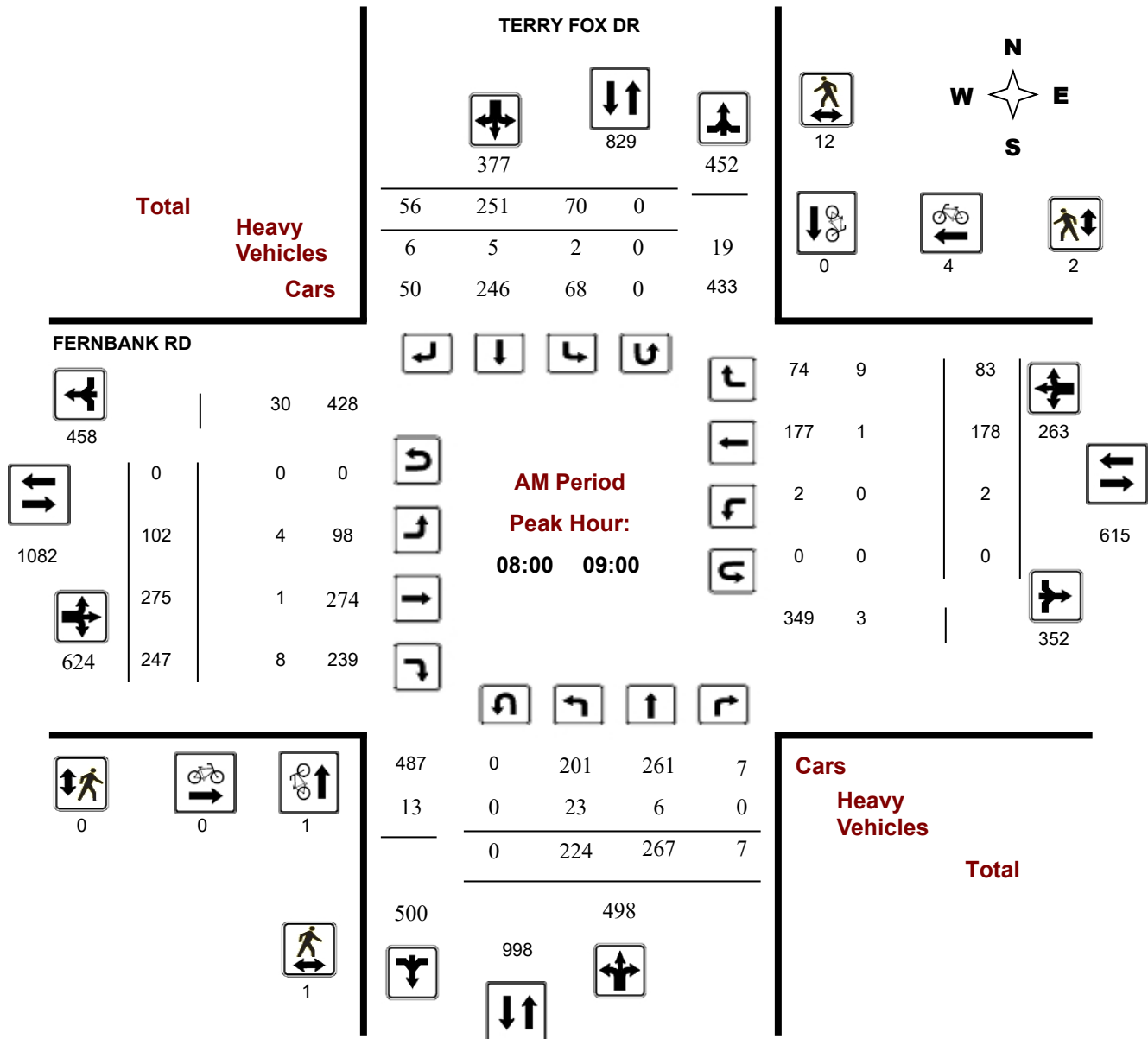
**Survey Date:** Wednesday, August 14, 2024

**WO No:** 42149

**Start Time:** 07:00

Device: Miovision

## AM Period Peak Hour Diagram



## Turning Movement Count - Study Results

### TERRY FOX DR @ FERNBANK RD

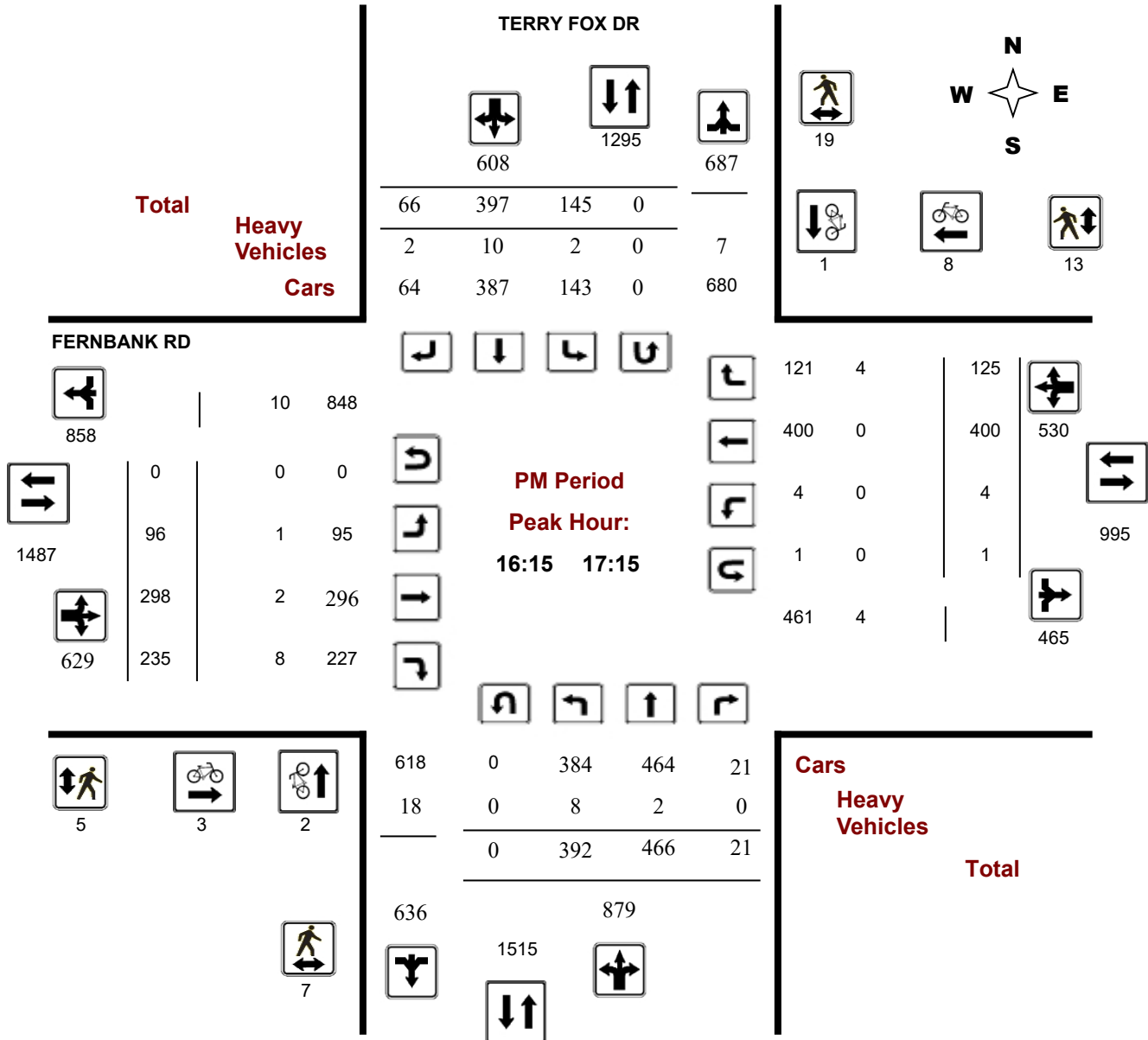
**Survey Date:** Wednesday, August 14, 2024

**WO No:** 42149

**Start Time:** 07:00

**Device:** Miovision

### PM Period Peak Hour Diagram



## Appendix E: Collision Records

---

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** COPE DR @ TEMPLEFORD AVE

**Traffic Control:** Stop sign

**Total Collisions:** 2

| Date/Day/Time          | Environment | Impact Type | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|-------------|------------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2019-Sep-01, Sun,15:40 | Clear       | Angle       | Non-fatal injury | Dry            | North    | Turning right       | Automobile, station wagon | Cyclist             | 0       |
|                        |             |             |                  |                | East     | Going ahead         | Bicycle                   | Other motor vehicle |         |
| 2022-Feb-12, Sat,09:40 | Snow        | Rear end    | P.D. only        | Ice            | West     | Slowing or stopping | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |             |                  |                | West     | Stopped             | Pick-up truck             | Other motor vehicle |         |

**Location:** COPE DR @ TERRY FOX

**Traffic Control:** Traffic signal

**Total Collisions:** 30

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type              | First Event                | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|-------------------|---------------------------|----------------------------|---------|
| 2019-Mar-18, Mon,17:45 | Clear       | Turning movement | P.D. only        | Dry            | South    | Turning left      | Automobile, station wagon | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle        |         |
|                        |             |                  |                  |                | West     | Stopped           | Automobile, station wagon | Other motor vehicle        |         |
| 2019-Apr-19, Fri,09:43 | Rain        | Turning movement | P.D. only        | Wet            | South    | Turning left      | Automobile, station wagon | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle        |         |
| 2019-Jun-24, Mon,08:00 | Clear       | Other            | P.D. only        | Dry            | South    | Going ahead       | Automobile, station wagon | Debris falling off vehicle | 0       |
|                        |             |                  |                  |                | North    | Unknown           | Unknown                   | Other                      |         |
| 2019-Jul-12, Fri,13:54 | Clear       | SMV other        | Non-fatal injury | Dry            | West     | Turning left      | Automobile, station wagon | Ditch                      | 0       |
| 2019-Dec-23, Mon,18:57 | Clear       | Sideswipe        | Non-fatal injury | Wet            | South    | Changing lanes    | Automobile, station wagon | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle        |         |
| 2020-Feb-14, Fri,07:42 | Clear       | Turning movement | P.D. only        | Dry            | South    | Turning left      | Pick-up truck             | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle        |         |
| 2020-Jul-18, Sat,23:15 | Clear       | Turning movement | Non-fatal injury | Dry            | South    | Turning left      | Pick-up truck             | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle        |         |
| 2020-Aug-15, Sat,19:04 | Clear       | Angle            | Non-fatal injury | Dry            | South    | Going ahead       | Automobile, station wagon | Other motor vehicle        | 0       |
|                        |             |                  |                  |                | East     | Turning left      | Passenger van             | Other motor vehicle        |         |



# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** COPE DR @ TERRY FOX

**Traffic Control:** Traffic signal

**Total Collisions:** 30

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2020-Dec-07, Mon,09:30 | Clear       | Rear end         | P.D. only        | Dry            | West     | Unknown           | Unknown                   | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right     | Pick-up truck             | Other motor vehicle |         |
| 2020-Dec-12, Sat,18:31 | Rain        | Turning movement | P.D. only        | Wet            | North    | Turning left      | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
|                        |             |                  |                  |                | East     | Stopped           | Pick-up truck             | Other motor vehicle |         |
| 2020-Dec-17, Thu,14:50 | Clear       | Rear end         | P.D. only        | Dry            | West     | Turning right     | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right     | Pick-up truck             | Other motor vehicle |         |
| 2021-Apr-16, Fri,12:36 | Clear       | Rear end         | Non-fatal injury | Dry            | South    | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Stopped           | Automobile, station wagon | Other motor vehicle |         |
| 2021-Jul-06, Tue,15:07 | Clear       | Turning movement | Non-fatal injury | Dry            | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2021-Aug-31, Tue,11:43 | Clear       | SMV other        | Non-fatal injury | Dry            | East     | Turning right     | Pick-up truck             | Pedestrian          | 1       |
| 2021-Dec-01, Wed,08:57 | Snow        | Turning movement | P.D. only        | Wet            | South    | Turning left      | Delivery van              | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2021-Dec-04, Sat,10:30 | Snow        | Turning movement | P.D. only        | Loose snow     | North    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2022-Jan-24, Mon,08:50 | Clear       | Rear end         | P.D. only        | Dry            | North    | Going ahead       | Delivery van              | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Stopped           | Passenger van             | Other motor vehicle |         |
| 2022-Apr-16, Sat,12:28 | Clear       | Turning movement | Non-fatal injury | Dry            | South    | Turning left      | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2022-Oct-01, Sat,14:07 | Clear       | Rear end         | P.D. only        | Dry            | South    |                   |                           | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Stopped           | Automobile, station wagon | Other motor vehicle |         |
| 2022-Dec-15, Thu,09:30 | Clear       | Rear end         | P.D. only        | Wet            | West     | Stopped           | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead       | Automobile, station wagon | Other motor vehicle |         |



# Transportation Services - Traffic Services

## Collision Details Report - Public Version

From: January 1, 2019 To: December 31, 2024

**Location:** COPE DR @ TERRY FOX

**Traffic Control:** Traffic signal

**Total Collisions:** 30

| Date/Day/Time          | Environment   | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type              | First Event         | No. Ped |
|------------------------|---------------|------------------|------------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2024-Feb-03, Sat,17:50 | Clear         | Angle            | P.D. only        | Dry            | West     | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Feb-21, Wed,16:10 | Clear         | Rear end         | P.D. only        | Dry            | North    | Stopped           | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Apr-03, Wed,15:50 | Freezing Rain | Turning movement | P.D. only        | Wet            | East     | Turning right     | Pick-up truck             | Other motor vehicle | 0       |
|                        |               |                  |                  |                | East     | Going ahead       | School bus                | Other motor vehicle |         |
| 2024-Jun-02, Sun,13:18 | Clear         | Turning movement | Non-fatal injury | Dry            | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jun-05, Wed,10:00 | Other         | Angle            | P.D. only        | Dry            | South    | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | West     | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jul-22, Mon,15:32 | Clear         | Turning movement | P.D. only        | Dry            | East     | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | West     | Stopped           | Automobile, station wagon | Other motor vehicle |         |
| 2024-Sep-22, Sun,00:07 | Clear         | Angle            | P.D. only        | Dry            | North    | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | West     | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Sep-23, Mon,20:00 | Clear         | Turning movement | P.D. only        | Dry            | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Passenger van             | Other motor vehicle |         |
| 2024-Nov-01, Fri,19:00 | Clear         | Turning movement | P.D. only        | Dry            | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Dec-30, Mon,17:54 | Rain          | Turning movement | Non-fatal injury | Wet            | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |               |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type | First Event | No. Ped |
|---------------|-------------|-------------|----------------|----------------|----------|-------------------|--------------|-------------|---------|
|---------------|-------------|-------------|----------------|----------------|----------|-------------------|--------------|-------------|---------|

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2019-Jan-19, Sat,23:25 | Snow        | Rear end         | P.D. only        | Ice            | West     | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2019-Jan-22, Tue,15:10 | Clear       | Rear end         | P.D. only        | Packed snow    | East     | Turning right     | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Turning right     | Pick-up truck             | Other motor vehicle |         |
| 2019-Mar-07, Thu,13:26 | 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 |         |
| 2019-Jun-10, Mon,17:35 | Rain        | Sideswipe        | P.D. only        | Wet            | East     | Changing lanes    | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Turning left      | Automobile, station wagon | Other motor vehicle |         |
| 2019-Jun-12, Wed,18:52 | Clear       | Turning movement | P.D. only        | Dry            | North    | Turning left      | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2019-Jun-18, Tue,13:28 | Clear       | Angle            | Non-fatal injury | Dry            | East     | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2019-Oct-03, Thu,20:44 | Rain        | Turning movement | P.D. only        | Wet            | North    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |
| 2019-Oct-11, Fri,14:38 | Clear       | Rear end         | P.D. only        | Dry            | North    | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Stopped           | Automobile, station wagon | Other motor vehicle |         |
| 2019-Dec-11, Wed,12:43 | Clear       | Rear end         | P.D. only        | Dry            | West     | Stopped           | Passenger van             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right     | Municipal transit bus     | Other motor vehicle |         |
| 2020-Jan-21, Tue,08:07 | Clear       | Angle            | P.D. only        | Wet            | South    | Going ahead       | Unknown                   | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Turning left      | Automobile, station wagon | Other motor vehicle |         |
| 2020-Feb-07, Fri,08:41 | Snow        | Turning movement | Non-fatal injury | Packed snow    | South    | Turning left      | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |



# Transportation Services - Traffic Services

## Collision Details Report - Public Version

From: January 1, 2019 To: December 31, 2024

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2020-Mar-19, Thu,12:43 | Clear       | Angle            | P.D. only        | Dry            | West     | Turning right       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2020-Aug-21, Fri,18:35 | Clear       | Rear end         | Non-fatal injury | Dry            | East     | Slowing or stopping | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2020-Dec-01, Tue,16:09 | Rain        | Turning movement | Non-fatal injury | Wet            | South    | Turning left        | Passenger van             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2021-Feb-02, Tue,11:50 | Clear       | Rear end         | P.D. only        | Dry            | East     | Turning right       | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Turning right       | Automobile, station wagon | Other motor vehicle |         |
| 2021-Feb-16, Tue,10:14 | Snow        | Approaching      | P.D. only        | Loose snow     | North    | Going ahead         | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Pick-up truck             | Other motor vehicle |         |
| 2021-Apr-09, Fri,13:42 | Clear       | Angle            | Non-fatal injury | Dry            | North    | Going ahead         | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right       | Automobile, station wagon | Other motor vehicle |         |
| 2021-Apr-22, Thu,07:21 | Clear       | Turning movement | P.D. only        | Dry            | South    | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2021-Apr-30, Fri,22:51 | Snow        | Turning movement | Non-fatal injury | Wet            | South    | Turning left        | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Pick-up truck             | Other motor vehicle |         |
| 2021-Jun-24, Thu,12:20 | Clear       | Rear end         | P.D. only        | Dry            | West     | Turning right       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right       | Pick-up truck             | Other motor vehicle |         |
| 2021-Jul-02, Fri,17:00 | Clear       | Angle            | P.D. only        | Dry            | East     | Turning right       | Passenger van             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2021-Aug-11, Wed,13:35 | Clear       | Turning movement | P.D. only        | Dry            | South    | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Pick-up truck             | Other motor vehicle |         |
| 2021-Aug-31, Tue,17:00 | Clear       | Turning movement | P.D. only        | Dry            | North    | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Pick-up truck             | Other motor vehicle |         |

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2021-Sep-18, Sat,14:45 | Clear       | Rear end         | P.D. only        | Dry            | East     | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Stopped             | Automobile, station wagon | Other motor vehicle |         |
| 2021-Sep-26, Sun,14:06 | Clear       | Turning movement | Non-fatal injury | Dry            | North    | Turning left        | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Pick-up truck             | Other motor vehicle |         |
| 2021-Nov-16, Tue,19:40 | Clear       | Rear end         | P.D. only        | Dry            | West     | Turning right       | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning right       | Pick-up truck             | Other motor vehicle |         |
| 2022-Feb-18, Fri,10:08 | Snow        | SMV other        | P.D. only        | Slush          | South    | Slowing or stopping | Automobile, station wagon | Skidding/sliding    | 0       |
| 2022-Mar-11, Fri,16:45 | Snow        | Sideswipe        | P.D. only        | Wet            | East     | Going ahead         | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Stopped             | Automobile, station wagon | Other motor vehicle |         |
| 2022-Mar-15, Tue,14:00 | Clear       | Rear end         | P.D. only        | Dry            | North    | Going ahead         | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Stopped             | Passenger van             | Other motor vehicle |         |
| 2022-Jun-20, Mon,17:17 | Clear       | Rear end         | Non-fatal injury | Dry            | East     | Stopped             | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Slowing or stopping | Automobile, station wagon | Other motor vehicle |         |
| 2022-Jun-21, Tue,13:30 | Rain        | Angle            | P.D. only        | Wet            | East     | Turning right       | Passenger van             | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Stopped             | Pick-up truck             | Other motor vehicle |         |
| 2022-Aug-01, Mon,17:03 | Clear       | Angle            | Non-fatal injury | Dry            | East     | Turning right       | Passenger van             | Cyclist             | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Bicycle                   | Other motor vehicle |         |
| 2022-Nov-17, Thu,16:00 | Clear       | Turning movement | P.D. only        | Dry            | South    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Turning left        | Automobile, station wagon | Other motor vehicle |         |
| 2022-Nov-28, Mon,17:35 | Clear       | Rear end         | P.D. only        | Dry            | South    | Slowing or stopping | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Slowing or stopping | Pick-up truck             | Other motor vehicle |         |
| 2022-Dec-17, Sat,20:10 | Clear       | Turning movement | P.D. only        | Dry            | West     | Turning right       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |



# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time          | Environment | Impact Type      | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2024-Jan-20, Sat,14:10 | Clear       | Rear end         | P.D. only        | Dry            | East     | Stopped             | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Slowing or stopping | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jan-30, Tue,21:30 | Clear       | Approaching      | P.D. only        | Dry            | North    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-May-02, Thu,16:55 | Clear       | Angle            | P.D. only        | Dry            | West     | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | South    | Going ahead         | Delivery van              | Other motor vehicle |         |
| 2024-May-13, Mon,15:00 | Clear       | Turning movement | P.D. only        | Dry            | South    | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-May-19, Sun,17:50 | Clear       | Turning movement | P.D. only        | Dry            | North    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | East     | Turning left        | Automobile, station wagon | Other motor vehicle |         |
| 2024-May-26, Sun,12:40 | Clear       | Turning movement | P.D. only        | Dry            | North    | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jun-01, Sat,18:45 | Clear       | Angle            | P.D. only        | Dry            | North    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jun-20, Thu,11:45 | Clear       | Turning movement | P.D. only        | Dry            | North    | Turning left        | Unknown                   | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Turning left        | Passenger van             | Other motor vehicle |         |
| 2024-Jun-26, Wed,21:10 | Rain        | Angle            | P.D. only        | Wet            | East     | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Slowing or stopping | Automobile, station wagon | Other motor vehicle |         |
|                        |             |                  |                  |                | West     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Jul-11, Thu,12:00 | Rain        | Angle            | Non-fatal injury | Wet            | South    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | West     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Aug-09, Fri,13:53 | Rain        | Rear end         | P.D. only        | Wet            | North    | Slowing or stopping | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |                  |                  |                | North    | Stopped             | Automobile, station wagon | Other motor vehicle |         |



# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** TERRY FOX DR @ FERNBANK RD

**Traffic Control:** Traffic signal

**Total Collisions:** 55

| Date/Day/Time          | Environment                     | Impact Type      | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|---------------------------------|------------------|----------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2024-Aug-19, Mon,21:30 | Clear                           | Turning movement | P.D. only      | Dry            | South    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | North    | Turning left        | Automobile, station wagon | Other motor vehicle |         |
| 2024-Oct-15, Tue,18:43 | Rain                            | Turning movement | P.D. only      | Wet            | West     | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | North    | Turning right       | Automobile, station wagon | Other motor vehicle |         |
| 2024-Oct-22, Tue,20:00 | Clear                           | Turning movement | P.D. only      | Dry            | East     | Turning left        | Automobile, station wagon | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Oct-27, Sun,13:30 | Clear                           | Rear end         | P.D. only      | Dry            | South    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | South    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Oct-28, Mon,19:00 | Clear                           | Turning movement | P.D. only      | Dry            | North    | Going ahead         | Passenger van             | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | South    | Turning left        | Automobile, station wagon | Other motor vehicle |         |
| 2024-Nov-08, Fri,13:50 | Clear                           | Angle            | P.D. only      | Dry            | South    | Going ahead         | Pick-up truck             | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | East     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Nov-27, Wed,16:40 | Clear                           | Rear end         | P.D. only      | Dry            | South    | Going ahead         | Unknown                   | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | South    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2024-Dec-10, Tue,16:20 | Fog, mist, smoke, Rear end dust | Rear end         | P.D. only      | Wet            | North    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | North    | Slowing or stopping | Automobile, station wagon | Other motor vehicle |         |
| 2024-Dec-14, Sat,10:30 | Clear                           | Angle            | P.D. only      | Dry            | South    | Going ahead         | Passenger van             | Other motor vehicle | 0       |
|                        |                                 |                  |                |                | East     | Going ahead         | Automobile, station wagon | Other motor vehicle |         |

**Location:** TERRY FOX DR btwn COPE DR & FERNBANK RD

**Traffic Control:** No control

**Total Collisions:** 7

| Date/Day/Time          | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|-------------|----------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2021-Mar-18, Thu,17:30 | Clear       | Angle       | P.D. only      | Dry            | West     | Going ahead       | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |             |                |                | South    | Going ahead       | Automobile, station wagon | Other motor vehicle |         |

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

**From:** January 1, 2019 **To:** December 31, 2024

**Location:** TERRY FOX DR btwn COPE DR & FERNBANK RD

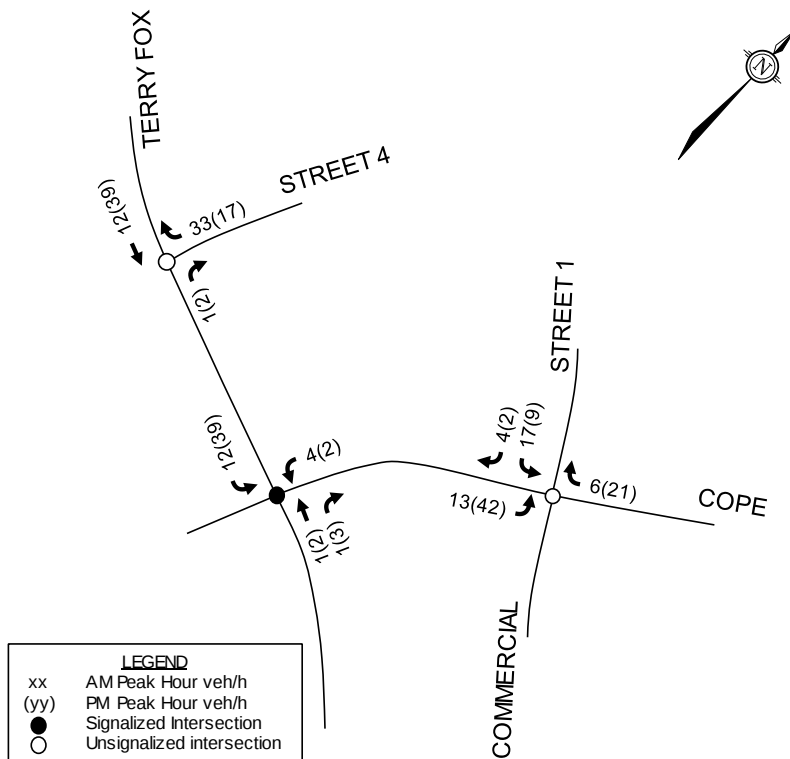
**Traffic Control:** No control

**Total Collisions:** 7

| Date/Day/Time          | Environment | Impact Type | Classification   | Surface Cond'n | Veh. Dir | Vehicle Manoeuvre   | Vehicle type              | First Event         | No. Ped |
|------------------------|-------------|-------------|------------------|----------------|----------|---------------------|---------------------------|---------------------|---------|
| 2022-Feb-05, Sat,11:44 | Clear       | Rear end    | Non-fatal injury | Dry            | North    | Going ahead         | Passenger van             | Other motor vehicle | 0       |
|                        |             |             |                  |                | North    | Stopped             | Automobile, station wagon | Other motor vehicle |         |
| 2022-Feb-12, Sat,10:35 | Snow        | Approaching | P.D. only        | Ice            | South    | Going ahead         | Passenger van             | Other motor vehicle | 0       |
|                        |             |             |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
|                        |             |             |                  |                | North    | Going ahead         | Automobile, station wagon | Other motor vehicle |         |
| 2022-May-28, Sat,00:45 | Clear       | SMV other   | P.D. only        | Dry            | North    | Going ahead         | Pick-up truck             | Animal - wild       | 0       |
| 2022-Jun-29, Wed,15:50 | Clear       | Rear end    | P.D. only        | Wet            | North    | Going ahead         | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |             |                  |                | North    | Slowing or stopping | Pick-up truck             | Other motor vehicle |         |
| 2022-Oct-29, Sat,17:32 | Clear       | Sideswipe   | P.D. only        | Dry            | South    | Changing lanes      | Pick-up truck             | Other motor vehicle | 0       |
|                        |             |             |                  |                | South    | Going ahead         | Pick-up truck             | Other motor vehicle |         |
| 2024-Jun-29, Sat,10:30 | Rain        | Rear end    | P.D. only        | Wet            | North    | Slowing or stopping | Automobile, station wagon | Other motor vehicle | 0       |
|                        |             |             |                  |                | North    | Stopped             | Automobile, station wagon | Other motor vehicle |         |

## Appendix F: Other Area Developments TIA Excerpts

---

**Figure 5: Site Generated Traffic**

## 4.2 Background Traffic

### 4.2.1 General Background Growth Rate

The addendum to the Van Gaal Lands CTS applied a 2% background growth rate to the traffic volumes along Terry Fox Drive and Cope Drive. In the interest of maintaining consistency with the addendum, a 2% per annum growth rate has been carried forward for this analysis.

### 4.2.2 Other Area Development Traffic

As identified above, Site Plan Control or Zoning By-law Amendment applications have been filed for the following lands in the vicinity of the subject site:

- 800 Eagleson Road and 5264 Fernbank Road
- 80, 110, 140, 151 and 180 Cope Drive
- 10 Cope Drive
- 5331 Fernbank Road

The 2022 and 2027 background traffic projections include traffic generated by the developments along Cope Drive, as well as the 5331 Fernbank Road commercial development. As a TIA was not submitted in support of the 800 Eagleson Road site, and the site is located in the southwest corner of the Eagleson Road/Fernbank Road intersection where minimal traffic is anticipated to travel through the study area, this development has not been accounted for in the background traffic projections. Relevant excerpts from other area developments are included in **Appendix E**.

Figure 6: Site Generated Residential Trips

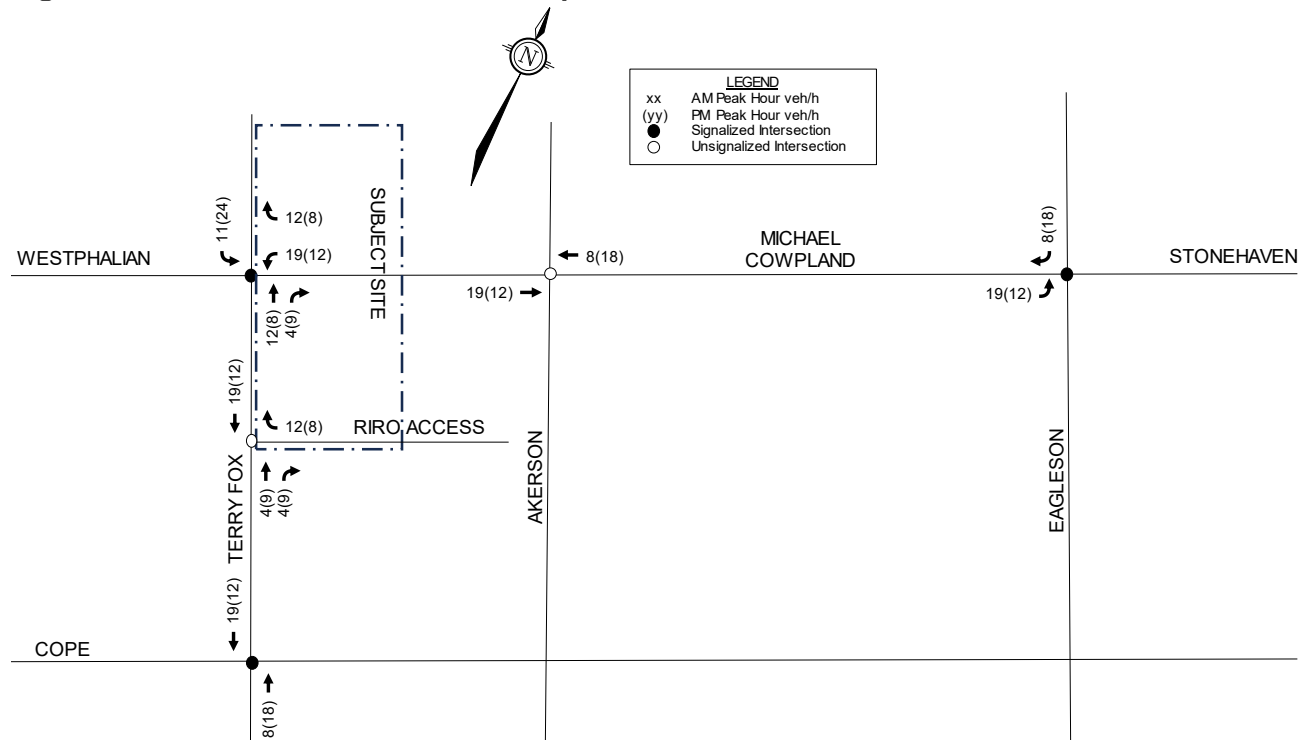
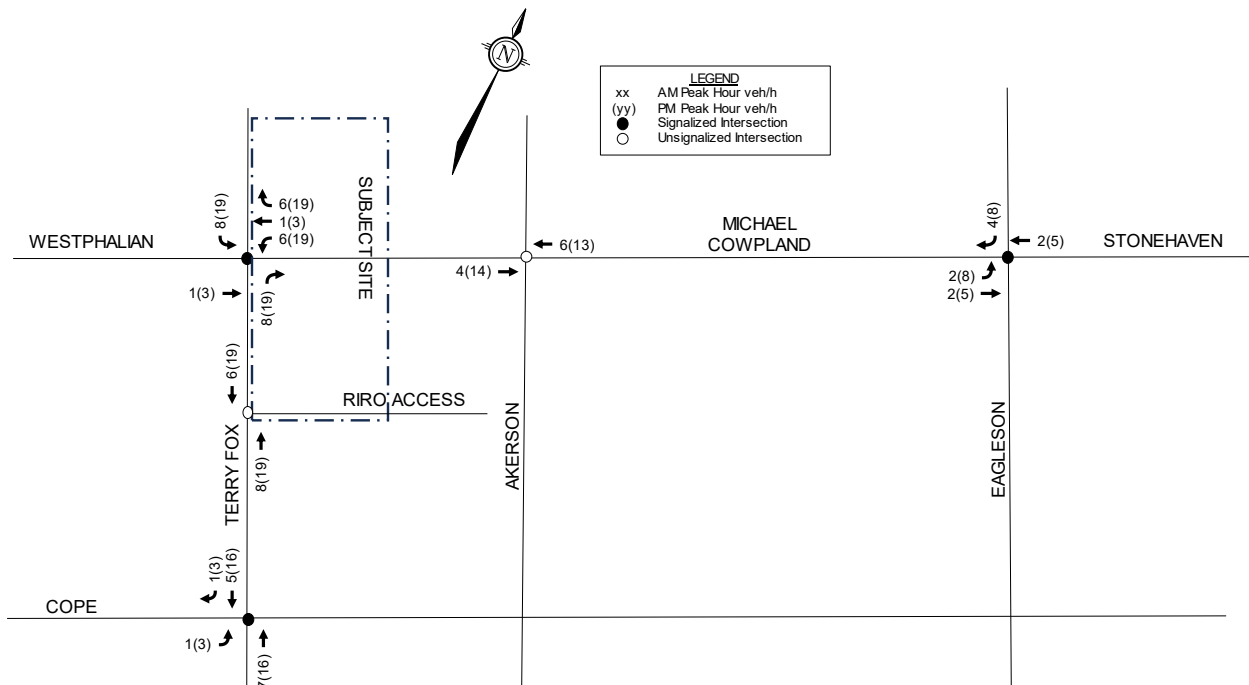


Figure 7: Site Generated Commercial Trips



### 3.2.2 General Background Growth Rate

Based on snapshots of the City's long-range model a growth rate of roughly 2% is expected on Terry Fox Drive and Eagleson Road. This 2% growth rate is consistent with the Van Gaal Lands

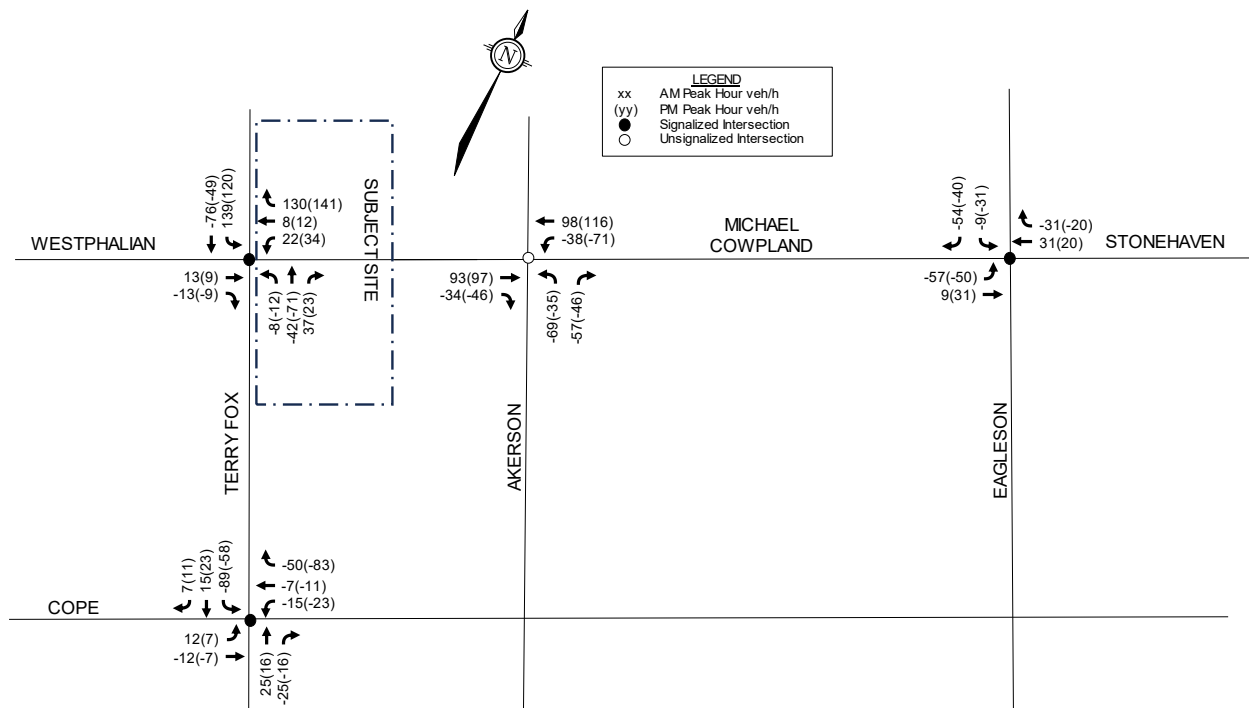
Community Transportation Study (CTS) and the recent TIAs completed for 5331 Fernbank Road and 1039 Terry Fox Drive.

### 3.2.3 Diverted Traffic

With the extension of Michael Cowpland Drive and connection to Terry Fox Drive at the existing Westphalian Avenue signalized T-intersection, some existing traffic will divert to the extended roadway to access the office park or to travel between Eagleson Road and Terry Fox Drive. Further, the new connection is expected to reduce the cut-through trips along Cope Drive and Akerson Road and provide improved connectivity to Terry Fox Drive in the west.

For the purposes of this analysis, it is assumed that 60% of northbound left, northbound right, eastbound right, and westbound left turning vehicles at the Michael Cowpland Drive/Akerson Road intersection are currently traveling via the Terry Fox Drive/Cope Drive intersection. These vehicles have been diverted to Terry Fox Drive via the new Michael Cowpland Drive extension and distributed based on existing traffic patterns (60% north, 20% south, 20% west). It is also assumed that 5% of the westbound right and southbound left and 20% of the eastbound left and southbound right turning vehicles at the Eagleson Road/Stonehaven Drive/Michael Cowpland Drive intersection will be diverted to Terry Fox Drive via the new Michael Cowpland Extension. It is assumed that these diversion assumptions The estimated diverted traffic to the Michael Cowpland Drive extension are illustrated in **Figure 8**.

**Figure 8: Diverted Traffic**



For the purposes of this analysis, the background traffic for the 2030 and 2035 traffic conditions will reflect the traffic redistribution resulting from the Michael Cowpland Drive Extension.

## Appendix G: TDM Checklists

---

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

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

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

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

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

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

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

| <b>Legend</b> |                                                                                                                |
|---------------|----------------------------------------------------------------------------------------------------------------|
| <b>BASIC</b>  | The measure is generally feasible and effective, and in most cases would benefit the development and its users |
| <b>BETTER</b> | The measure could maximize support for users of sustainable modes, and optimize development performance        |
| <b>★</b>      | The measure is one of the most dependably effective tools to encourage the use of sustainable modes            |

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

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

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

## Appendix H: Detailed MMLOS Analysis

---

**Pedestrian Level of Service (PLOS)**

| Sidewalk Width                                    | Boulevard Width | Avg. Daily Curb Lane Traffic Volume | Presence of On-Street Parking | Operating Speed <sup>(1)</sup> | Segment PLOS |
|---------------------------------------------------|-----------------|-------------------------------------|-------------------------------|--------------------------------|--------------|
| <b>Cope Drive (Both Sides)</b>                    |                 |                                     |                               |                                |              |
| 2.0m                                              | >2.0m           | >3,000 vpd                          | N/A                           | 60 km/hr                       | C            |
| <b>Fernbank Road (North Side)</b>                 |                 |                                     |                               |                                |              |
| 2.0m                                              | 0m              | <3,000 vpd <sup>(2)</sup>           | N/A                           | 70 km/hr                       | D            |
| <b>Fernbank Road (South Side)</b>                 |                 |                                     |                               |                                |              |
| 2.0m                                              | 0m              | >3,000 vpd                          | No                            | 70 km/hr                       | F            |
| <b>Terry Fox Drive (East Side) <sup>(3)</sup></b> |                 |                                     |                               |                                |              |
| 2.0m                                              | None            | >3,000 vpd                          | No                            | 80 km/hr                       | F            |
| <b>Terry Fox Drive (West Side)</b>                |                 |                                     |                               |                                |              |
| 2.0m                                              | >2.0m           | >3,000 vpd                          | No                            | 80 km/hr                       | D            |

1. Operating speed based on 10km/hr above posted speed limit
2. AADT based on westbound right turning volumes
3. Paved Shoulder, Adjusted downward for rural conditions

**Bicycle Level of Service (BLOS)**

| Road Class             | Bike Route        | Type of Bikeway              | Travel Lanes <sup>(1)</sup> | Centerline Markings | Operating Speed | Segment BLOS |
|------------------------|-------------------|------------------------------|-----------------------------|---------------------|-----------------|--------------|
| <b>Cope Drive</b>      |                   |                              |                             |                     |                 |              |
| Collector              | Suggested         | Mixed Traffic                | 1                           | N/A                 | 60 km/hr        | F            |
| <b>Fernbank Road</b>   |                   |                              |                             |                     |                 |              |
| Arterial               | N/A               | Bike Lane                    | 1                           | N/A                 | 70 km/hr        | E            |
| <b>Terry Fox Drive</b> |                   |                              |                             |                     |                 |              |
| Arterial               | Crosstown Bikeway | Bike Lane/<br>Paved Shoulder | 1                           | N/A                 | 80 km/hr        | E            |

1. Travel lanes in each direction

**Transit Level of Service (TLOS)**

| Facility Type   | Level/Exposure to Congestion Delay, Friction and Incidents |          |                    | Segment TLOS |
|-----------------|------------------------------------------------------------|----------|--------------------|--------------|
|                 | Congestion                                                 | Friction | Incident Potential |              |
| Cope Drive      |                                                            |          |                    |              |
| Mixed Traffic   | Yes                                                        | Low      | Medium             | D            |
| Fernbank Road   |                                                            |          |                    |              |
| Mixed Traffic   | Yes                                                        | Low      | Medium             | D            |
| Terry Fox Drive |                                                            |          |                    |              |
| Mixed Traffic   | Yes                                                        | Low      | Medium             | D            |

**Truck Level of Service (TkLOS)**

| Curb Lane Width        | Number of Travel Lanes<br>(Per Direction) | Segment TkLOS |
|------------------------|-------------------------------------------|---------------|
| <b>Cope Drive</b>      |                                           |               |
| >3.7m                  | 1                                         | B             |
| <b>Fernbank Road</b>   |                                           |               |
| ≤3.5m                  | 1                                         | C             |
| <b>Terry Fox Drive</b> |                                           |               |
| ≤3.5m                  | 1                                         | C             |

## Appendix I: MTO Left Turn Lane Warrants

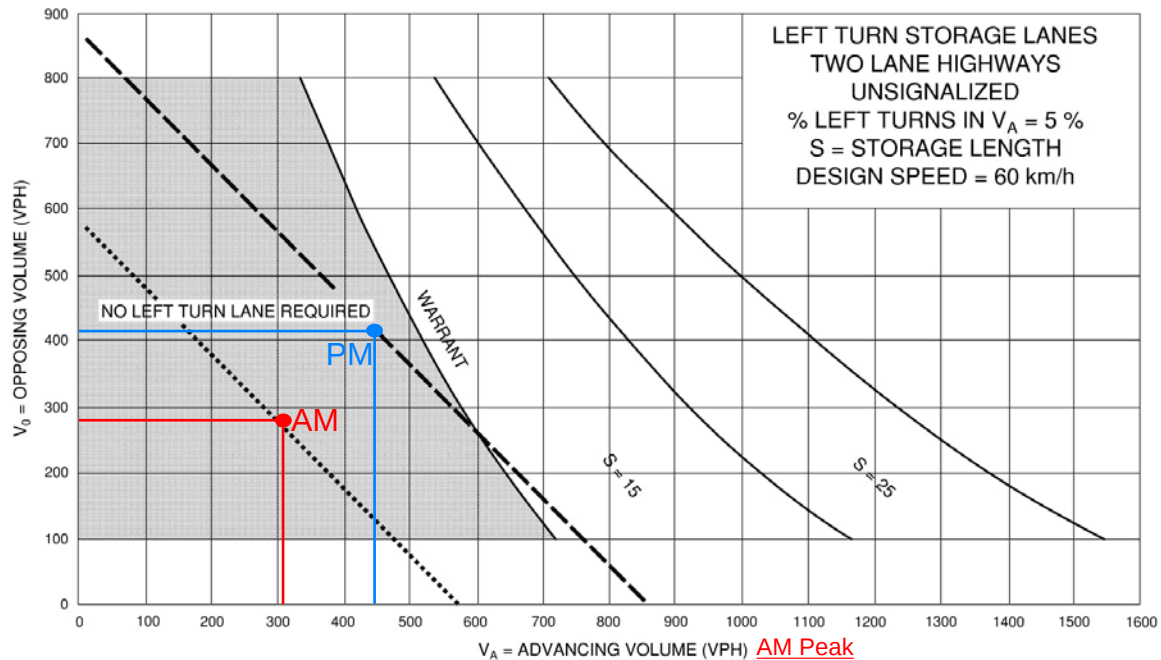
---

Total 2030 Traffic Volumes  
AM & PM Peak Hour  
WBL Turn Lane at Cope Drive Access

TAC Geometric Design Guide for Canadian Roads, June 2017

MTO Design Supplement

**Exhibit 9A-6**



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- ..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

**AM Peak**

$$V_{\text{advancing}} = 3 + 303 + 6 = 312 \text{ veh.}$$

$$V_{\text{opposing}} = 280 + 5 = 285 \text{ veh.}$$

$$V_{\text{left-turn}} = 3 \text{ veh.}$$

$$\text{Percent}_{\text{left-turn}} = (3/312) = 1\%$$

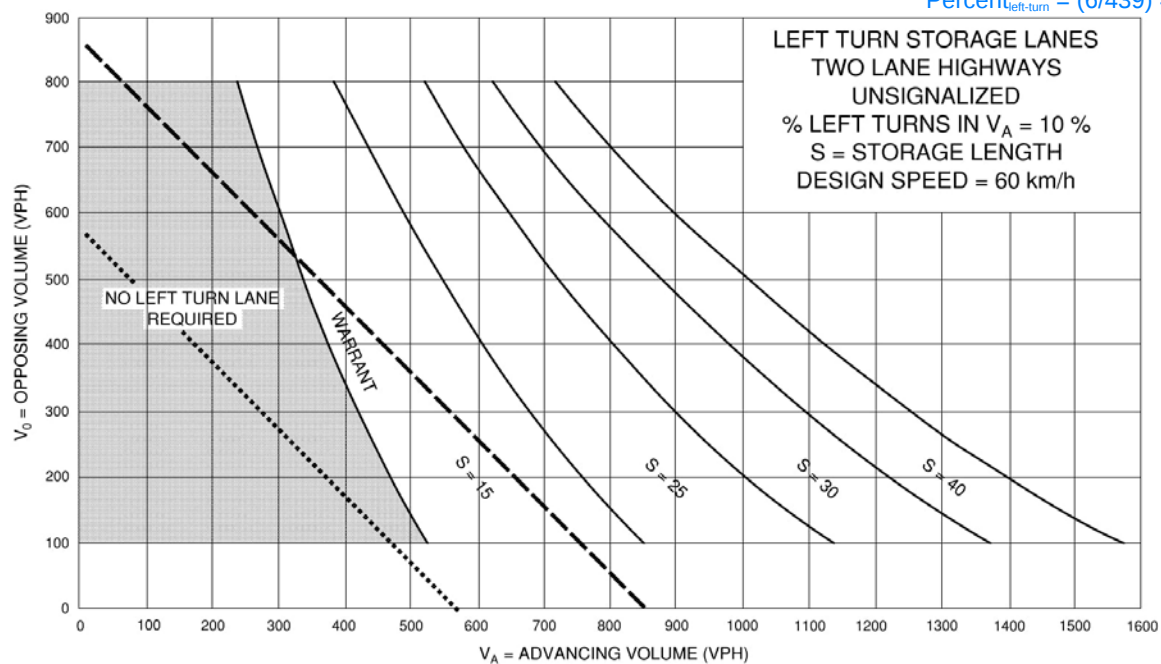
**PM Peak**

$$V_{\text{advancing}} = 21 + 412 + 6 = 439 \text{ veh.}$$

$$V_{\text{opposing}} = 415 \text{ veh.}$$

$$V_{\text{left-turn}} = 6 \text{ veh.}$$

$$\text{Percent}_{\text{left-turn}} = (6/439) = 1\%$$



## Appendix J: Functional Design of Left Turn Lane on Cope Drive



|                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <p>NOTE:<br/>THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.</p> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|