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36 Years

Proposed Subdivision
5331 Fernbank Road &
1039 Terry Fox Drive

Transportation Impact Assessment

Proposed Subdivision
5331 Fernbank Road & 1039 Terry Fox Drive

Transportation Impact Assessment

Prepared By:

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

October 2018
Revised March 2019

Novatech File: 117198
Ref: R-2018-028

NOVATECH
Engineers, Planners & Landscape Architects

March 20th, 2019

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

Attention: **Ms. Rosanna Baggs**
Project Manager, Infrastructure Approvals

Dear Ms. Baggs:

Reference: **5331 Fernbank Road & 1039 Terry Fox Drive**
Transportation Impact Assessment
Novatech File No. 117198

We are pleased to submit the following revised Transportation Impact Assessment (TIA) in support of a Draft Plan of Subdivision application for 5331 Fernbank Road & 1039 Terry Fox Drive. The TIA has been revised to review the revised draft plan, update traffic projections for the commercial development in the southeast corner of the Terry Fox Drive/Cope Drive intersection, and to address City comments received in December 2018. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

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

Yours truly,

NOVATECH

B. Byvelds

Brad Byvelds, P. Eng.
Project Coordinator | Transportation/Traffic

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning ☐.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

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Dated at _____Ottawa_____this _ 20 _ day of _____ March _____, 201 9 .
(City)

Name: _____ Brad Byvelds, P.Eng._____
(Please Print)

Professional Title: _____ Project Coordinator, Transportation/Traffic_____

B. Byvelds
_____
Signature of Individual certifier that s/he meets the above four criteria

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EXECUTIVE SUMMARY

Novatech has been retained by Claridge Homes to prepare a Transportation Impact Assessment (TIA) in support of a Draft Plan of Subdivision application to allow for the development of the lands known as 5331 Fernbank Road and 1039 Terry Fox Drive in South Kanata, Ottawa. The Plan of Subdivision applies to only a portion of the larger property (Van Gaal Lands); specifically, the area south of the Monahan Drain, and north of Cope Drive. The subject lands are currently vacant, and are surrounded by the following:

- The Monahan Drain and future business park space to the north;
- Townhouse dwellings to the east;
- Cope Drive and future commercial development to the south; and
- Terry Fox Drive and vacant land to the west.

An amendment to the Zoning By-law was approved by the City in July 2017 (City File No.: D02-02-15-0066) to permit residential uses on this portion of the subject property. The proposed development conforms to the current zoning.

The proposed development will include 55 single detached dwelling units and approximately 129 townhouse units, along with a 0.96-hectare neighbourhood park in the northeast corner of the subject site. Collectively, the development consists of 184 residential units.

Two accesses to the subject site will be provided and are described as follows:

- right-in/right-out (RIRO) access along Terry Fox Drive at Street 4, approximately 240m north of Cope Drive; and
- full movement access along Cope Drive at Street 1, approximately 140m east of Terry Fox Drive and 80m west of Northgraves Crescent.

The proposed development will be constructed in one phase, with an estimated completion date of 2022.

The subject application satisfies the trip generation, location and safety triggers for completing a TIA. Based on the TIA Screening Form, the proposed development satisfies all three triggers for completing a TIA.

This report will review the design elements along the Terry Fox Drive and Cope Drive boundary streets. The proposed study area for this report includes all accesses to the proposed development and the intersection of Terry Fox Drive and Cope Drive. The selected time periods for the analysis are the weekday AM and PM peak hours, which represent the 'worst case' combination of site-generated traffic and adjacent street traffic. Analysis will be completed for the 2022 build-out year and the 2027 horizon year.

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

- All roadways within the proposed subdivision will be classified as local roadways. Excluding the window street portion of Street 2, all roadways will have an 18 metre right-of-way. The window street portion of Street 2 will have a 16.5m right-of-way. Sidewalks will be provided on the west side of Street 1 and the north side of Street 4 within the subdivision.

- The proposed development will remove the existing Hazeldean Side Road pathway connecting to Cope Drive near the northern limits of the development. However, the sidewalk along Street 1 will provide an alternative north-south pedestrian facility connecting to Cope Drive.

- The vehicular and pedestrian traffic at the Street 1/Street 4 intersection are not anticipated to meet the OTM criteria for a PXO. However, as the sidewalk along Street 1 will terminate at Street 4 across from the neighbourhood park, this location meets the pedestrian desire line criteria and a PXO is recommended. Based on the anticipated vehicular volumes along Street 4 and Table 7 (Pedestrian Crossover Selection Matrix) in OTM Book 15, a PXO D is recommended at this location.

- Terry Fox Drive currently meets the target TkLOS and Auto LOS; however, it does not meet the target PLOS and BLOS. Terry Fox Drive currently has a two-lane undivided rural cross-section adjacent to the subject site. Opportunities to improve the PLOS and BLOS should be explored by the City through the future widening of Terry Fox Drive, as identified in the City's 2013 TMP network concept. At that time, consideration should be given by the City to reducing the posted speed limit, providing a 2m sidewalk and separated cycling facility.

- Cope Drive currently meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS. As on-street parking is currently permitted along Cope Drive, the implementation of a bike lane adjacent to the curbside parking lane will result in a BLOS D, which does not meet the target. A curbside parking restriction in conjunction with bike lanes would result in a BLOS C, achieving the target. Alternative to bike lanes, consideration could also be given to reducing the posted speed to 40km/hr, resulting in a BLOS B for the existing mixed traffic lanes.

- The recommended cycling improvements to Cope Drive are to address the existing conditions and are not attributable to the site. As the site provides cycling connectivity to the existing facilities along Cope Drive, the implementation of any cycling facilities along Cope Drive should be a City lead initiative.

- Based on the projected northbound right turning volumes along Terry Fox Drive at Street 4, a right turn lane is not recommended. A pork chop island will be provided to restrict the Terry Fox Drive/Street 4 intersection to right-in right-out operation.

- A 15m eastbound left turn lane is warranted at the Cope Drive/Street 1 intersection. Based on the projected westbound right turning volumes along Cope Drive at Street 1, a right turn lane is not recommended. The proposed eastbound left turn lane along Cope Drive at Street 1 will be back-to-back with a 40m westbound left turn lane at the Terry Fox Drive/Cope Drive intersection.

- The required stopping sight distance and intersection sight distance, based on Transportation Association of Canada Geometric Design Guidelines, is met at both the Cope Drive access (Street 1) and the Terry Fox Drive access (Street 4).

- The proposed accesses are anticipated to operate with a LOS D or better during the weekday AM and PM peak hours under all scenarios. Based on the Ontario Traffic Manual (OTM) criteria, traffic signals along Cope Drive at Street 1/commercial access are anticipated to be

32% met by the 2027 horizon year. Side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

- To encourage travel by sustainable modes, a multi-modal travel option information package will be provided to new residents of the subdivision. The site conforms to the City's TDM initiatives by providing easy access to area pedestrian, cycling and transit facilities.

- Based on the transit utilization data received from OC Transpo, the existing bus stops/routes in the vicinity of the subject site have capacity to accommodate the transit trips generated by proposed development. It is our understanding that there are no major transit service changes anticipated in the direct vicinity of the subject site.

- The Terry Fox Drive/Cope Drive intersection currently does not meet the target PLOS, BLOS or Auto LOS for the General Urban Area. A reduction in the crossing distance on all legs of the intersection would have the greatest improvement on the PETSI score and the Pedestrian Delay. Due to the high operational speed along Terry Fox Drive, a BLOS B is unachievable on the north and south approaches. If either bike lanes or a reduction in the operational speed are implemented along Cope Drive, the BLOS on the east and west approaches will be improved to a D. If two stage left-turn bike boxes are provided in conjunction with a reduction in the operational speed on the east and west approaches, a BLOS A can be achieved.

- The eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is currently operating with an Auto LOS F during the weekday PM peak hour. Based on the Synchro analysis, the 95th percentile queue length for the southbound left turn movement is approximately 45m during the AM peak hour and 50m during the PM peak hour. This exceeds the existing storage length for the southbound left turn lane during both peak hours. The implementation of a westbound right turn lane is anticipated to improve intersection operations to a LOS B during the PM peak hour.

- Under the 2022 and 2027 background traffic conditions, critical movements at the Terry Fox Drive/Cope Drive intersection are anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS D or better during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

- Under the 2022 total traffic conditions, the eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS C during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS C during the PM peak hour.

- Under the 2027 total traffic conditions, the eastbound and southbound left turn movement at the Terry Fox Drive/Cope Drive intersection are anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS E during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

- The extension of the westbound left turn lane can be accommodated within the existing road platform, back-to-back with the proposed eastbound left turn lane at Street 1. Geometry

modifications, including the extension of the southbound left turn lane and the implementation of a westbound right turn lane, at the Terry Fox Drive/Cope Drive intersection are eligible for Development Charges funding. Subject to the modifications to this intersection being incorporated into the project list within the 2019 DC By-law update with a reasonable pay-back period, the developer may enter into a front ending agreement with the City to construct this modification.

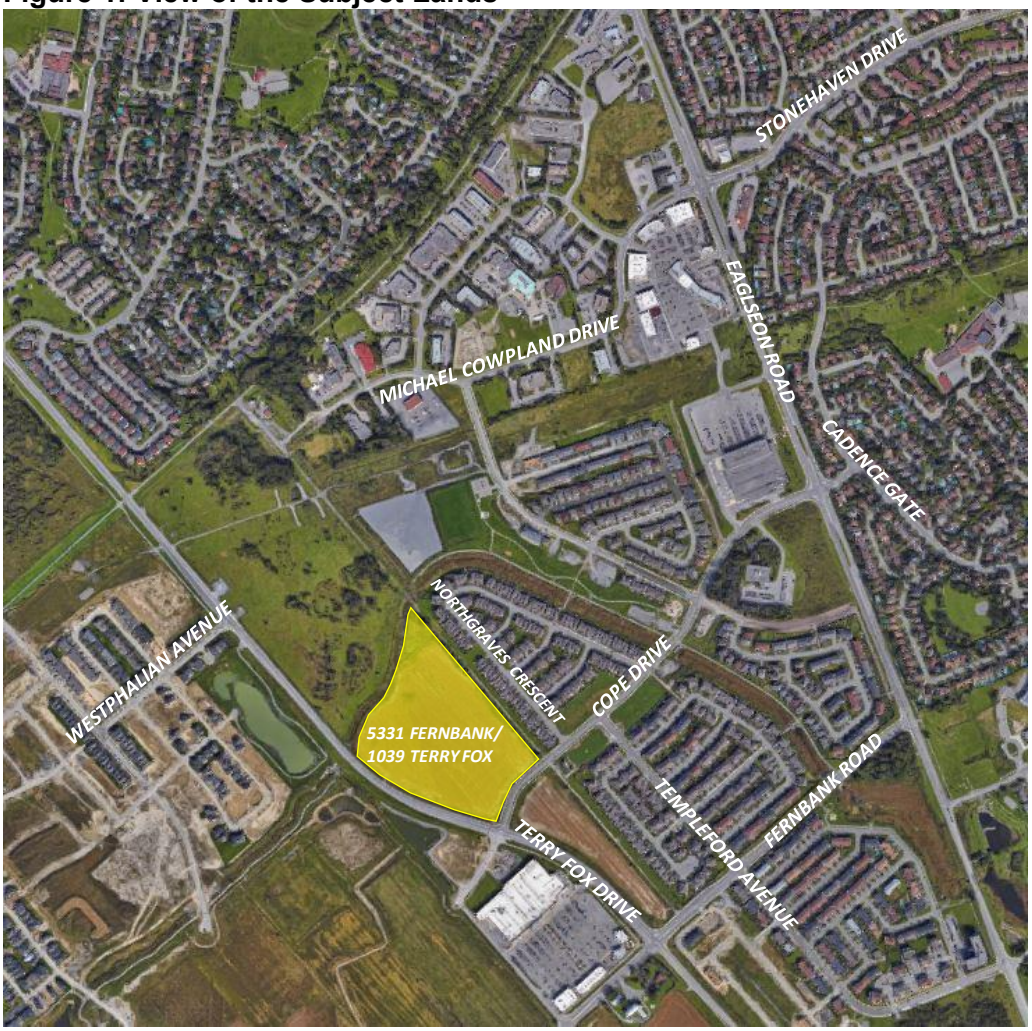
1.0 INTRODUCTION

Novatech has been retained by Claridge Homes to prepare a Transportation Impact Assessment (TIA) in support of a Draft Plan of Subdivision application to allow for the development of the lands known as 5331 Fernbank Road and 1039 Terry Fox Drive in South Kanata, Ottawa. The Plan of Subdivision applies to only a portion of the larger property (Van Gaal Lands); specifically, the area south of the Monahan Drain, and north of Cope Drive. The subject lands are currently vacant, and are surrounded by the following:

- The Monahan Drain and future business park space to the north;
- Townhouse dwellings to the east;
- Cope Drive and future commercial development to the south; and
- Terry Fox Drive and vacant land to the west.

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

Figure 1: View of the Subject Lands



2.0 PROPOSED DEVELOPMENT

An amendment to the Zoning By-law was approved by the City in July 2017 (City File No.: D02-02-15-0066) to permit residential uses on this portion of the subject property. The proposed development conforms to the current zoning.

The proposed development will include 55 single detached dwelling units and approximately 129 townhouse units, along with a 0.96-hectare neighbourhood park in the northeast corner of the subject site. Collectively, the development consists of 184 residential units.

Two accesses to the subject site will be provided and are described as follows:

- right-in/right-out (RIRO) access along Terry Fox Drive at Street 4, approximately 240m north of Cope Drive; and
- full movement access along Cope Drive at Street 1, approximately 140m east of Terry Fox Drive and 80m west of Northgraves Crescent.

The proposed development will be constructed in one phase, with an estimated completion date of 2022. A concept plan is provided in **Figure 2**.

3.0 SCREENING AND SCOPING

3.1 Screening Form

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form. A copy of the TIA Screening Form is included in **Appendix A**.

The subject application satisfies the trip generation, location and safety triggers for completing a TIA. Based on the TIA Screening Form, the proposed development satisfies all three triggers for completing a TIA.

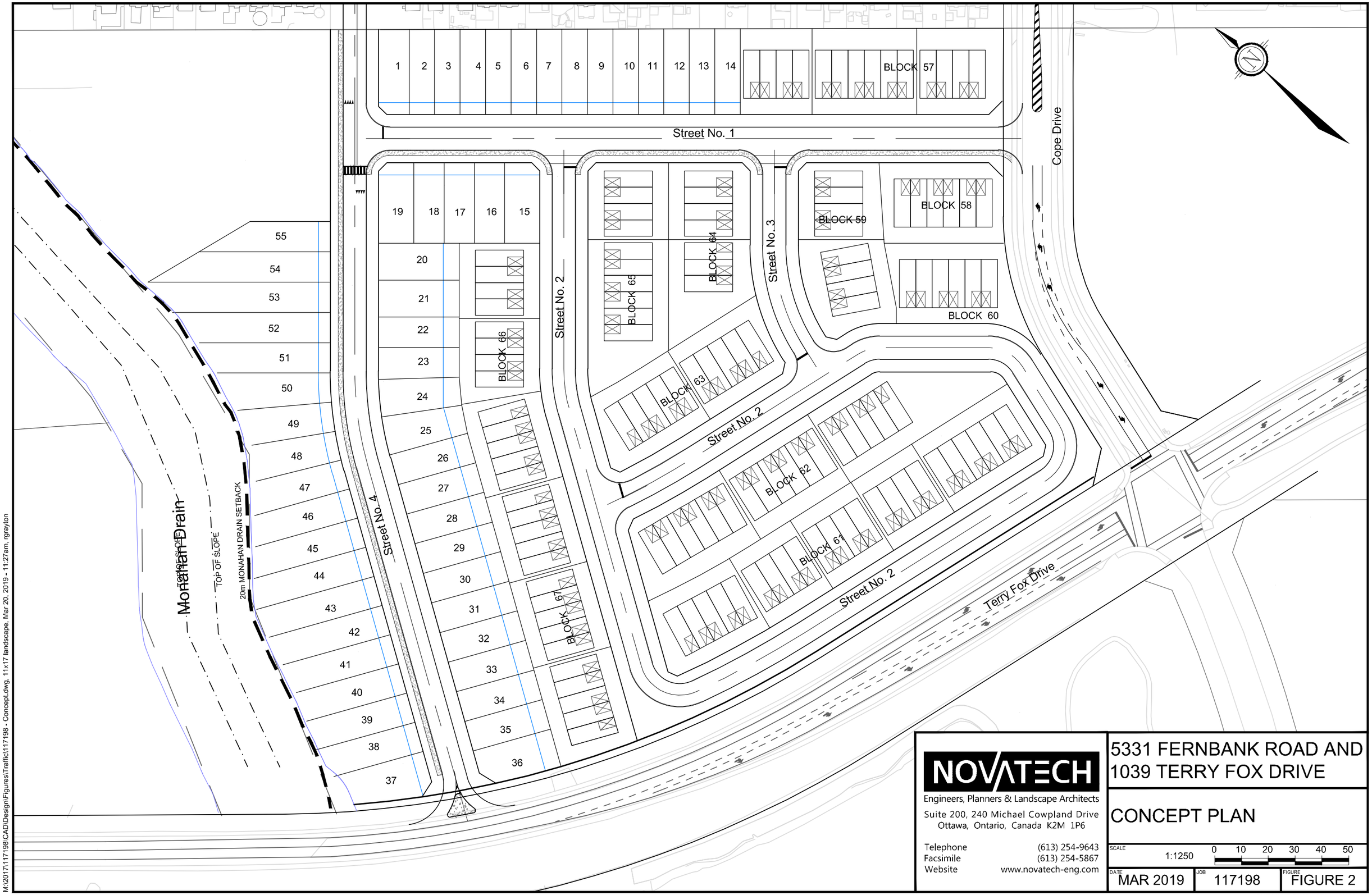
3.2 Existing Conditions

3.2.1 Roadways

All roadways within the study area fall under 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 rural truck route with a posted speed limit of 80 km/hr within the study area. The City of Ottawa *Official Plan* (OP) identifies a 44.5 metre right-of-way (ROW) to be protected along Terry Fox Drive and the Old Rail Line.

Cope Drive is a collector roadway that generally runs on an east-west alignment between Terry Fox Drive and Eagleson Road. Cope Drive has a two-lane undivided urban cross section with a posted speed limit of 50km/hr along its entire length. The City of Ottawa OP identifies a 24 metre ROW to be protected along the entire length of Cope Drive.



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5331 FERNBANK ROAD AND 1039 TERRY FOX DRIVE

CONCEPT PLAN

SCALE 1:1250 (0 10 20 30 40 50)

DATE MAR 2019 | JOB 117198 | FIGURE FIGURE 2

SHT11X17.DWG - 279mmX432mm

Northgraves Crescent is a local roadway, looping north of Cope Drive. The western Northgraves Crescent connection to Cope Drive is located approximately 80m east of the proposed Street 1. Northgraves Crescent has two-lane undivided urban cross section and a regulatory speed limit of 50km/hr.

Templeford Avenue is a collector roadway that generally runs on a north-south alignment between Cope Drive and Fernbank Road. Templeford Avenue has a two-lane undivided urban cross section and a regulatory speed limit of 50km/hr.

3.2.2 Intersections

A review of the existing lane configurations and traffic control at the study area intersections is provided below.

Terry Fox Drive/Cope Drive

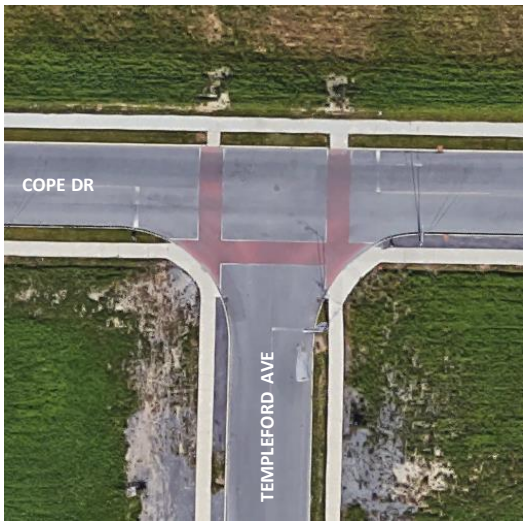
- Signalized intersection
- Northbound: one left turn lane and one shared through/right turn lane
- Southbound: one left turn lane, one through turn lane and one right turn lane
- Eastbound/Westbound: one left turn lane and one shared through/right turn lane
- Standard crosswalks are provided on all four legs
- Pocket Bike lane is provided on the southbound approach

Cope Drive/Northgraves Crescent

- Unsignalized intersection
- Stop control on Northgraves Crescent
- One approach lane on all legs
- Crosswalk on north leg is textured with unit pavers

Cope Drive/Templeford Avenue

- Unsignalized intersection
- All-way stop control
- One approach lane on all legs
- Crosswalk on all legs are textured with unit pavers



3.2.3 Driveways

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

Terry Fox Drive, East Side:
- No other driveways

Terry Fox Drive, West Side:
- No other driveways

Cope Drive, North Side:
- No other driveways
- Northgrave Crescent, approximately 80m north of proposed Street 1.

Cope Drive, South Side:
- Anticipated future driveway to commercial development

3.2.4 Pedestrian and Bicycle Facilities

Terry Fox Drive is identified as a spine cycling route, and Cope Drive east of Terry Fox Drive is identified as a local cycling route in the City's Ultimate Cycling Network. Existing pedestrian and bicycle facilities within the study area are described as follows:

- Paved shoulders are provided on Terry Fox Drive
- Sidewalks are provided on both sides of Cope Drive and Templeford Avenue
- Mixed traffic lanes are provided along Cope Drive and Templeford Avenue

3.2.5 Transit

OC Transpo bus stop #1919 and #6933 are located in the southeast and southwest corners of the Cope Drive/Templeford Road intersection. OC Transpo bus stop #4031 is located in the northwest corner of the Cope Drive/Northgraves Crescent intersection. These bus stops are within a walking distance of 400m, or a five-minute walk, of the subject site. The location of the bus stops is shown in **Figure 3**.

Figure 3: OC Transpo Bus Stop Locations

The aforementioned bus stops serve OC Transpo Route 161, Route 164, Route 168 and Route 252. Descriptions of the foregoing transit routes are provided in the following table. Route maps are included in **Appendix B**.

Table 1: OC Transpo Route Information

Route	Description	Schedule		
		Days	Service	Headways
161	Travels between Terry Fox Transit Station and Brildewood	Weekdays	All Day	Morning/Evening: 30 min Mid-Day/Night: 60 min
164	Travels between Terry Fox Transit Station and Hope Side Road	Weekdays	Peak Periods	Morning/Evening: 30 min
168	Travels between Terry Fox Transit Station and Cope Drive	7 Days/ Week	All Day	All Day: 30 min
252	Travels between Mackenzie King Transit Station and Cope Drive	Weekdays	Peak Periods	Morning/Evening: 15-20 min

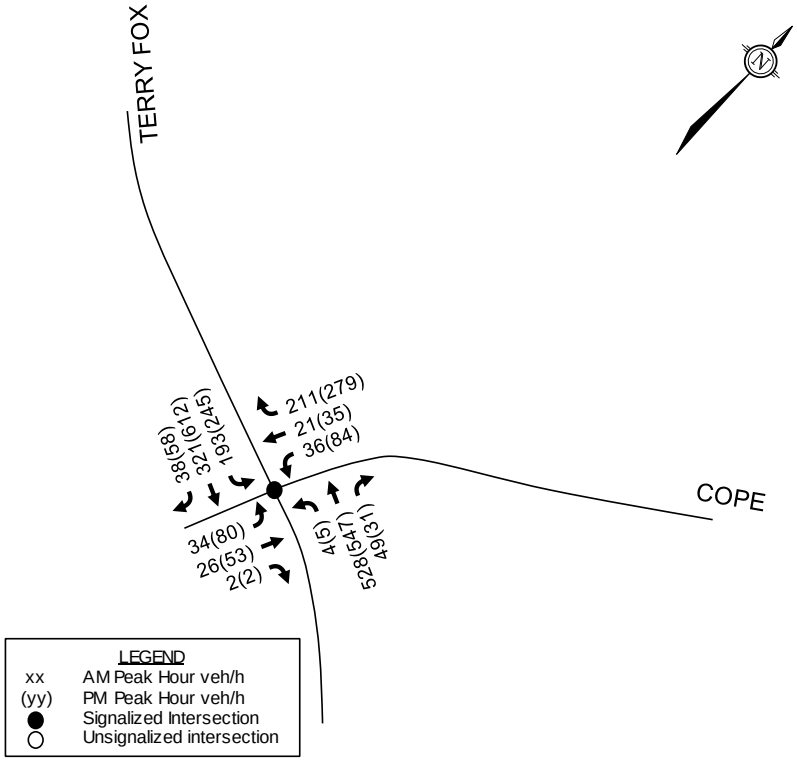
3.2.6 Existing Area Traffic Management Measures

There are currently no area traffic management measures in place along any of the study area roadways.

3.2.7 Existing Traffic Volumes

A traffic count was completed by the City of Ottawa at the Terry Fox Drive/Cope Drive intersection on January 25th, 2018. The existing traffic volumes at this intersection during the weekday AM and PM peak hours are shown in **Figure 4**. Peak hour summary sheets of the aforementioned traffic count are included in **Appendix C**.

Figure 4: Existing Traffic Volumes



3.2.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department for the Terry Fox Drive/Cope Drive intersection. Copies of the collision summary reports are included in **Appendix D**.

A total of 16 collisions occurred at the Terry Fox Drive/Cope Drive intersection over the last five years. Eight of the collisions were rear-end impacts, three were turning movement impacts, three were angle impacts and two were single vehicle impacts. Half of the collisions occurred under wet, icy or snowy surface conditions, suggesting environmental factors played a role in the collision history at this intersection. Personal injuries were incurred during three of the collisions. None of the

collisions involved pedestrians and cyclists. Of the eight rear-end impacts, four occurred on the north approach, three occurred on the south approach and one occurred on the west approach.

3.3 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) identifies a widening from two to four lanes along Eagleson Road between Cadence Gate and Hope Side Road. This widening will provide capacity for additional travel demands from new development areas and provide continuity from the four-lane Eagleson Road to the north. The widening of Eagleson Road is identified as a Phase 2 project with implementation between 2020 and 2025.

The City of Ottawa's 2013 TMP also identifies a widening from two to four lanes along Hope Side Road between Eagleson Road and Richmond Road. This widening will provide capacity and network continuity for growth areas in Kanata. The widening of Hope Side Ride is identified as a Phase 3 project in the affordable plan with implementation between 2026 and 2031. It is noteworthy that a roundabout is anticipated to be constructed at the Eagleson Road/Hope Side Road intersection as part of the Hope Side Road widening project.

City staff advised that the Cope Drive/Templeford Road intersection has been approved to be converted into a mini roundabout.

A Site Plan Control application was submitted to the City of Ottawa in June 2018, in support of a six storey 143-unit apartment building at 800 Eagleson Road. No TIA has been submitted as part of this application.

A Transportation Impact Study was prepared in support of a Zoning By-law Amendment and Site Plan Control application in July 2015 for a proposed residential development at 80, 110, 140, 151 and 180 Cope Drive. The proposed residential development consists of 260 residential units.

A TIA was prepared in support of a Site Plan Control application in April 2018 for a proposed commercial development at 10 Cope Drive. The proposed commercial development consists of a 3,620m^2 grocery store and 1,982m^2 of commercial.

A TIA, dated September 2018, was prepared in support of a Zoning By-law Amendment application for a commercial development at 5331 Fernbank Road, in the southeast corner of the Terry Fox Drive/Cope Drive intersection. Based on the TIA, this development is anticipated to contain a 35,000s.f. discount supermarket, 43,500s.f. of specialty retail, two high-turnover sit-down restaurants, a drive-in bank, a coffee/donut shop with drive-thru window, and a gas station. This development is anticipated to have right-in right-out access along Terry Fox Drive and Fernbank Road, and all movement access along Cope Drive opposite the proposed Street 1.

3.4 Study Area and Time Periods

This report will review the design elements along the Terry Fox Drive and Cope Drive boundary streets. The proposed study area for this report includes all accesses to the proposed development and the intersection of Terry Fox Drive and Cope Drive. The selected time periods for the analysis are the weekday AM and PM peak hours, which represent the 'worst case' combination of site-generated traffic and adjacent street traffic. Analysis will be completed for the 2022 build-out year and the 2027 horizon year.

3.5 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the TIA Guidelines. The applicable exemptions for the subject lands are shown in **Table 2**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Applies
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Yes
	4.1.3 New Street Networks	• Only required for plans of subdivision	No
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Yes
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Yes
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time	No
4.6 Neighbourhood Traffic Management	*4.6.1* Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Yes
4.8 Network Concept	*All elements*	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Yes

The traffic count at the Terry Fox Drive/Cope Drive intersection suggests a two-way total of approximately 536 and 727 vehicles use Cope Drive during the weekday AM and PM peak hours respectively. The peak directional traffic volumes along Cope Drive is approximately 268 vehicles (eastbound) during the AM peak hour and 398 vehicles (westbound) during the PM peak hour. The lane capacity along Cope Drive is estimated at 600 vehicles per hour per lane (vphpl) based on the City's Trans Long Range Transportation Model. Based on the foregoing, the peak directional traffic along Cope Drive is operating with a volume to capacity ratio of 0.45 and 0.66 during the weekday AM and PM peak hours respectively.

The majority of traffic generated by the subject site are anticipated to arrive from/depart to the Terry Fox Drive/Cope Drive intersection. The total traffic along Cope Drive is not anticipated to increase above the peak directional capacity threshold of 600 vphpl. As such, the Neighbourhood Traffic Management module is proposed to be exempt from the required analysis in the TIA.

4.0 FORECASTING

4.1 Development-Generated Traffic

4.1.1 Trip Generation

A Community Transportation Study (CTS) was prepared by Novatech in support of a Zoning By-law Amendment application for the entire Van Gaal Lands in August 2015. A subsequent addendum was prepared in June 2016 to review the impacts of the residential component (i.e. the subject lands). The Zoning By-law Amendment application was approved by City council on July 12, 2017. The aforementioned approved traffic studies used the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition to calculate residential trips.

In September 2017 ITE published the 10th Edition of the Trip Generation Manual. Previous editions of the ITE Trip Generation Manual contained separate land use codes for rental and ownership residential uses. The 10th edition reviewed previous data and found no clear difference between the rental and ownership sites within the ITE database. As such they combined the rental and ownership data, and separated the multifamily housing into three land use codes (low-rise, mid-rise, and high-rise). Land Use 220 – Multifamily Housing (Low-Rise) in the 10th edition of the Trip Generation Manual contains data from apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors).

To maintain consistency with previous reports for the subject lands, trips generated by the proposed development have been calculated using ITE trip generation rates. The ITE trip generation has been updated to reflect the 10th Edition rates as they are a more accurate representation of the proposed development.

Table 3: ITE Trip Generation

Land Use	ITE Code	Units	AM Peak			PM Peak		
			IN	OUT	TOT	IN	OUT	TOT
Single-Family Detached Housing	210	55	11	33	44	36	21	57
Multifamily Housing (Low-Rise)	220	129	14	47	61	47	27	74
		Total	25	80	105	83	48	131

The original CTS/addendum prepared in support of the Zoning By-law Amendment application for the subject lands converted ITE trips to person trips using a person trip factor of 1.42. The City of Ottawa implemented new TIA guidelines in 2017, which include an approved person trip adjustment factor of 1.28. The approved person trip adjustment factor of 1.28 has been applied to the ITE trips, and is summarized in the following table.

Table 4: Person Trip Generation

Land Use	Units	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Single Detached Dwelling Units	55	16	40	56	51	22	73
Residential Townhouse/ Condominium	129	20	58	78	67	28	95
Total		36	98	134	118	50	168

The modal share values applied to the trips generated by the proposed development have been developed based on the modal shares identified in the City's 2011 TRANS O-D Survey Report for the Kanata/Stittsville Area and are consistent with the modal shares identified in the approved Van Gaal Lands CTS/addendum. The trip generation by modal share is summarized in the following table.

Table 5: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Total Person Trips		*36*	*98*	*134*	*118*	*50*	*168*
Auto Driver	55%	20	54	74	65	27	92
Auto Passenger	15%	5	15	20	18	7	25
Transit	20%	7	20	27	24	10	34
Non-Auto	10%	4	9	13	11	5	17

Based on the foregoing, the proposed subdivision is anticipated to generate a total of 74 vehicle trips during the weekday AM peak hour and 92 vehicle trips during the weekday PM peak hour.

4.1.2 Trip Distribution

The projected distribution of trips generated by the proposed development is consistent with the Van Gaal Lands CTS dated August 2015 and addendum dated June 2016. The projected distribution is summarized as follows:

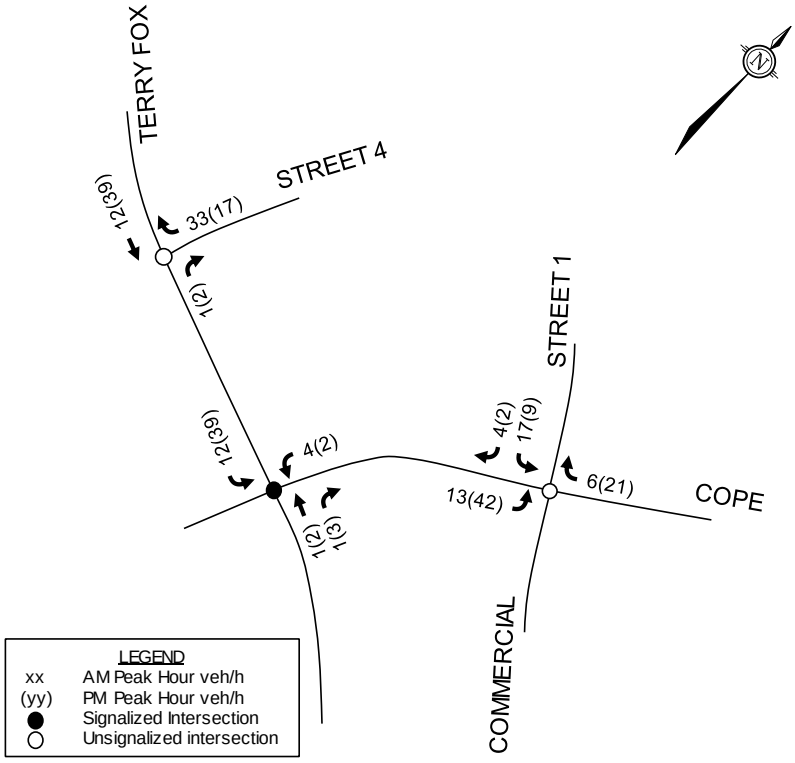
- 60% to/from the north via Terry Fox Drive
- 15% to/from the north via Eagleson Road
- 10% to/from the east via Stonehaven Drive and Cadence Gate
- 10% to/from the south via Eagleson Road and Terry Fox Drive
- 5% to/from the west via Fernbank Road

All trips generated by the proposed development are anticipated to arrive/depart using the Cope Drive access, excluding the following:

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

Site generated traffic volumes are shown in **Figure 5**.

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**.

Background traffic within the study area for the 2022 build-out year and 2027 horizon year are shown in **Figures 6** and **7** respectively. Total traffic volumes for the 2022 build-out year and 2027 horizon year are shown in **Figure 8** and **9**.

Figure 6: 2022 Background Traffic

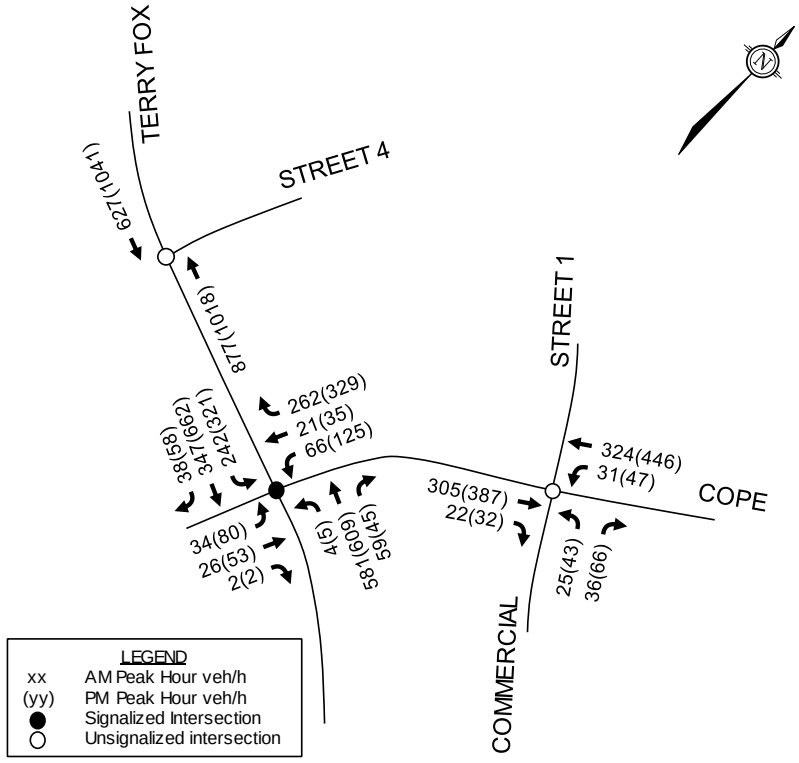


Figure 7: 2027 Background Traffic

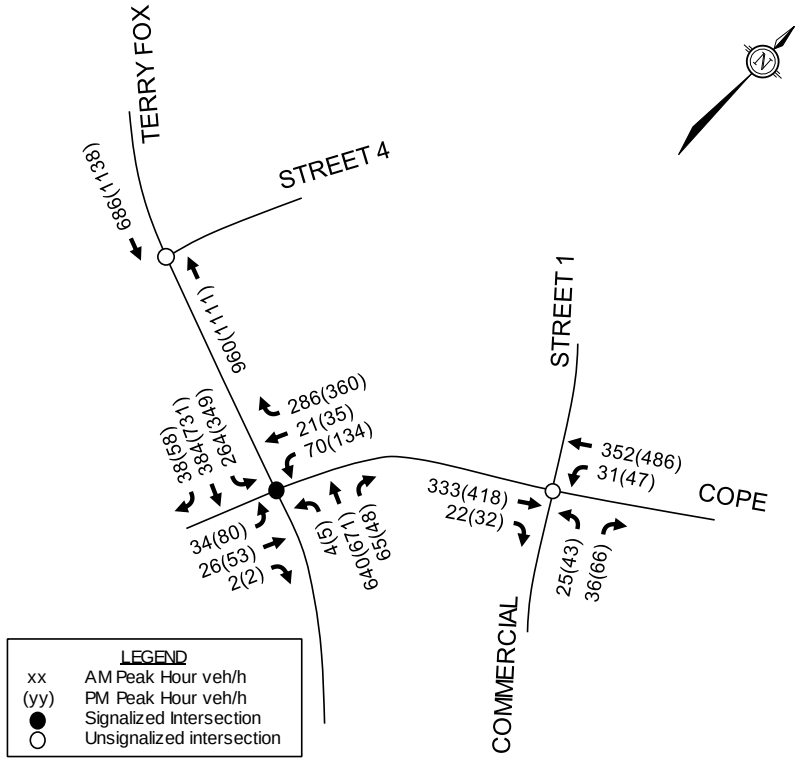


Figure 8: 2022 Total Traffic

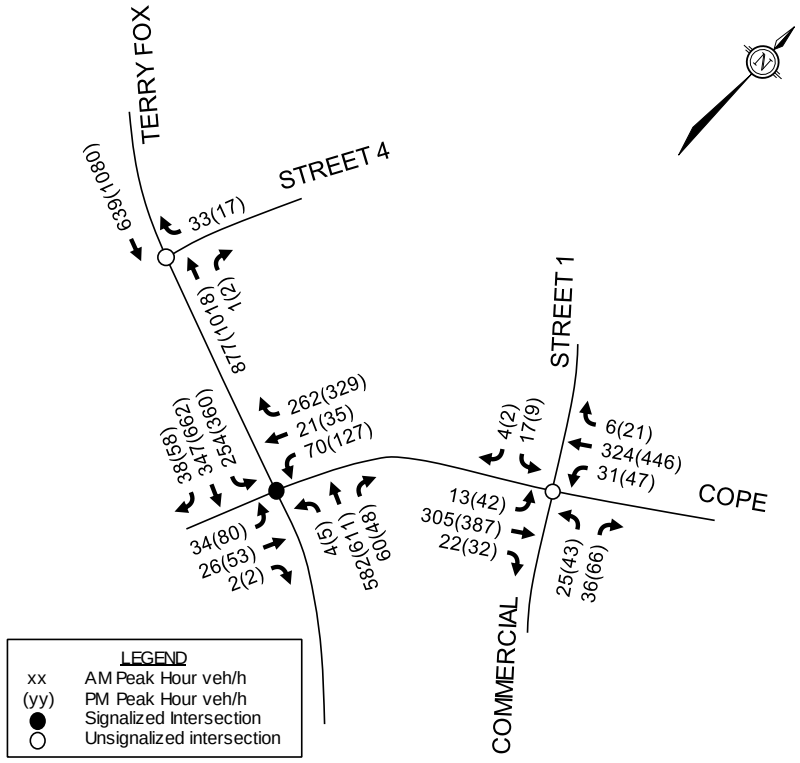
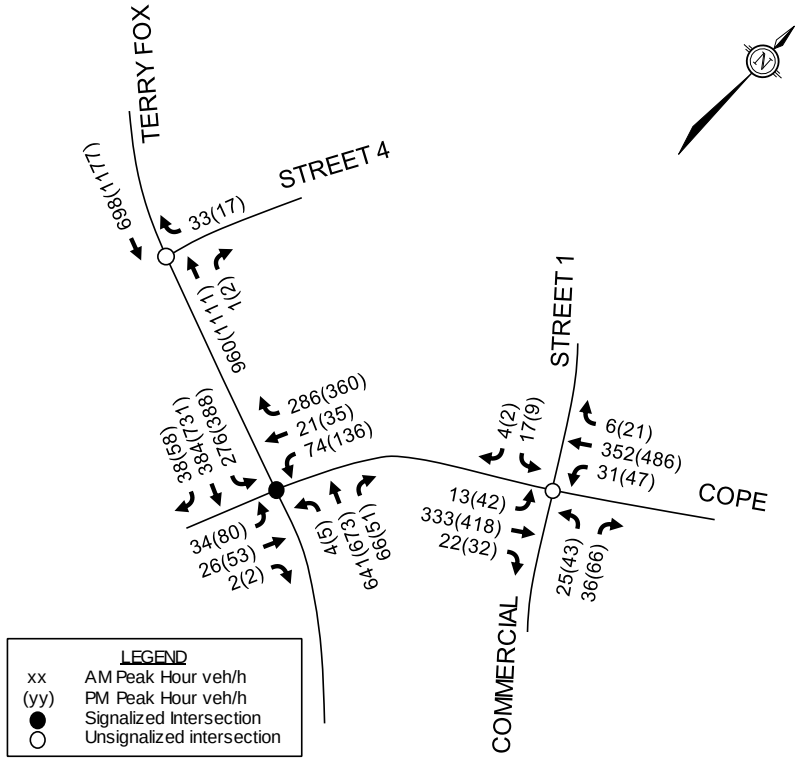


Figure 9: 2027 Total Traffic



5.0 ANALYSIS

5.1 Development Design

All roadways within the proposed subdivision will be classified as local roadways. Excluding the window street portion of Street 2, all roadways will have an 18 metre right-of-way. The window street portion of Street 2 will have a 16.5m right-of-way. Sidewalks will be provided on the west side of Street 1 and the north side of Street 4 within the subdivision. These sidewalks will provide pedestrian connectivity between the proposed subdivision and the existing facilities along Terry Fox Drive and Cope Drive.

The proposed development will remove the existing Hazeldean Side Road pathway connecting to Cope Drive near the northern limits of the development. However, the sidewalk along Street 1 will provide an alternative north-south pedestrian facility connecting to Cope Drive. Existing pedestrians using the Hazeldean Side Road pathway to connect to Cope Drive can alternatively use the sidewalk along Street 1, which will be maintained by the City year round.

Ontario Traffic Manual (OTM) Book 5 identifies the following criteria for consideration of all-way stop control along minor roadways:

- the total vehicle volumes on all intersection approaches exceeds 350 for the highest hour recorded; and

- the vehicular volume split does not exceed 75/25 for three-way control or 65/35 for four-way control

The vehicular volumes at all intersections within the development are not anticipated to meet the OTM criteria for all-way stop control. As such, side street stop control is recommended at all intersections within the proposed subdivision.

As stop control is proposed along Street 1 at Street 4, the north-south pedestrian crossing is uncontrolled and a pedestrian crossover (PXO) has been considered. OTM Book 15 identifies the following criteria for consideration of a PXO:

- If the total eight-hour pedestrian volume crossing the main road is greater than 100 and the total eight-hour vehicular volume is greater than 750; or
- If the crossing location provides system connectivity or is on a desired pedestrian line.

The vehicular and pedestrian traffic at this location are not anticipated to meet the OTM criteria for a PXO. However, as the sidewalk along Street 1 will terminate at Street 4 across from the neighbourhood park, this location meets the pedestrian desire line criteria and a PXO is recommended. Based on the anticipated vehicular volumes along Street 4 and Table 7 (Pedestrian Crossover Selection Matrix) in OTM Book 15, a PXO D is recommended at this location.

OC Transpo bus stop #1919 and #6933 are located in the southeast and southwest corners of the Cope Drive/Templeford Road intersection. OC Transpo bus stop #4031 is located in the northwest corner of the Cope Drive/Northgraves Crescent intersection. These bus stops are within a walking distance of 400m, or a five-minute walk, of the subject site. These bus stops serve OC Transpo Route 161, Route 164, Route 168 and Route 252.

5.2 Parking

As identified in Section 3.4, this module is exempt.

5.3 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 OP indicates Cope Drive is in the Enterprise Area, while Terry Fox Drive borders the Enterprise Area and the General Urban Area. For the purposes of this analysis, the MMLOS targets for Terry Fox Drive are based on the targets for the General Urban Area. Photos of the boundary streets (provided by Google Streetview) are provided below.

Figure 10: Terry Fox Drive (Looking North)

Figure 11: Cope Drive (Looking West)

The following table summarizes the findings of the MMLOS segment analysis. Detailed segment MMLOS calculations are included in **Appendix F**.

Table 6: Segment MMLOS Summary

Segment	PLOS	BLOS	TLOS	TkLOS	Auto LOS
Terry Fox Drive	F	E	D	C	B
Target	**C**	**C**	**-**	**D**	**D**
Cope Drive	A	F	D	B	A
Target	**C**	**B**	**-**	**E**	**D**

Terry Fox Drive

Terry Fox Drive currently meets the target TkLOS and Auto LOS; however, it does not meet the target PLOS and BLOS. Terry Fox Drive currently has a two-lane undivided rural cross-section adjacent to the subject site. The City of Ottawa's 2013 TMP does not identify any roadway projects

along this stretch of Terry Fox Drive in its affordable plan, however it does identify a widening from two to four lanes between Winchester Drive and Eagleson Road in its network concept.

Opportunities to improve the PLOS and BLOS should be explored by the City through the future widening of Terry Fox Drive, as identified in the City's 2013 TMP network concept. At that time, consideration should be given by the City to reducing the posted speed limit and providing a 2m sidewalk to improve the PLOS. A review of the OTM Book 18 Cycling Nomograph suggests consideration should be given to implementing a separated cycling facility along Terry Fox Drive as part of the future widening project. The cycling nomograph for Terry Fox Drive is included in **Appendix F**.

Cope Drive

Cope Drive currently meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS. The Desirable Cycling Facility Pre-selection Nomograph provided in Ontario Traffic Manual Book 18 suggests bike lanes for a roadway with an operational speed of 60km/hr and an average daily traffic volume of 4,000. As on-street parking is currently permitted along Cope Drive, the implementation of a bike lane adjacent to the curbside parking lane will result in a BLOS D, which does not meet the target. A curbside parking restriction in conjunction with bike lanes would result in a BLOS C, achieving the target. Alternative to bike lanes, consideration could also be given to reducing the posted speed to 40km/hr, resulting in a BLOS B for the existing mixed traffic lanes.

The recommended cycling improvements to Cope Drive are to address the existing conditions and are not attributable to the site. As the site provides cycling connectivity to the existing facilities along Cope Drive, the implementation of any cycling facilities along Cope Drive should be a City lead initiative.

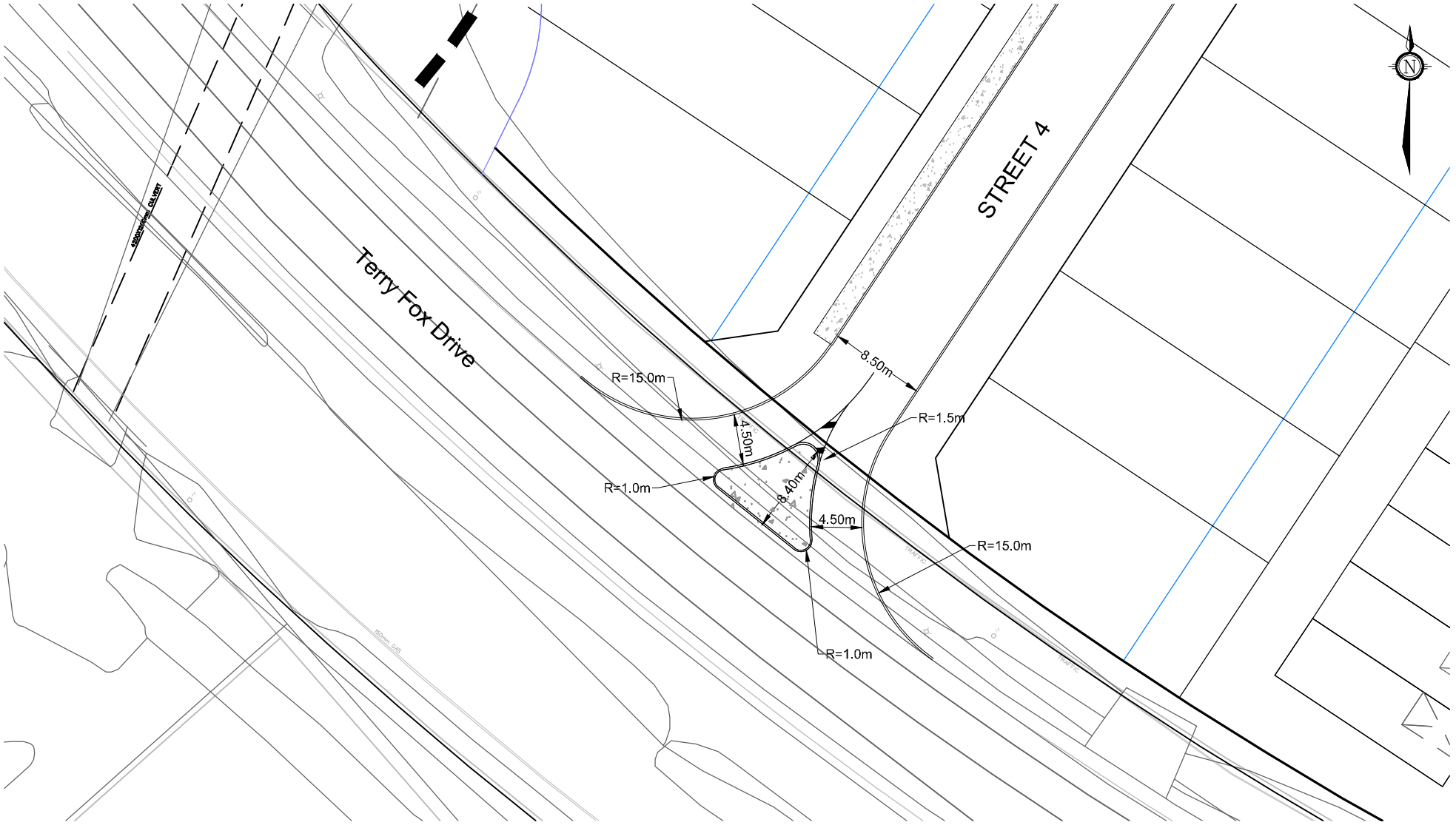
5.4 Access Intersections Design

The proposed development will be served by an all movement access along Cope Drive (Street 1) and a right-in right-out access along Terry Fox Drive (Street 4). Street 4 will also connect the proposed subdivision to Northgraves Crescent.

The proposed Street 4 right-in right-out access along Terry Fox Drive will be located approximately 240m north of Cope Drive. Based on the projected northbound right turning volumes along Terry Fox Drive at Street 4, a right turn lane is not recommended. A pork chop island will be provided to restrict the Terry Fox Drive/Street 4 intersection to right-in right-out operation. A functional design of the pork chop island at this intersection is shown in **Figure 12**.

The proposed Street 1 all movement access along Cope Drive will be located approximately 140m east of Terry Fox Drive and 80m west of Northgraves Crescent. Ministry of Transportation of Ontario (MTO) left turn lane warrants were reviewed to determine if an eastbound left turn lane is required along Cope Drive at Street 1. Based on the MTO left turn lane graphs, a 15m eastbound left turn lane is warranted at the Cope Drive/Street 1 intersection. Based on the projected westbound right turning volumes along Cope Drive at Street 1, a right turn lane is not recommended. A copy of the MTO left turn lane graphs is included in **Appendix G**. Cope Drive has a paved width of 11 metres, which is sufficient to accommodate the aforementioned left turn lane.

Based on the analysis presented in Section 5.9 below, a storage length of 40m is required for the westbound left turn lane at the Terry Fox Drive/Cope Drive intersection. A functional design of the



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5331 FERNBANK ROAD
1039 TERRY FOX DRIVE

FUNCTIONAL DESIGN
TERRY FOX AT STREET 4

SCALE 1 : 500 (0, 5m, 10m, 20m)

DATE MAR 2019 | JOB 117198 | FIGURE FIGURE 12

SHT8X11.DWG - 216mmx279mm

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eastbound left turn lane along Cope Drive at Street 1, back-to-back with a 40m westbound left turn lane at the Terry Fox Drive/Cope Drive intersection, is provided in **Appendix H**.

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. TAC identifies the following SSD and ISD requirements for the Street 1 access to Cope Drive, based on a design speed of 60km/hr, and the Street 4 access to Terry Fox Drive, based on a design speed of 90km/hr.

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

Terry Fox Drive
- 160m SSD
- ISD:
  - 165m looking left, to turn right

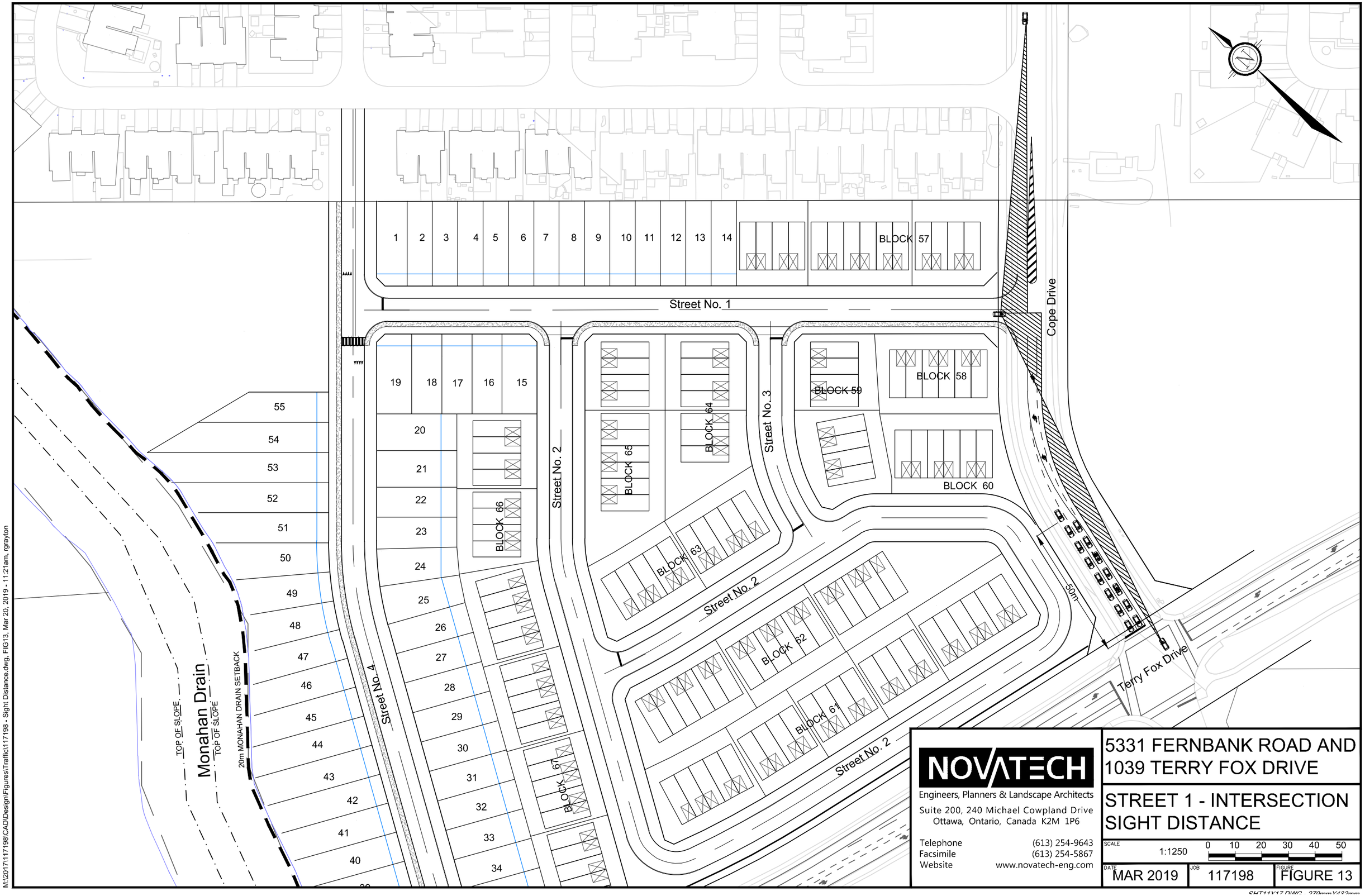
Cope Drive east of the proposed Street 1 does not have vertical or horizontal curvatures that obstruct the SSD between a westbound vehicle along Cope Drive and a vehicle performing a westbound right turn onto Street 1. As an eastbound left turn lane will be provided at the proposed Street 1 intersection with Cope Drive, left turning vehicles along Cope Drive will not obstruct eastbound through traffic. As such, the SSD at the Street 1 intersection with Cope meets TAC requirements. The required ISD at the Street 1 intersection with Cope Drive also meets TAC requirements and is depicted in **Figure 13**.

The required SSD between a northbound vehicle along Terry Fox Drive and a vehicle performing a northbound right turn onto Street 4 meets the TAC requirement. In the event that a vehicle attempts to perform an illegal southbound left turn movement into the site, the SSD between a southbound vehicle along Terry Fox Drive and the southbound left turning vehicle also meets TAC requirements. The required SSD at the proposed Street 4 intersection with Terry Fox Drive is depicted in **Figure 14**. The required ISD at the Street 4 intersection with Terry Fox Drive also meets TAC requirements and is depicted in **Figure 15**.

A review of the intersection operations at the proposed accesses was conducted for the 2022 and 2027 total traffic conditions. The following table provides a summary of the access intersection operations, assuming side street stop control. Detailed summary sheets are provided in **Appendix I**.

Table 7: Access Intersection Operations

Intersection	AM Peak			PM Peak		
	Delay	LOS	Mvmt	Delay	LOS	Mvmt
2022 Total						
Terry Fox Drive Access	17 sec	C	WB	20 sec	C	WB
Cope Drive Access	16 sec	C	SB	26 sec	D	SB
2027 Total						
Terry Fox Drive Access	19 sec	C	WB	23 sec	C	WB
Cope Drive Access	17 sec	C	SB	29 sec	D	SB



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5331 FERNBANK ROAD AND 1039 TERRY FOX DRIVE

STREET 1 - INTERSECTION SIGHT DISTANCE

SCALE 1:1250 (0 10 20 30 40 50)

DATE MAR 2019 | JOB 117198 | FIGURE FIGURE 13

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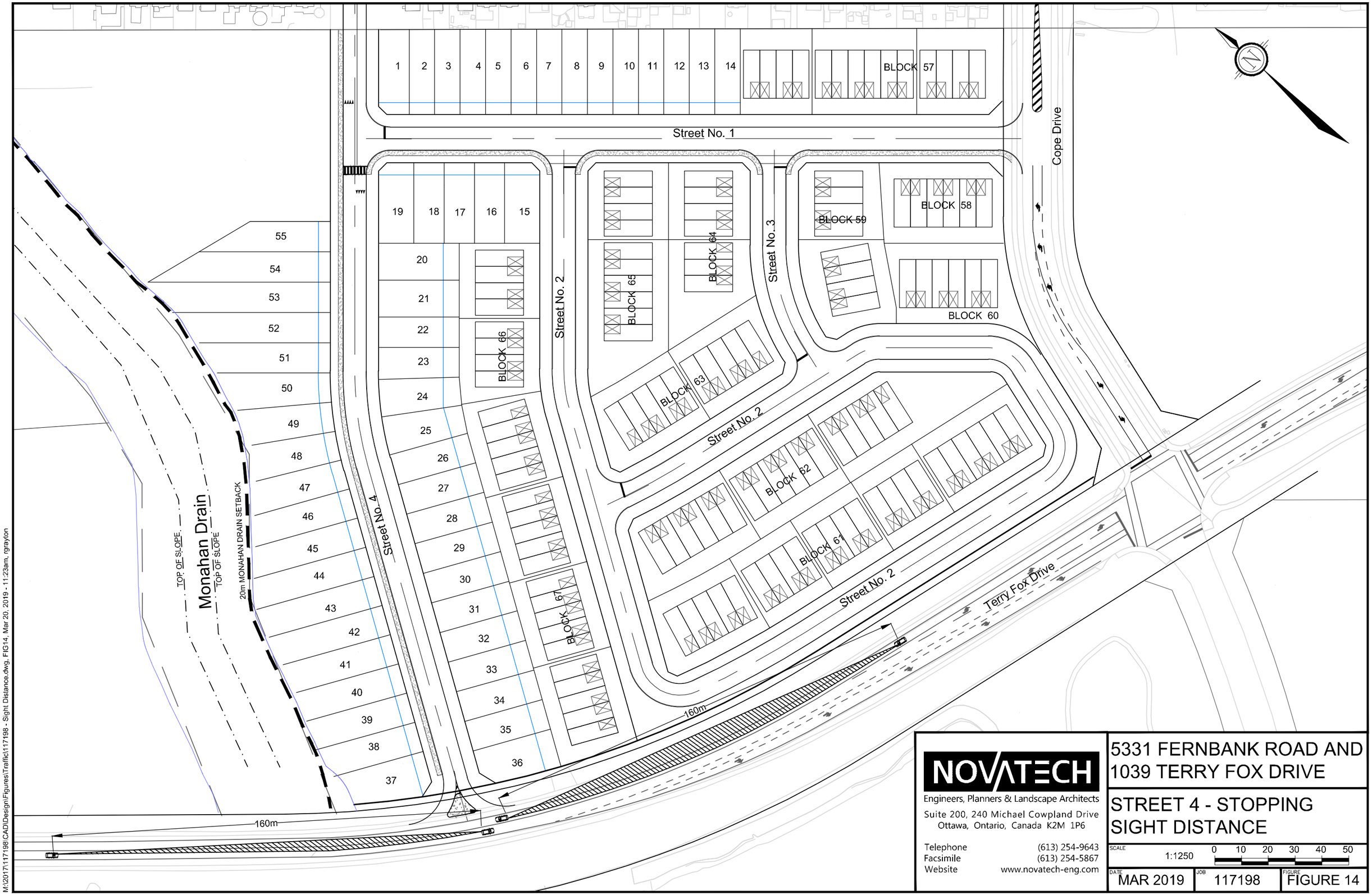

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5331 FERNBANK ROAD AND 1039 TERRY FOX DRIVE

STREET 4 - STOPPING SIGHT DISTANCE

SCALE 1:1250 (0 10 20 30 40 50)

DATE MAR 2019 | JOB 117198 | FIGURE FIGURE 14

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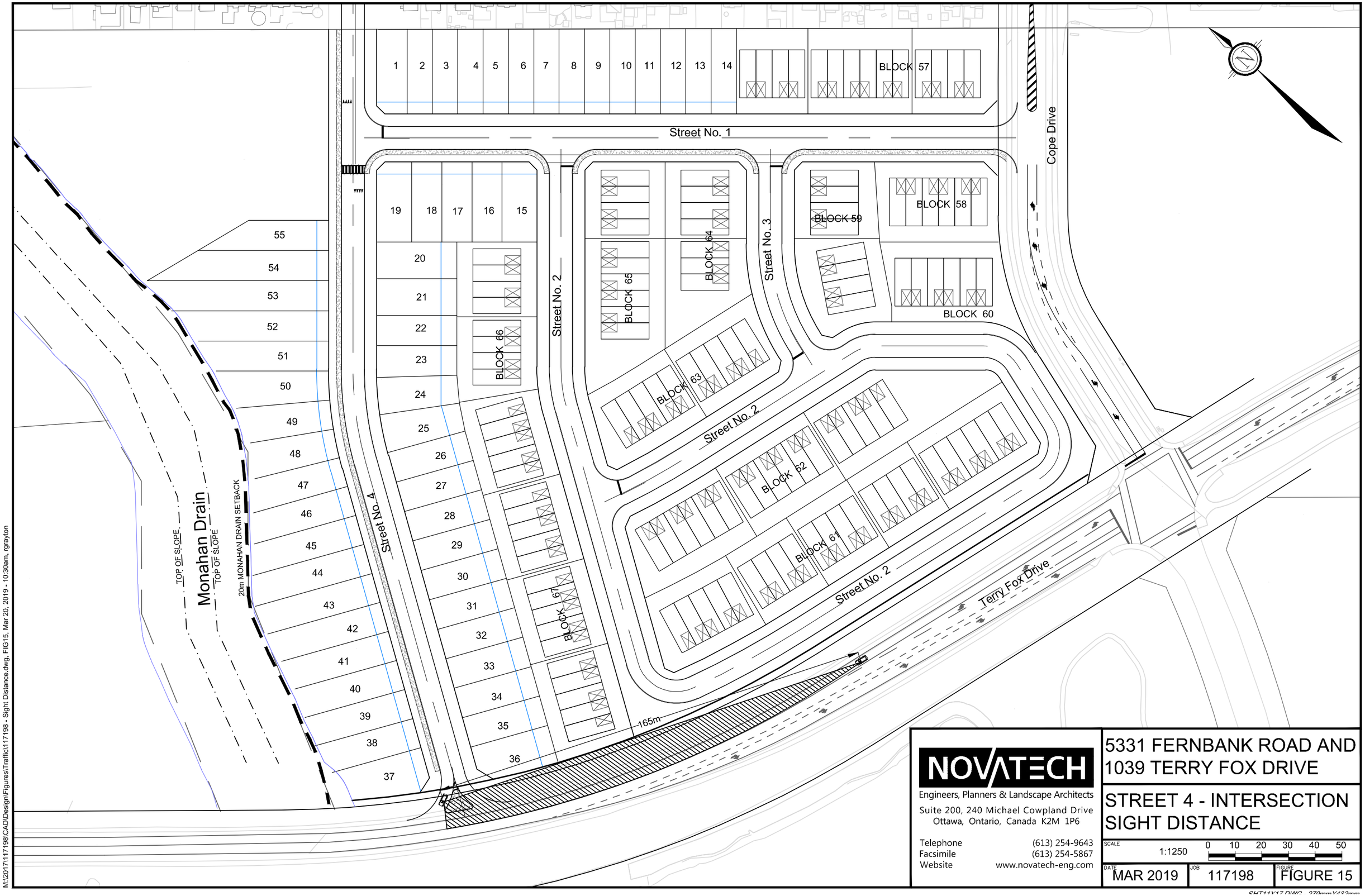

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5331 FERNBANK ROAD AND 1039 TERRY FOX DRIVE

STREET 4 - INTERSECTION SIGHT DISTANCE

SCALE 1:1250 (0 10 20 30 40 50)

DATE MAR 2019 | JOB 117198 | FIGURE FIGURE 15

SHT11X17.DWG - 279mmX432mm

The proposed accesses are anticipated to operate with a LOS D or better during the weekday AM and PM peak hours under the 2022 and 2027 total traffic conditions. A review of traffic signalization warrant criteria identified in Ontario Traffic Manual (OTM) Book 12 was conducted. Based on the OTM criteria, traffic signals along Cope Drive/Street 1/Commercial Access intersection are anticipated to be 32% met by the 2027 horizon year. Copies of the OTM traffic signalization warrants are included in **Appendix G**.

Based on the foregoing, side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

5.5 Transportation Demand Management

A review of the Transportation Demand Management (TDM) Measures checklist was conducted and can be found in **Appendix J**. To encourage travel by sustainable modes, a multi-modal travel option information package will be provided to new residents of the subdivision.

In addition to the above, the site conforms to the City's TDM initiatives by providing easy access to area pedestrian, cycling and transit facilities.

5.6 Neighbourhood Traffic Management

As identified in Section 3.4, this module is exempt.

5.7 Transit

Recent boarding/alighting information and bus occupancy information from the winter 2018 service period for OC Transpo bus stops #4031, #1919 and #6933 were received from OC Transpo. OC Transpo has also advised that the routes at these bus stops operate with 40-foot buses during the weekday AM and PM peak periods. Information received from OC Transpo is included in **Appendix B**. The following table summarizes the transit information received from OC Transpo.

Table 8: Existing OC Transpo Utilization

OC Transpo Stop	OC Transpo Route	AM Period			PM Period		
		Total Boarding	Total Alighting	Average Load	Total Boarding	Total Alighting	Average Load
#4031	252	-	-	-	0	3	2
	161	-	-	-	0	0	10
#1919	161	1	0	6	0	1	2
	164	5	0	4	-	-	-
#6933	252	6	0	3	-	-	-
	164	-	-	-	0	3	3
	168	0	0	0	1	0	1

Based on the trip generation presented in Section 4.1, the proposed development is anticipated to generate 27 transit trips (7 alighting, 20 boarding) during the weekday AM peak hour and 34 transit trips (24 alighting, 10 boarding) during the weekday PM peak hour. Based on the transit utilization data received from OC Transpo, the existing bus stops/routes in the vicinity of the subject site have capacity to accommodate the transit trips generated by proposed development. It is our

understanding that there are no major transit service changes anticipated in the direct vicinity of the subject site.

5.8 Review of Network Concept

As identified in Section 3.4, this module is exempt.

5.9 Intersection Design

5.9.1 Existing Intersection MMLOS Analysis

This section provides a review of the signalized study area intersections using complete streets principles. The MMLOS guidelines produced by IBI Group in October 2015 were used to evaluate the LOS of all study area intersections for each mode of transportation. Schedule B of the City of Ottawa's OP indicates the Terry Fox Drive/Cope Drive intersection borders the Enterprise Area and the General Urban Area. For the purposes of this analysis the targets for this intersection are based on the General Urban Area. An aerial photo of this intersection is provided in Section 3.2.2.

The following table summarizes the findings of the MMLOS intersection analysis. Detailed intersection MMLOS calculations are included in **Appendix K**.

Table 9: Intersection MMLOS Summary

Segment	PLOS	BLOS	TLOS	TkLOS	Auto LOS
Terry Fox Drive/ Cope Drive	F	F	D	C	F
Target	**C**	**B**	**-**	**D**	**D**

The Terry Fox Drive/Cope Drive intersection currently does not meet the target PLOS, BLOS or Auto LOS for the General Urban Area.

Based on the Pedestrian Exposure to Traffic (PETSI) score, the Terry Fox Drive/Cope Drive intersection is operating with a PLOS F. Based on the Pedestrian Delay Evaluation Table, this intersection is operating with a PLOS D. A reduction in the crossing distance on all legs of the intersection would have the greatest improvement on the PETSI score and the Pedestrian Delay.

This intersection is currently operating with a BLOS F. Due to the high operational speed along Terry Fox Drive, a BLOS B is unachievable on the north and south approaches. As identified in Section 5.3, consideration should be given to either providing bike lanes along Cope Drive or reducing the operating speed. If either bike lanes or a reduction in the operational speed are implemented, the BLOS on the east and west approaches will be improved to a D. If two stage left-turn bike boxes are provided in conjunction with a reduction in the operational speed on the east and west approaches, a BLOS A can be achieved.

The eastbound left turn movement at this intersection is currently operating with an Auto LOS F during the weekday PM peak hour. Based on the Synchro analysis, the 95th percentile queue length for the southbound left turn movement is approximately 45m during the AM peak hour and 50m

during the PM peak hour. This exceeds the existing storage length for the southbound left turn lane during both peak hours.

Based on the existing traffic count, approximately 280 vehicles perform the westbound right turn movement and 35 vehicles perform the westbound through movement during the PM peak hour at this intersection. As this is a shared through/right turn lane, westbound right turning vehicles are occasionally blocked and queue behind a westbound through travelling vehicle. As the eastbound left turn movement is currently a permitted phase, the number of westbound right turning vehicles proceeding during the green phase impact the operations of the eastbound left turn movement. A site visit was conducted during the PM peak hour on September 20th, 2018 to confirm the results of the Synchro analysis. During the site visit, eastbound left turning vehicles generally cleared each cycle. However during critical periods, when westbound right turning vehicles queued behind a through travelling vehicle, only one to three eastbound left tuning vehicle cleared. During these critical periods, the last eastbound left turning vehicle proceeded illegally through the all-red phase.

Based on the foregoing, consideration should be given to providing a westbound right turn lane to improve intersection operations by permitting westbound right turning vehicles to bypass a westbound through vehicle. The implementation of a westbound right turn lane is anticipated to improve intersection operations to a LOS B during the PM peak hour. However, the implementation of a westbound right turn lane is anticipated to increase the pedestrian crossing distance, subsequently decreasing the PLOS on the east leg.

5.9.2 2022 Background Intersection Operations

Intersection capacity analysis has been completed for the 2022 background traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0).

The results of the intersection capacity analysis are summarized in the following table. Detailed summary sheets are provided in **Appendix I**.

Table 10: 2022 Background Intersection Operations

Intersection	Period	Critical Movement			Intersection		
		V/C	LOS	Mvmt	Delay	V/C	LOS
Terry Fox Drive/ Cope Drive	AM	0.63	B	WBT/R	12 sec	0.55	A
	PM	1.13	F	EBL	27 sec	0.76	C

Consistent with the existing conditions, the eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS C during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS B during the PM peak hour.

Background traffic growth is anticipated to increase the 95th percentile queue length associated with the southbound left turn movement to 55m during the AM peak hour and 80m during the PM peak hour. Background growth is also anticipated to increase the 95th percentile queue length associated with the westbound left turn movement to 35m during the PM peak hour, exceeding the existing storage length.

5.9.3 2027 Background Intersection Operations

Intersection capacity analysis has been completed for the 2027 background traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0).

Table 11: 2027 Background Intersection Operations

Intersection	Period	Critical Movement			Intersection		
		V/C	LOS	Mvmt	Delay	V/C	LOS
Terry Fox Drive/ Cope Drive	AM	0.70	B	WBT/R	14 sec	0.62	B
	PM	1.13	F	EBL	36 sec	0.87	D
		1.04	F	SBL			

Consistent with the 2022 background traffic condition, the eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is anticipated to operate with a LOS F during the PM peak hour. The southbound left turn movement is also anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS D during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

Background traffic growth is anticipated to increase the 95th percentile queue length associated with the southbound left turn movement to 80m during the AM peak hour and 105m during the PM peak hour. Background growth is also anticipated to increase the 95th percentile queue length associated with the westbound left turn movement to 40m during the PM peak hour, exceeding the existing storage length.

5.9.4 2022 Total Intersection Operations

Intersection capacity analysis has been completed for the 2022 total traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0).

The results of the intersection capacity analysis are summarized in the following table. Detailed reports are included in **Appendix I**.

Table 12: 2022 Total Intersection Operations

Intersection	Period	Critical Movement			Intersection		
		V/C	LOS	Mvmt	Delay	V/C	LOS
Terry Fox Drive/ Cope Drive	AM	0.63	B	WBT/R	12 sec	0.56	A
	PM	1.13	F	EBL	29 sec	0.79	C

Consistent with the 2022 background traffic conditions, the eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS C during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS C during the PM peak hour.

Additional traffic generated by the proposed development is anticipated to increase the 95th percentile queue length associated with the southbound left turn movement to 60m during the AM

peak hour and 100m during the PM peak hour. The addition of site generated traffic is not anticipated to have a significant impact the 95th percentile queue length associated with the westbound left turn movement.

5.9.5 2027 Total Intersection Operations

Intersection capacity analysis has been completed for the 2027 total traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0).

Table 13: 2027 Total Intersection Operations

Intersection	Period	Critical Movement			Intersection		
		V/C	LOS	Mvmt	Delay	V/C	LOS
Terry Fox Drive/ Cope Drive	AM	0.70	B	WBT/R	14 sec	0.63	B
	PM	1.13	F	EBL	43 sec	0.91	E
		1.16	F	SBL			

Consistent with the 2027 background traffic conditions, the eastbound and southbound left turn movement at the Terry Fox Drive/Cope Drive intersection are anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS E during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

Additional traffic generated by the proposed development is anticipated to increase the 95th percentile queue length associated with the southbound left turn movement to 85m during the AM peak hour and 125m during the PM peak hour. The addition of site generated traffic is not anticipated to have a significant impact the 95th percentile queue length associated with the westbound left turn movement.

The extension of the westbound left turn lane can be accommodated within the existing road platform, back-to-back with the proposed eastbound left turn lane at Street 1. A functional design of the modifications along Cope Drive are included in **Appendix F**. Geometry modifications, including the extension of the southbound left turn lane and the implementation of a westbound right turn lane, at the Terry Fox Drive/Cope Drive intersection are eligible for Development Charges funding. Subject to the modifications to this intersection being incorporated into the project list within the 2019 DC By-law update with a reasonable pay-back period, the developer may enter into a front ending agreement with the City to construct this modification.

6.0 CONCLUSIONS AND RECOMMENDATIONS

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

- All roadways within the proposed subdivision will be classified as local roadways. Excluding the window street portion of Street 2, all roadways will have an 18 metre right-of-way. The window street portion of Street 2 will have a 16.5m right-of-way. Sidewalks will be provided on the west side of Street 1 and the north side of Street 4 within the subdivision.

- The proposed development will remove the existing Hazeldean Side Road pathway connecting to Cope Drive near the northern limits of the development. However, the sidewalk along Street 1 will provide an alternative north-south pedestrian facility connecting to Cope Drive.

- The vehicular and pedestrian traffic at the Street 1/Street 4 intersection are not anticipated to meet the OTM criteria for a PXO. However, as the sidewalk along Street 1 will terminate at Street 4 across from the neighbourhood park, this location meets the pedestrian desire line criteria and a PXO is recommended. Based on the anticipated vehicular volumes along Street 4 and Table 7 (Pedestrian Crossover Selection Matrix) in OTM Book 15, a PXO D is recommended at this location.

- Terry Fox Drive currently meets the target TkLOS and Auto LOS; however, it does not meet the target PLOS and BLOS. Terry Fox Drive currently has a two-lane undivided rural cross-section adjacent to the subject site. Opportunities to improve the PLOS and BLOS should be explored by the City through the future widening of Terry Fox Drive, as identified in the City's 2013 TMP network concept. At that time, consideration should be given by the City to reducing the posted speed limit, providing a 2m sidewalk and separated cycling facility.

- Cope Drive currently meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS. As on-street parking is currently permitted along Cope Drive, the implementation of a bike lane adjacent to the curbside parking lane will result in a BLOS D, which does not meet the target. A curbside parking restriction in conjunction with bike lanes would result in a BLOS C, achieving the target. Alternative to bike lanes, consideration could also be given to reducing the posted speed to 40km/hr, resulting in a BLOS B for the existing mixed traffic lanes.

- The recommended cycling improvements to Cope Drive are to address the existing conditions and are not attributable to the site. As the site provides cycling connectivity to the existing facilities along Cope Drive, the implementation of any cycling facilities along Cope Drive should be a City lead initiative.

- Based on the projected northbound right turning volumes along Terry Fox Drive at Street 4, a right turn lane is not recommended. A pork chop island will be provided to restrict the Terry Fox Drive/Street 4 intersection to right-in right-out operation.

- A 15m eastbound left turn lane is warranted at the Cope Drive/Street 1 intersection. Based on the projected westbound right turning volumes along Cope Drive at Street 1, a right turn lane is not recommended. The proposed eastbound left turn lane along Cope Drive at Street 1 will be back-to-back with a 40m westbound left turn lane at the Terry Fox Drive/Cope Drive intersection.

- The required stopping sight distance and intersection sight distance, based on Transportation Association of Canada Geometric Design Guidelines, is met at both the Cope Drive access (Street 1) and the Terry Fox Drive access (Street 4).

- The proposed accesses are anticipated to operate with a LOS D or better during the weekday AM and PM peak hours under all scenarios. Based on the Ontario Traffic Manual (OTM) criteria, traffic signals along Cope Drive at Street 1/commercial access are anticipated to be

32% met by the 2027 horizon year. Side street stop control is recommended at the proposed accesses along Cope Drive and Terry Fox Drive.

- To encourage travel by sustainable modes, a multi-modal travel option information package will be provided to new residents of the subdivision. The site conforms to the City's TDM initiatives by providing easy access to area pedestrian, cycling and transit facilities.

- Based on the transit utilization data received from OC Transpo, the existing bus stops/routes in the vicinity of the subject site have capacity to accommodate the transit trips generated by proposed development. It is our understanding that there are no major transit service changes anticipated in the direct vicinity of the subject site.

- The Terry Fox Drive/Cope Drive intersection currently does not meet the target PLOS, BLOS or Auto LOS for the General Urban Area. A reduction in the crossing distance on all legs of the intersection would have the greatest improvement on the PETSI score and the Pedestrian Delay. Due to the high operational speed along Terry Fox Drive, a BLOS B is unachievable on the north and south approaches. If either bike lanes or a reduction in the operational speed are implemented along Cope Drive, the BLOS on the east and west approaches will be improved to a D. If two stage left-turn bike boxes are provided in conjunction with a reduction in the operational speed on the east and west approaches, a BLOS A can be achieved.

- The eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is currently operating with an Auto LOS F during the weekday PM peak hour. Based on the Synchro analysis, the 95th percentile queue length for the southbound left turn movement is approximately 45m during the AM peak hour and 50m during the PM peak hour. This exceeds the existing storage length for the southbound left turn lane during both peak hours. The implementation of a westbound right turn lane is anticipated to improve intersection operations to a LOS B during the PM peak hour.

- Under the 2022 and 2027 background traffic conditions, critical movements at the Terry Fox Drive/Cope Drive intersection are anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS D or better during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

- Under the 2022 total traffic conditions, the eastbound left turn movement at the Terry Fox Drive/Cope Drive intersection is anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS C during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS C during the PM peak hour.

- Under the 2027 total traffic conditions, the eastbound and southbound left turn movement at the Terry Fox Drive/Cope Drive intersection are anticipated to operate with a LOS F during the PM peak hour. However, the overall intersection is anticipated to operate with a LOS E during the PM peak hour. The implementation of a westbound right turn lane is anticipated to improve the critical v/c ratio at this intersection to a LOS D during the PM peak hour.

- The extension of the westbound left turn lane can be accommodated within the existing road platform, back-to-back with the proposed eastbound left turn lane at Street 1. Geometry

modifications, including the extension of the southbound left turn lane and the implementation of a westbound right turn lane, at the Terry Fox Drive/Cope Drive intersection are eligible for Development Charges funding. Subject to the modifications to this intersection being incorporated into the project list within the 2019 DC By-law update with a reasonable pay-back period, the developer may enter into a front ending agreement with the City to construct this modification.

NOVATECH
Prepared by:

Brad Byvelds, P. Eng.
Project Coordinator | Transportation/Traffic

APPENDIX A

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**5331 Fernbank Road and 1039 Terry Fox Drive**
Description of Location	**The 8.15-hectare property is located at the northeast corner of Terry Fox Drive & Cope Drive**
Land Use Classification	**Residential**
Development Size (units)	**55 Single Detached and 129 Townhouse units**
Development Size (m^2)	**-**
Number of Accesses and Locations	**One proposed access at Terry Fox Drive and one proposed access at Cope Drive**
Phase of Development	**1**
Buildout Year	**2022**

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

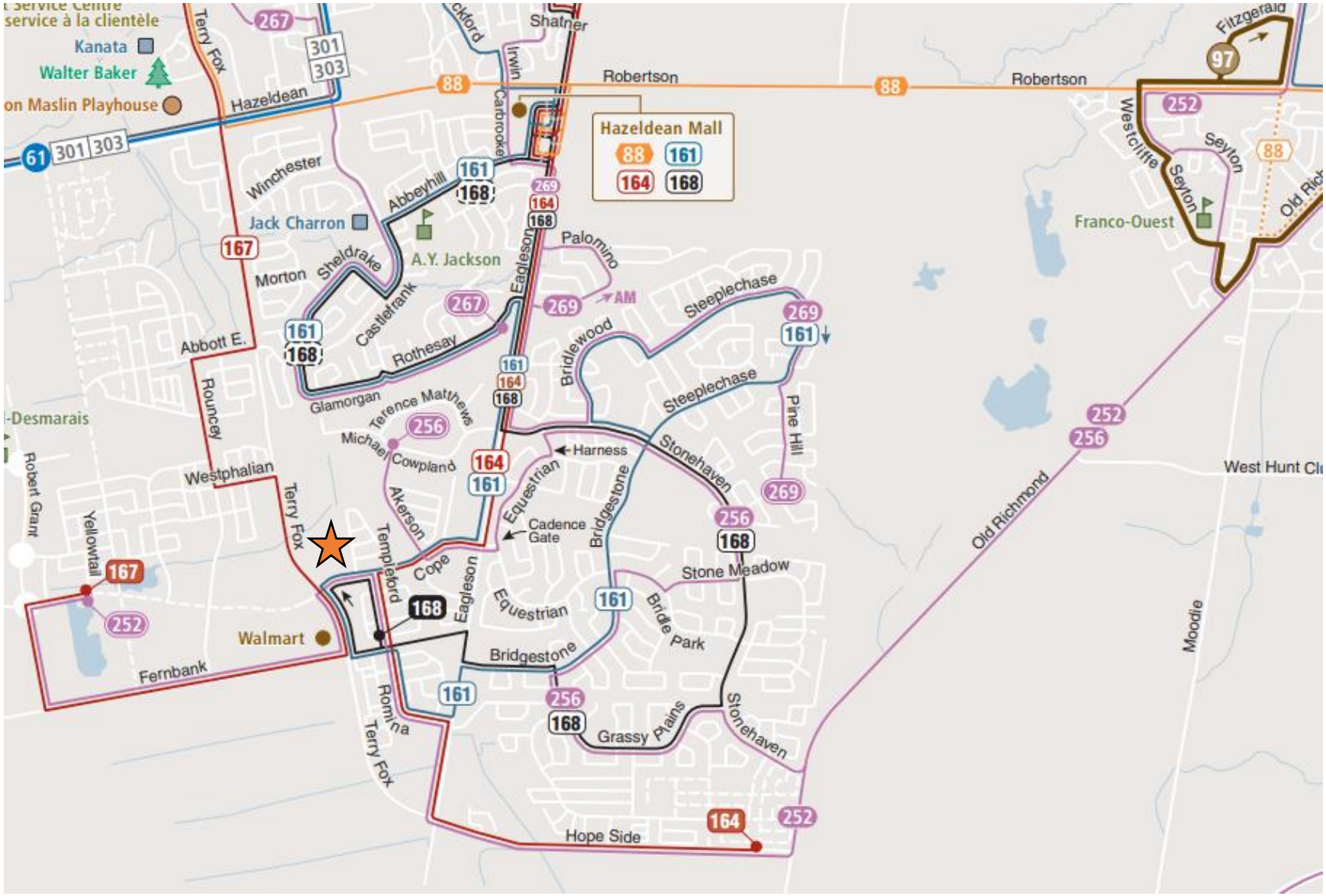
5. Summary

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

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

APPENDIX B

OC Transpo System Information

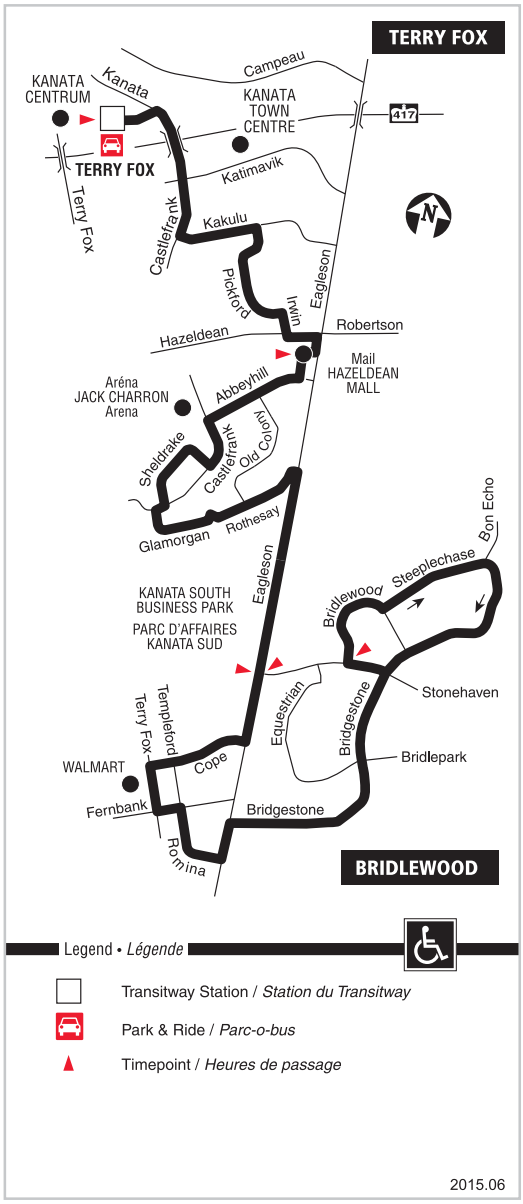


SUBJECT LANDS

Transpo

161 TERRY FOX / BRIDLEWOOD

Monday to Friday / Lundi au vendredi
All day service. No weekend service
Service toute la journée.
Aucun service les fins de semaine



Information / Renseignement.....**613-741-4390**

Customer Relations
Service à la clientèle **613-842-3600**

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

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

Text / Texto **560560**

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

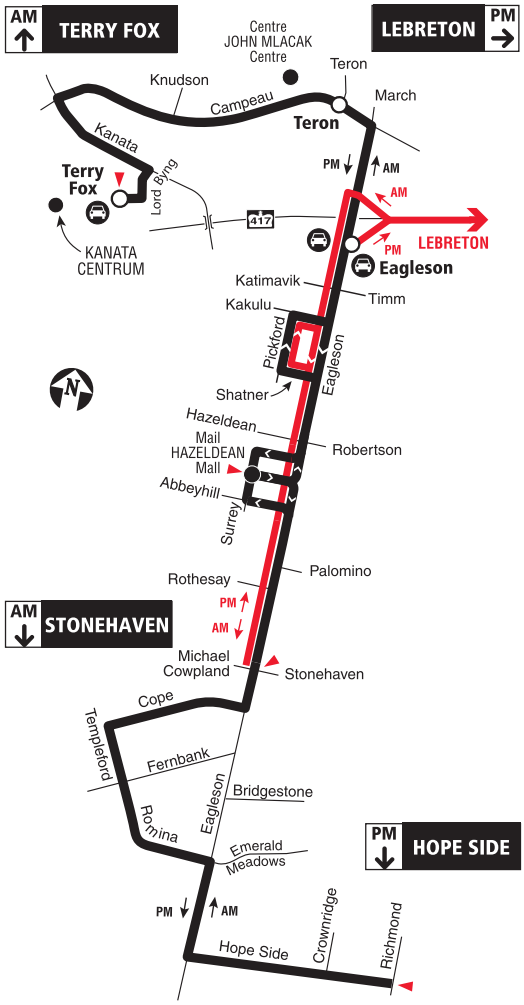
Effective / En vigueur June 29 juin 2015

164 TERRY FOX / HOPE SIDE

Local

Monday to Friday/ Lundi au vendredi

Peak periods only
Périodes de pointe seulement



Transitway Station / Station du Transitway

Peak Periods Only / Périodes de pointe seulement

Some trips to / from LeBreton Station
Quelques trajets de / vers la station LeBreton

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2017.12

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

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

Customer Relations
Service à la clientèle **613-842-3600**

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

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

Effective December 24, 2017
En vigueur 24 décembre 2017

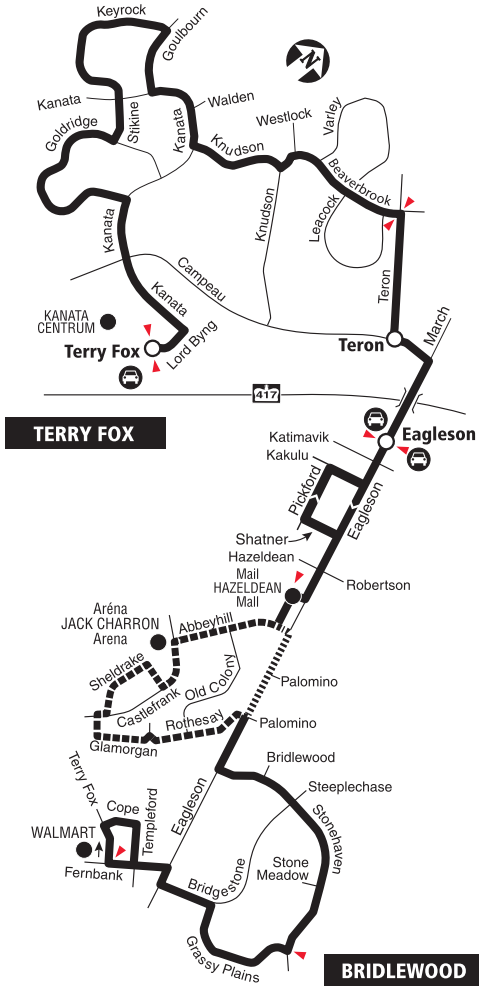
OC Transpo

INFO 613-741-4390
octranspo.com

168 TERRY FOX / BRIDLEWOOD

Local

7 days a week / 7 jours par semaine
All day service
Service toute la journée



○	Transitway Station / Station du Transitway
■■■■■■	Saturday and Sunday only Samedi et dimanche seulement
▮▮▮▮▮▮▮▮▮▮	No weekend service Aucun service la fin de semaine
🚗	Park & Ride / Parc-o-bus
▲	Timepoint / Heures de passage

2017.12

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

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

Effective December 24, 2017
En vigueur 24 décembre 2017

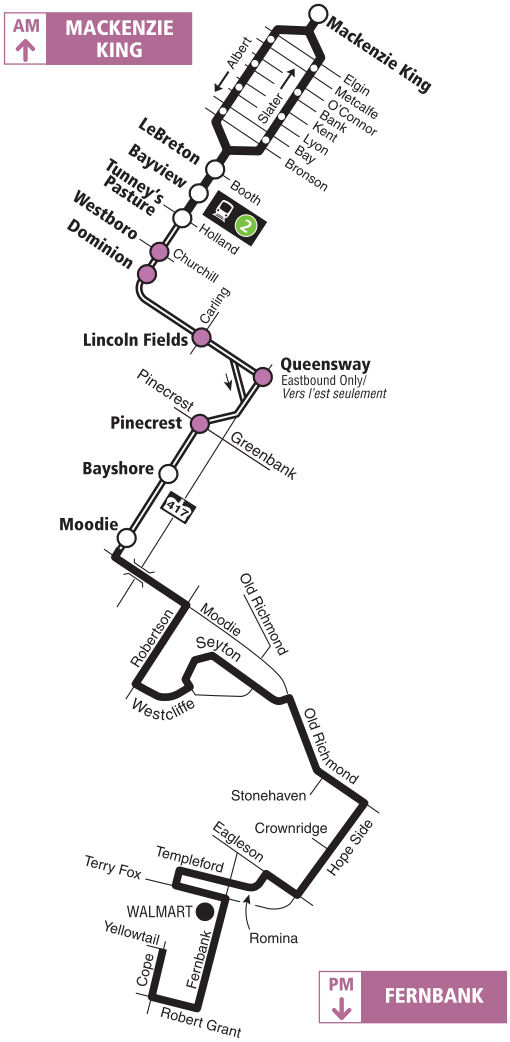
OC Transpo
INFO 613-741-4390
octranspo.com

252 Connexion

MACKENZIE KING
FERNBANK

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



Transitway & Station

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

2017.12

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

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

Customer Relations
Service à la clientèle **613-842-3600**

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

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

Effective December 24, 2017
En vigueur 24 décembre 2017

OC Transpo

INFO 613-741-4390
octranspo.com

Brad Byvelds

From: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Sent: Wednesday, August 29, 2018 1:05 PM
To: Brad Byvelds
Subject: RE: Request for OC Transpo Boarding/Alighting Data - Cope Drive

Hi Brad,

Good timing – I just received the ridership data from my colleague. The tables below show the ridership at the three stops requested, for both the AM and PM peak periods (6am-9am and 3pm-6pm, respectively). The data is from the Winter 2018 service period.

AM PEAK PERIOD

Stop	Route	Total Weekday Boardings	Total Weekday Alightings	Average of Load at Departure
COPE / TEMPLEFORD	161	1	0	6
	164	5	0	4
TEMPLEFORD / COPE	168	0	0	0
	252	6	0	3

PM PEAK PERIOD

Stop	Route	Total Weekday Boardings	Total Weekday Alightings	Average of Load at Departure
COPE / NORTHGRAVES	161	0	0	10
	252	0	3	2
COPE / TEMPLEFORD	161	0	1	2
TEMPLEFORD / COPE	164	0	3	3
	168	1	0	1

In terms of bus type operating on these routes, they are all planned to operate with 40-foot buses during the AM and PM peak periods.

If you have any questions or require additional information, please don't hesitate to contact me.

Best regards,
Genya

Genya Stefanoff, MCIP, RPP
Senior Transit Planner, Service Strategy

City of Ottawa | OC Transpo | Transportation Services Department
1500 St. Laurent Blvd., Ottawa, ON K1G 0Z8

tel: 613-580-2424 ext. 52294
genya.stefanoff@ottawa.ca

From: Brad Byvelds <B.Byvelds@novatech-eng.com>
Sent: Wednesday, August 29, 2018 10:42 AM
To: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Subject: RE: Request for OC Transpo Boarding/Alighting Data

Hello Genya,

I am just following up on the below request. When might we receive this data?

Thanks,
Brad Byvelds, P.Eng., Project Coordinator | Transportation/Traffic
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 286 | Fax: 613.254.5867

From: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Sent: Thursday, August 02, 2018 3:06 PM
To: Brad Byvelds <B.Byvelds@novatech-eng.com>
Subject: RE: Request for OC Transpo Boarding/Alighting Data

Hi Brad,

Yes, I can certainly provide the requested data to you. It may take a few weeks as my colleagues who gather this information are away on vacation.

Thanks,
Genya

Genya Stefanoff, MCIP, RPP
Senior Transit Planner, Service Strategy

City of Ottawa | OC Transpo | Transportation Services Department
1500 St. Laurent Blvd., Ottawa, ON K1G 0Z8

tel: 613-580-2424 ext. 52294
genya.stefanoff@ottawa.ca

From: Brad Byvelds <B.Byvelds@novatech-eng.com>
Sent: Thursday, August 02, 2018 2:40 PM
To: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Subject: Request for OC Transpo Boarding/Alighting Data

Hello Genya,

I would like to request the transit boarding and alighting data for the following OC Transpo stops:

- #4031 – Cope Drive west of Northgraves Crescent
- #1919 – Cope Drive east of Templeford Avenue

- #6933 – Templeford Avenue south of Cope Drive

Thanks,

Brad Byvelds, P.Eng., Project Coordinator | Transportation/Traffic
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 286 | Fax: 613.254.5867

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'

Brad Byvelds

From: Korol-Paradis, Andre <andre.korol-paradis@ottawa.ca>
Sent: Monday, September 17, 2018 11:07 AM
To: Brad Byvelds; Stefanoff, Genya; Rathwell, Graham
Cc: Greg Winters; Marc St.Pierre; Ellen Potts
Subject: RE: 5331 Fernbank Road and 1039 Terry Fox Drive - Future Transit Servicing

God morning Brad,

Review of internal strategy analysis documents do not indicate any major service changes in the direct vicinity of the proposed development. Future consideration has been given to the transit service as it applies to Kizell lands west of Terry Fox Drive. As stated previously, this would not change the service offer of this development. Bear in mind that OC Transpo will continue to provide service on Cope Drive and Terry Fox Drive. Modifications to the bus stop infrastructure in proximity to the project will be, if needed, provided during the CUP review stage.

Please do not hesitate to contact me for additional questions. Have a nice day.

André Korol-Paradis
Transit Planner, Network Service Design
Service Planning Branch
Transportation Services Department
OC Transpo | City of Ottawa
Tel: (613) 580-2424 ext. 52465

From: Brad Byvelds <B.Byvelds@novatech-eng.com>
Sent: Wednesday, September 12, 2018 11:39 AM
To: Stefanoff, Genya <genya.stefanoff@ottawa.ca>; Korol-Paradis, Andre <andre.korol-paradis@ottawa.ca>; Rathwell, Graham <graham.rathwell@ottawa.ca>
Cc: Greg Winters <G.Winters@novatech-eng.com>; Marc St.Pierre <m.stpierre@novatech-eng.com>; Ellen Potts <e.potts@novatech-eng.com>
Subject: RE: 5331 Fernbank Road and 1039 Terry Fox Drive - Future Transit Servicing

Hello André and Graham,

I am just following up on the below email. Can you please advise any future OC Transpo plans in the vicinity of Terry Fox/Cope.

Thanks,

Brad Byvelds, P.Eng., Project Coordinator | Transportation/Traffic
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 286 | Fax: 613.254.5867

From: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Sent: Tuesday, September 04, 2018 10:10 AM
To: Brad Byvelds <B.Byvelds@novatech-eng.com>; Korol-Paradis, Andre <andre.korol-paradis@ottawa.ca>; Rathwell, Graham <graham.rathwell@ottawa.ca>
Cc: Greg Winters <G.Winters@novatech-eng.com>; Marc St.Pierre <m.stpierre@novatech-eng.com>; Ellen Potts <e.potts@novatech-eng.com>
Subject: RE: 5331 Fernbank Road and 1039 Terry Fox Drive - Future Transit Servicing

Hi Brad,

I am including my colleagues André Korol-Paradis and Graham Rathwell from OC's Network Service Design group who may have provided the pre-consultation transit comments as they both work on development applications in Kanata/Stittsville.

André and Graham, can you please follow up with Brad regarding our service plan for the Cope/Terry Fox area.

Thanks,
Genya

Genya Stefanoff, MCIP, RPP
Senior Transit Planner, Service Strategy

City of Ottawa | OC Transpo | Transportation Services Department
1500 St. Laurent Blvd., Ottawa, ON K1G 0Z8

tel: 613-580-2424 ext. 52294
genya.stefanoff@ottawa.ca

From: Brad Byvelds <B.Byvelds@novatech-eng.com>
Sent: Tuesday, September 04, 2018 9:35 AM
To: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Cc: Greg Winters <G.Winters@novatech-eng.com>; Marc St.Pierre <m.stpierre@novatech-eng.com>; Ellen Potts <e.potts@novatech-eng.com>
Subject: 5331 Fernbank Road and 1039 Terry Fox Drive - Future Transit Servicing

Hello Genya,

I am working on a TIA for the a residential subdivision located at 5331 Fernbank Road and 1039 Terry Fox Drive (northeast corner of Terry Fox/Cope intersection), as shown in the attached. The subdivision will contain a total of 184 residential units. The pre-consultation comments received from the City suggest we follow up with OC Transpo about their future plans for the development (i.e. bus stops along Cope Drive). Can you please advise any future OC Transpo plans for this area?

I'm not sure if you are the appropriate contact for this, but if not can you please pass this along to the appropriate person.

Thanks,
Brad Byvelds, P.Eng., Project Coordinator | Transportation/Traffic

NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 286 | Fax: 613.254.5867

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APPENDIX C

Traffic Count Data

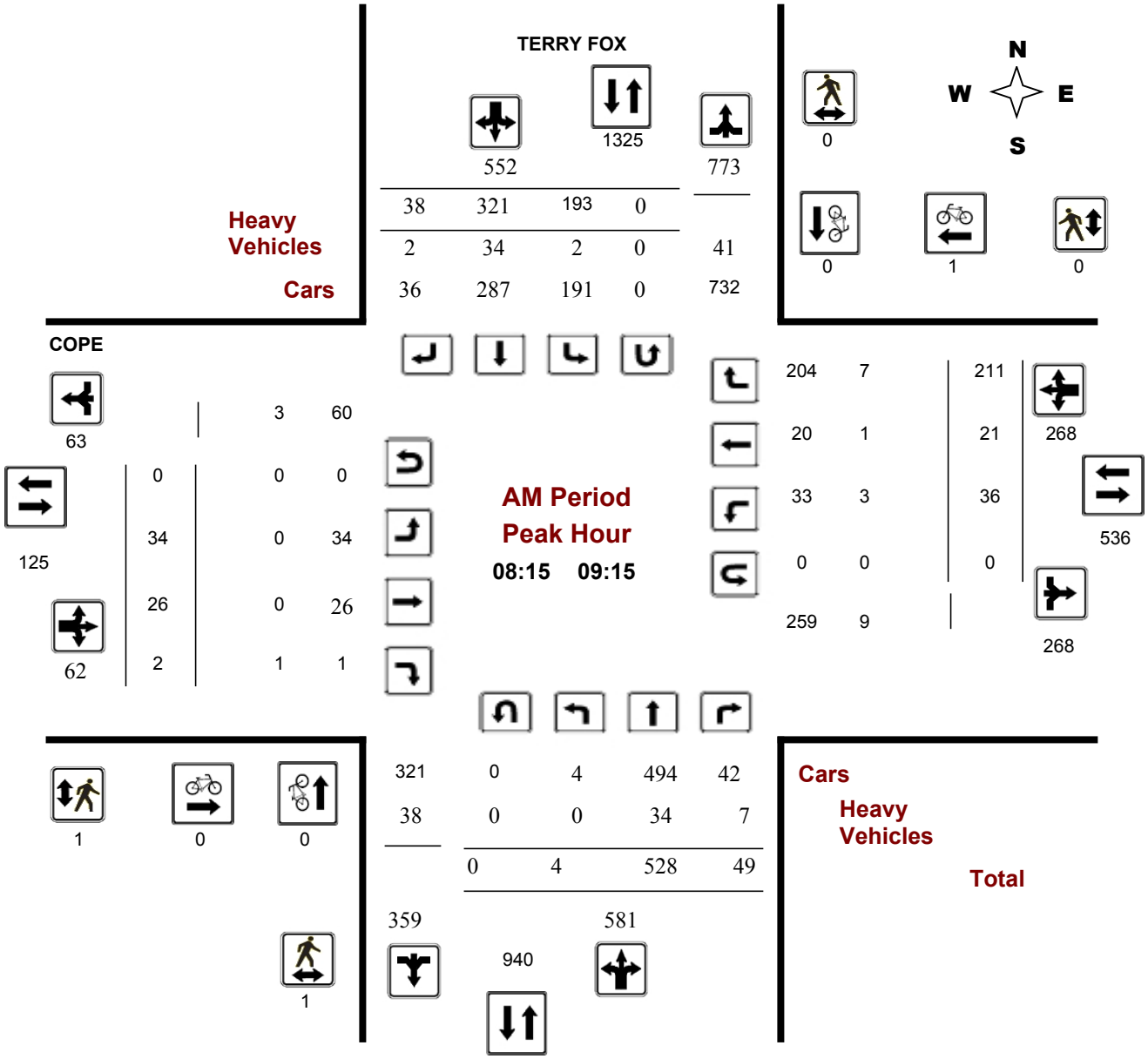
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COPE @ TERRY FOX

Survey Date: Thursday, January 25, 2018 **WO No:** 37446

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



Comments

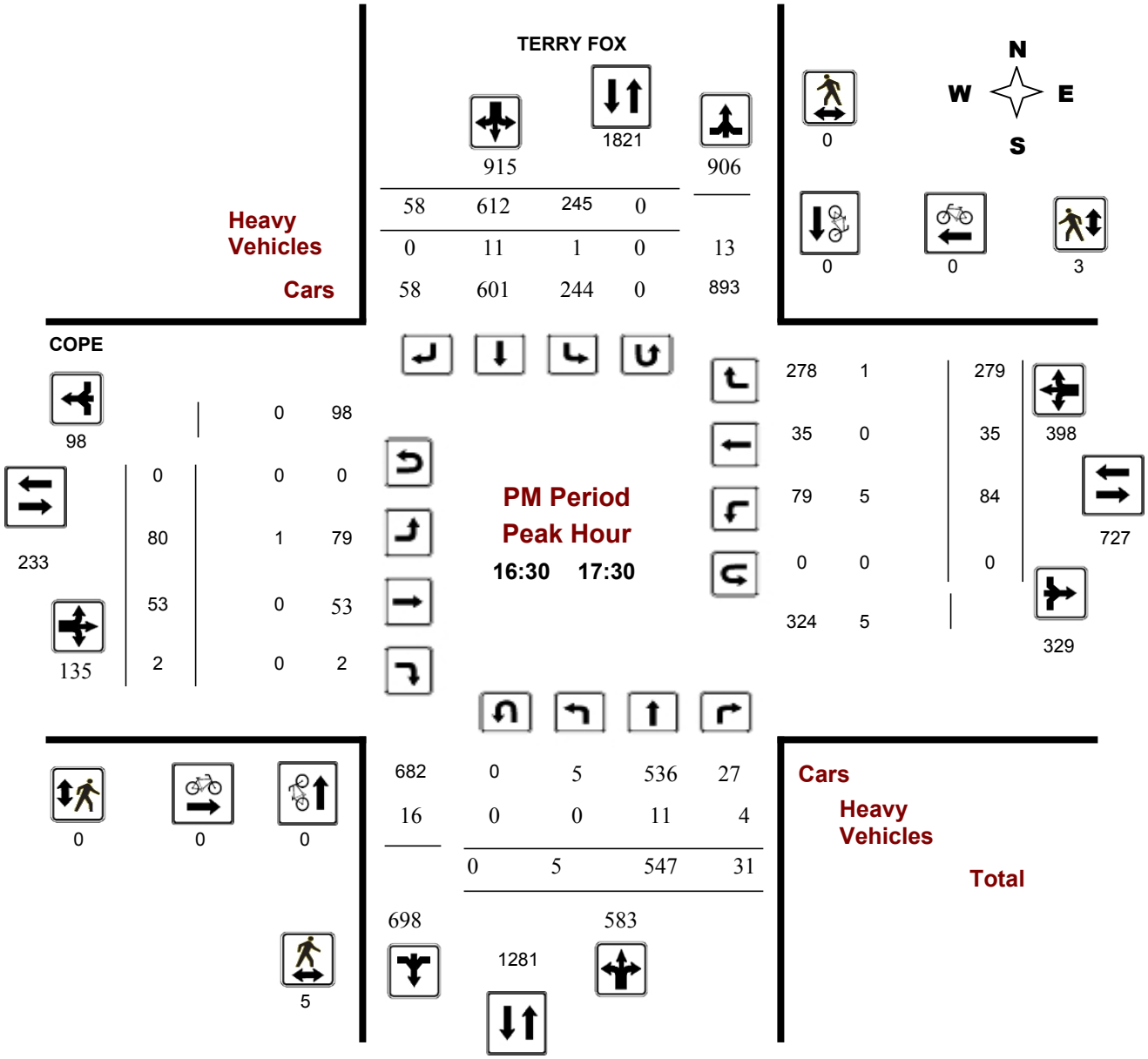
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COPE @ TERRY FOX

Survey Date: Thursday, January 25, 2018 **WO No:** 37446

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



Comments

APPENDIX D

Collision Records

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2012 **To:** December 31, 2016

Location: COPE @ TERRY FOX

Traffic Control: Traffic signal

Total Collisions: 16

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jun-12, Thu,18:12	Rain	Rear end	Non-fatal injury	Wet	North	Going ahead	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Dec-01, Mon,16:58	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Dec-27, Sat,17:10	Rain	SMV other	P.D. only	Wet	West	Turning left	Automobile, station wagon	Ran off road	
2014-Nov-19, Wed,19:33	Clear	Angle	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2015-Feb-26, Thu,11:48	Clear	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

2015-Sep-09, Wed,07:25	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2016-Jan-22, Fri,19:12	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Feb-22, Mon,16:09	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Apr-06, Wed,17:52	Snow	Rear end	P.D. only	Loose snow	North	Slowing or stopping	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-May-01, Sun,15:35	Clear	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-May-03, Tue,19:43	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Oct-04, Tue,03:47	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Curb
2016-Oct-17, Mon,08:04	Clear	Angle	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle

2016-Oct-18, Tue,19:06	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					North	Stopped	Municipal transit bus	Other motor vehicle
2016-Nov-12, Sat,15:27	Clear	Rear end	Non-fatal injury	Dry	South	Turning left	Pick-up truck	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2016-Dec-09, Fri,17:51	Snow	Rear end	P.D. only	Ice	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle

APPENDIX E

Other Area Development Traffic

Figure 6: 'New' Site-Generated Traffic

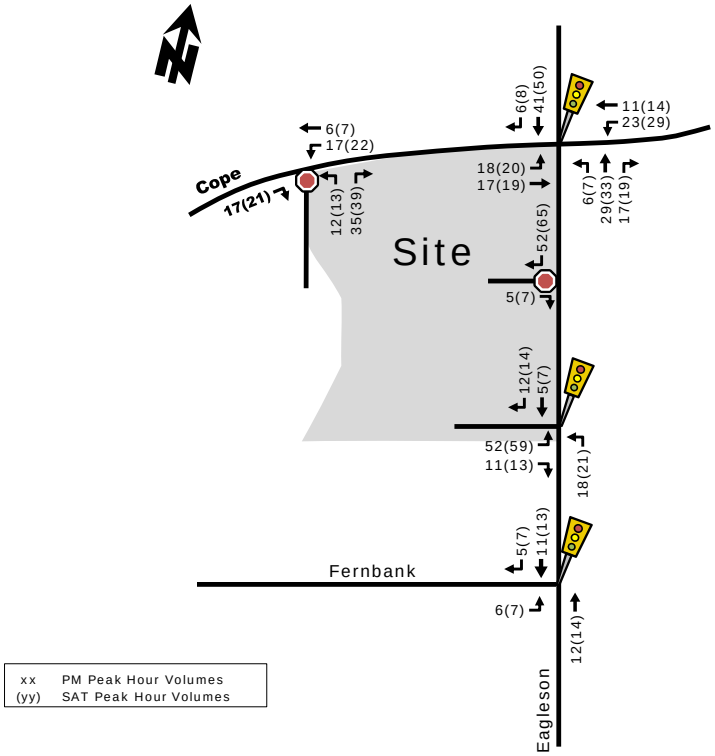
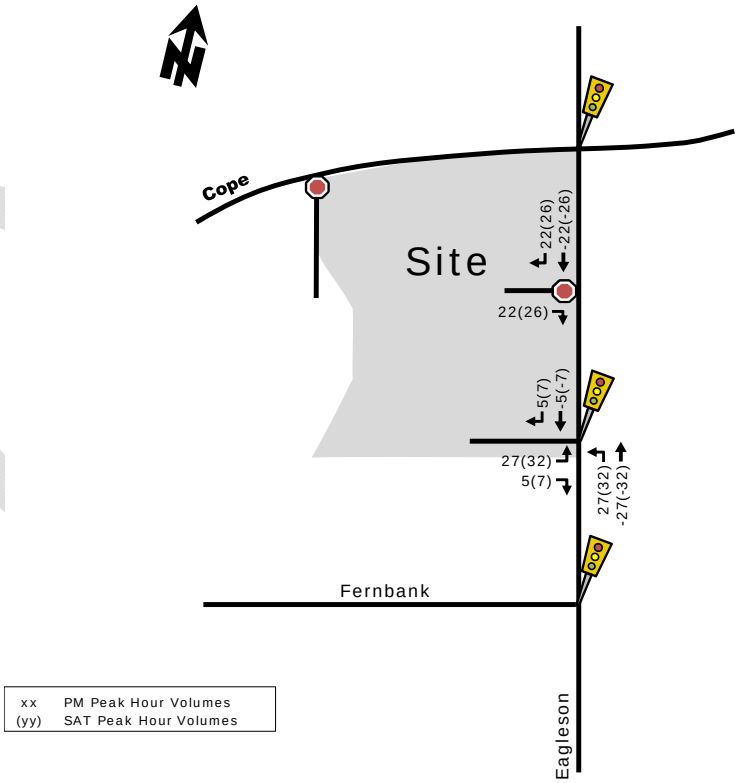
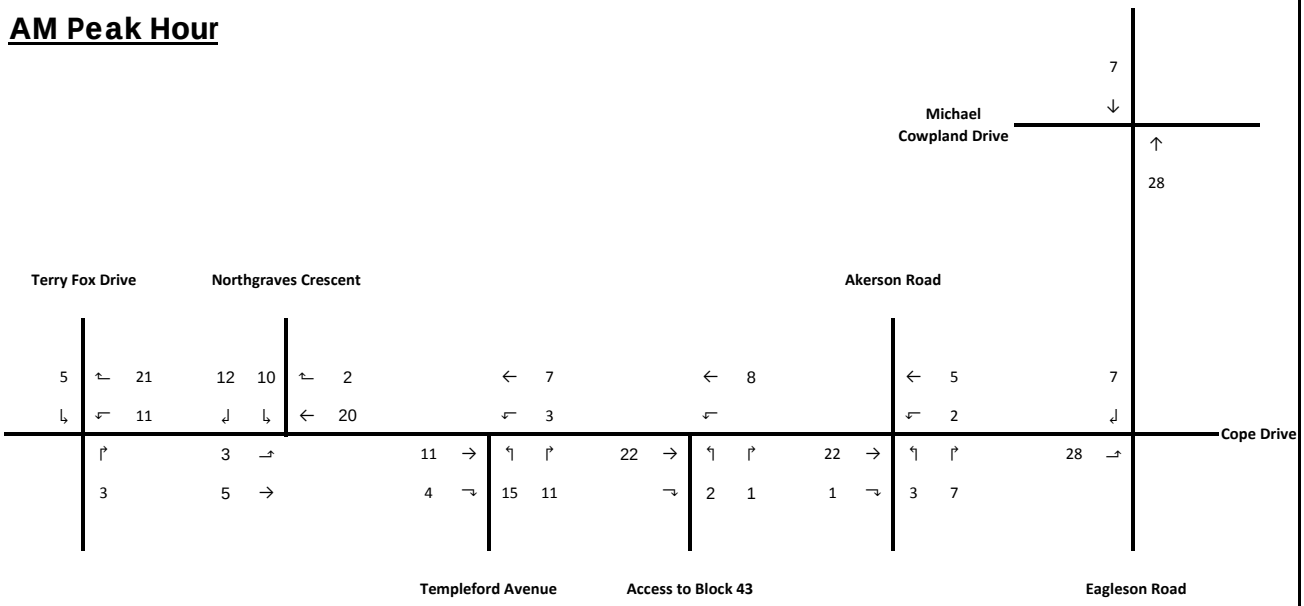


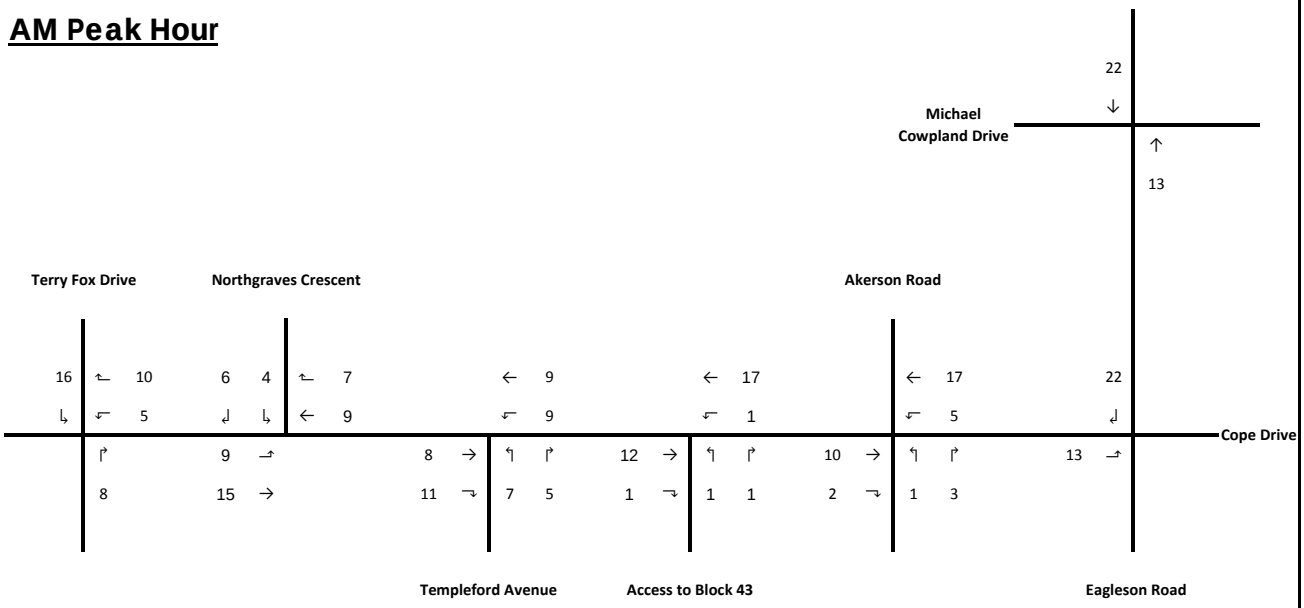
Figure 7: 'Pass-by' Site-Generated Traffic



AM Peak Hour



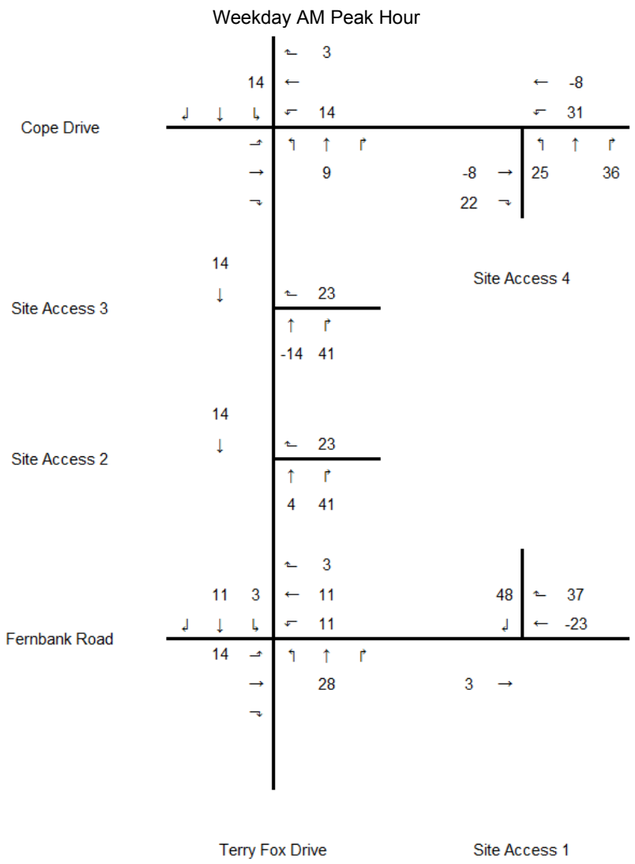
AM Peak Hour

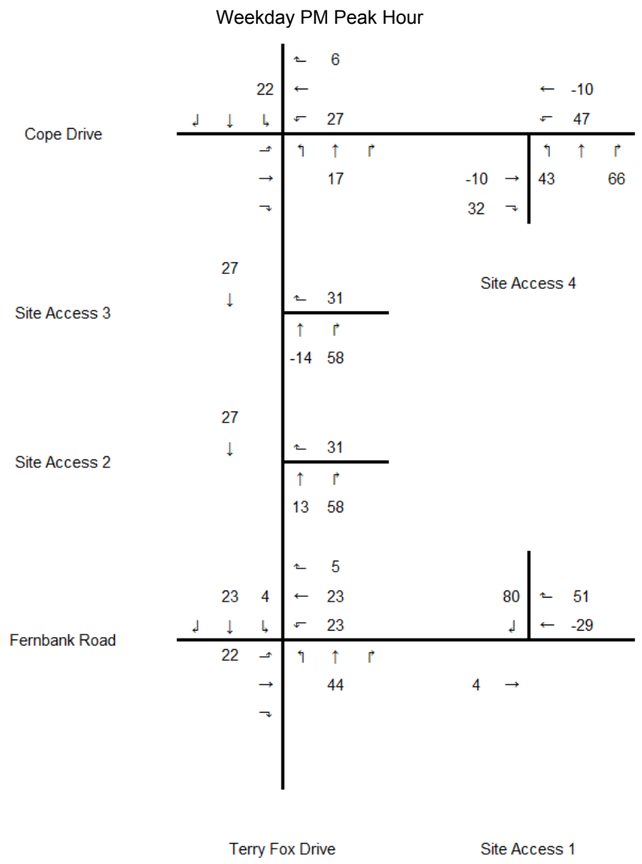


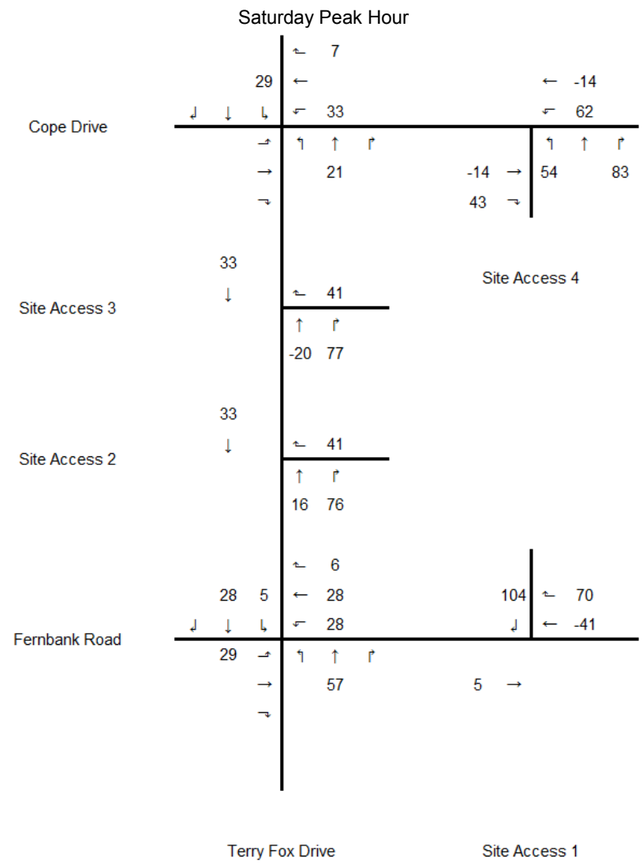
Stantec Consulting Ltd.
1331 Clyde Avenue, Suite 400
Ottawa, ON, Canada K2C 3G4
Tel: (613) 722-4420
www.stantec.com

Thomas Cavanagh Construction Ltd.
Cope Drive Lands TIS
Figure 8
Total Development Site Trips

Figure 11 - Net Site Generated Volumes







APPENDIX F

Segment MMLOS Analysis

Pedestrian Level of Service (PLOS)

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	Segment PLOS
Terry Fox Drive					
2.0m[2]	None	>3,000 vpd	No	90 km/hr	F
Cope Drive					
2.0m	>2.0m	<3,000 vpd	N/A	60 km/hr	A

1. Operating speed based on 10km/hr above posted speed limit
2. Paved Shoulder
3. Adjusted downward for rural conditions

Bicycle Level of Service (BLOS)

Road Class	Bike Route	Type of Bikeway	Travel Lanes[1]	Centerline Markings	Operating Speed[2]	Segment BLOS
Terry Fox Drive						
Arterial	Spine	Bike Lane/ Paved Shoulder	1	N/A	90 km/hr	E
Cope Drive						
Collector	Local	Mixed Traffic	1	No	60 km/hr	F

1. Travel lanes in each direction
2. Operating speed based on 10km/hr above posted speed limit

Transit Level of Service (TLOS)

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

Truck Level of Service (TkLOS)

Curb Lane Width	Number of Travel Lanes (Per Direction)	Segment TkLOS
Terry Fox Drive		
≤3.5m	1	C
Cope Drive		
>3.7m	1	B

Auto LOS

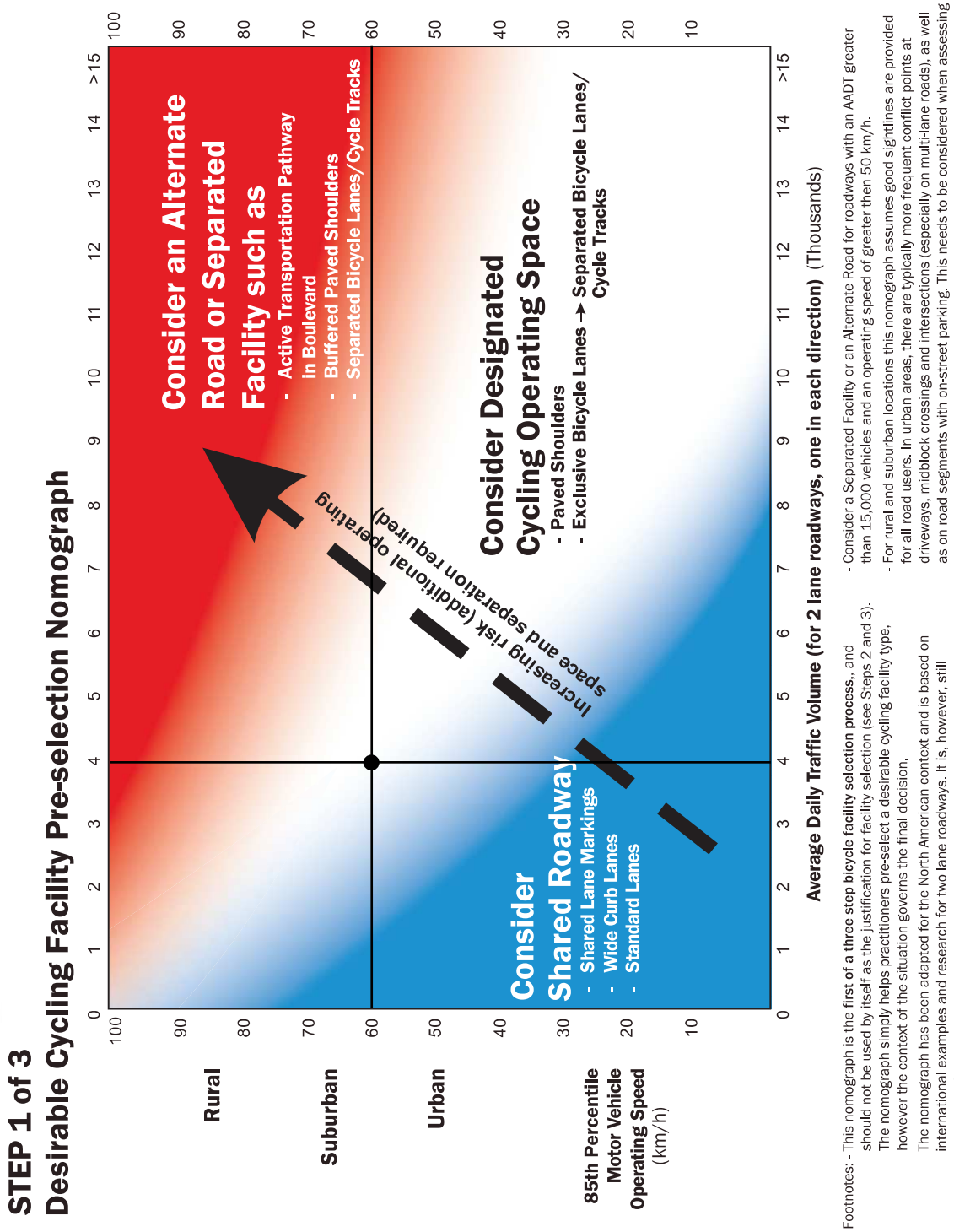
Direction	Directional Capacity[1]	Traffic Volumes		V/C Ratio and LOS				Auto LOS
		AM Peak	PM Peak	AM Peak		PM Peak		
				v/c	LOS	v/c	LOS	
Terry Fox Drive								
NB	1200vph	734	663	0.61	B	0.55	A	B
SB	1200vph	426	746	0.36	S	0.62	B	
Cope Drive								
EB	600vph	182	291	0.30	A	0.48	A	A
WB	600vph	203	300	0.34	A	0.50	A	

1. Typical lane capacity based on the City's guidelines for the TRANS long-range transportation model

Segment MMLOS Summary

	Segment	Terry Fox Drive	Cope Drive
Pedestrian	Sidewalk Width	2.0m	2.0m
	Boulevard Width	None	> 2.0m
	Average Daily Curb Lane Traffic Volume	>3000 vpd	< 3000vpd
	On-Street Parking	No	N/A
	Operating Speed	90 km/h	60 km/hr
	Level of Service	F	A
	Target	C	C
Cyclist	Road Classification	Arterial	Collector
	Bike Route Classification	Spine	Local
	Type of Bikeway	Paved Shoulder	Mixed Traffic
	Travel Lanes (Each Direction)	1	1
	Centerline Markings	N/A	No
	Operating Speed	90 km/h	60 km/hr
	Level of Service	E	F
	Target	C	B
Transit	Facility Type	Mixed Traffic	Mixed Traffic
	Congestion	Yes	Yes
	Friction	Low	Low
	Incident Potential	Medium	Medium
	Level of Service	D	D
	Target	-	-
Truck	Lane Width	≤3.5m	> 3.7m
	Travel Lanes (per direction)	1	1
	Level of Service	C	B
	Target	D	E
Auto	Volume	746 vph	300 vph
	Capacity	1200 vph	600 vph
	Volume to Capacity Ratio	0.62	0.50
	Level of Service	B	A
	Target	D	D

Figure 3.3 – Desirable Bicycle Facility Pre-Selection Nomograph



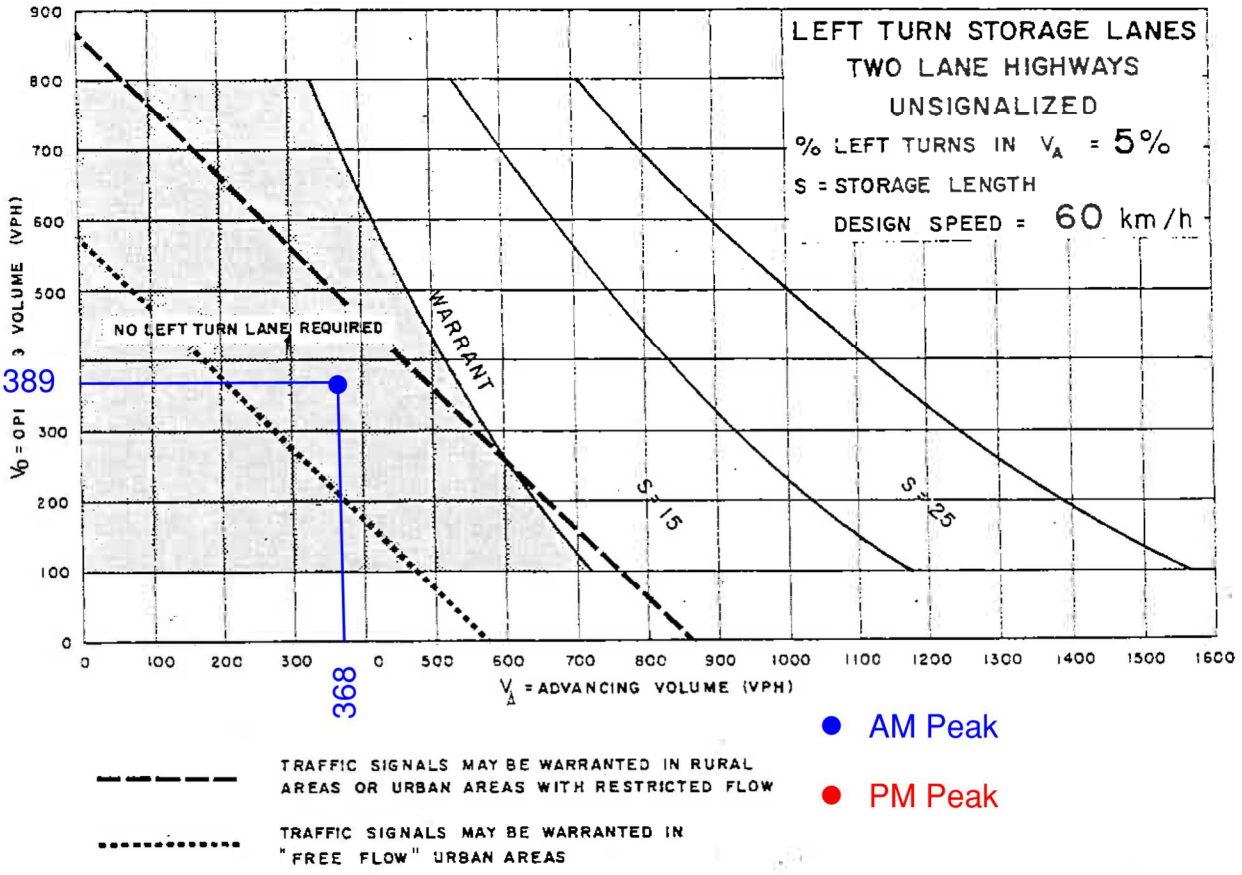
Footnotes:
- This nomograph is the **first of a three step bicycle facility selection process,** and should not be used by itself as the justification for facility selection (see Steps 2 and 3). The nomograph simply helps practitioners pre-select a desirable cycling facility type, however the context of the situation governs the final decision.
- The nomograph has been adapted for the North American context and is based on international examples and research for two lane roadways. It is, however, still applicable for multi-lane roadways. For these situations, designers should consider the operating speed, total combined traffic volume and traffic mix of the vehicles traveling in the lanes immediately adjacent to the cycling facilities.
- Consider a Separated Facility or an Alternate Road for roadways with an AADT greater than 15,000 vehicles and an operating speed of greater then 50 km/h.
- For rural and suburban locations this nomograph assumes good sightlines are provided for all road users. In urban areas, there are typically more frequent conflict points at driveways, midblock crossings and intersections (especially on multi-lane roads), as well as on road segments with on-street parking. This needs to be considered when assessing risk exposure in urban environments since it will influence the selection of a suitable facility type.

Source: MMM, 2013

APPENDIX G

MTO Left Turn Land Graphs and
OTM Traffic Signalization Warrants

Cope Drive/Street 1 - 2027 Total
Eastbound Left Turn



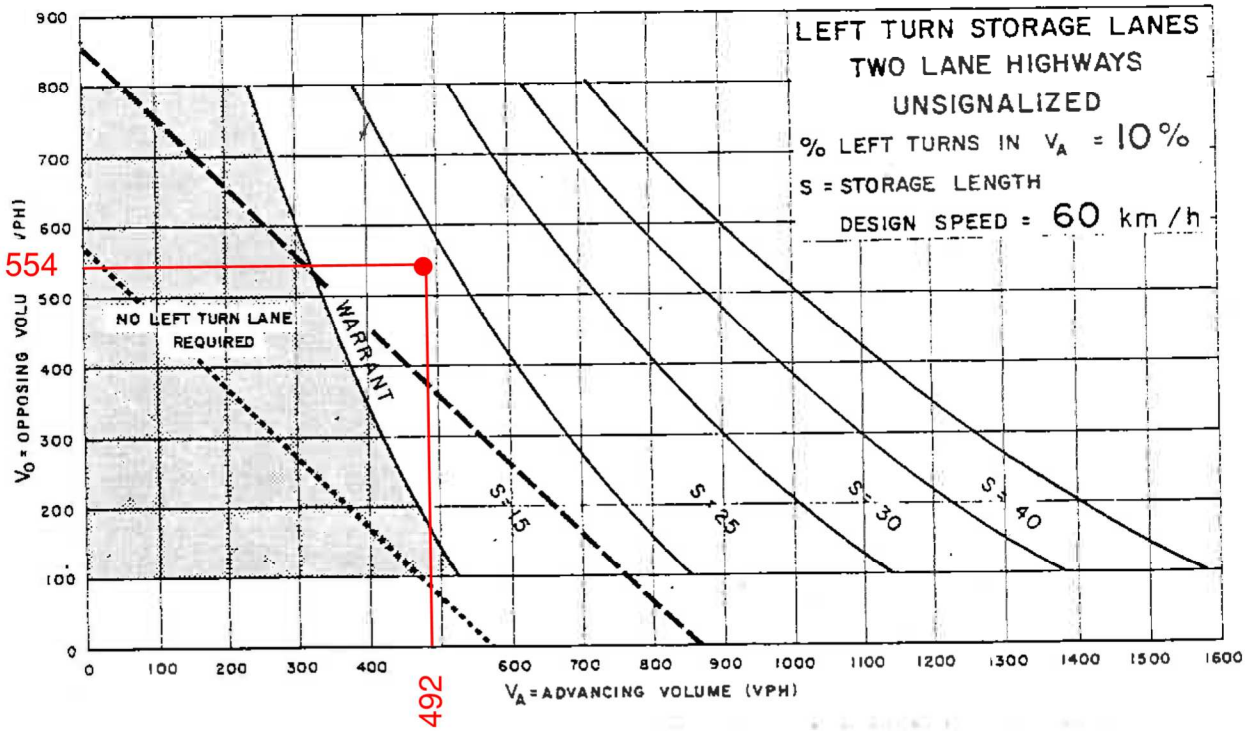


Figure EA-6

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION USING PROJECTED VOLUMES

LOCATION: COPE DR at ST 1 / COMMERCIAL

YEAR: 2027

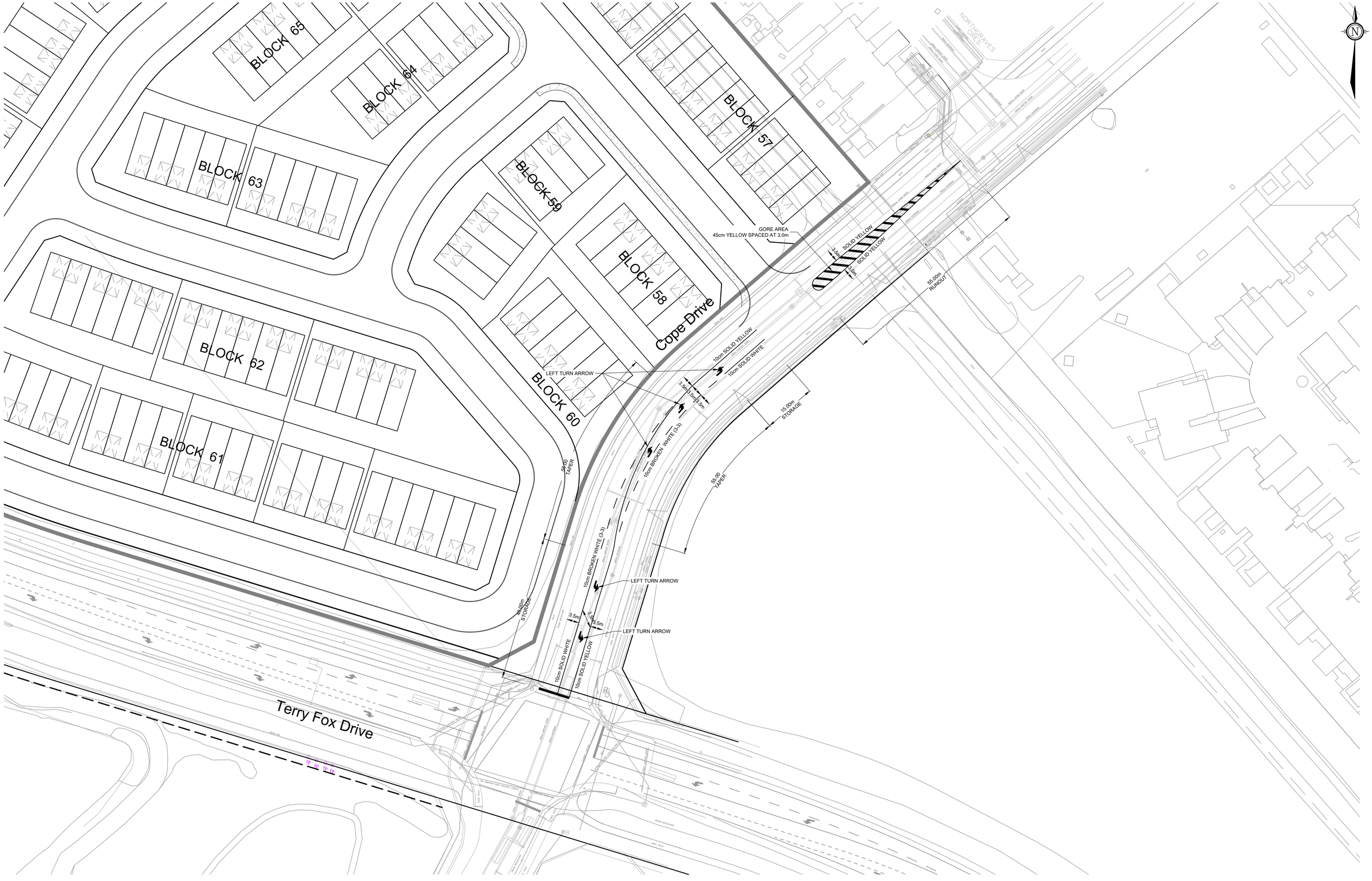
JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	(720) 900 (2 or more lane approach	501	70%	30%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	(170) 255 (tee intersection)	51	30%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	(720) 900 (2 or more lane approach	431	60%	32%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	(75)	24	32%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or (AHV = (AM + PM) / 4.)

APPENDIX H

Functional Design



NOTE:
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.

No.	REVISION	DATE	BY
1.	ISSUED FOR CITY REVIEW	NOV 06/18	BJB

SCALE
1:500

1:500
0 5 10 15 20

DESIGN RCH
CHECKED BJB
DRAWN RCH
CHECKED BJB
APPROVED JLL

FOR REVIEW ONLY

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

LOCATION
CITY of OTTAWA
5331 FERNBANK ROAD AND 1039 TERRY FOX DRIVE

DRAWING NAME
FUNCTIONAL DESIGN

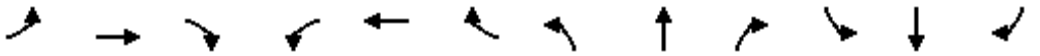
PROJECT No. 117198
REV REV # 1
DRAWING No. 117198-FD

M:\2017\117198\CAD\design\Figures\Traffic\117198-FD.dwg, 117198-FD, Mar 14, 2019 - 5:41pm, rhillier

PLANAT.DWG - 841mmx594mm

APPENDIX I

Synchro Analysis Reports



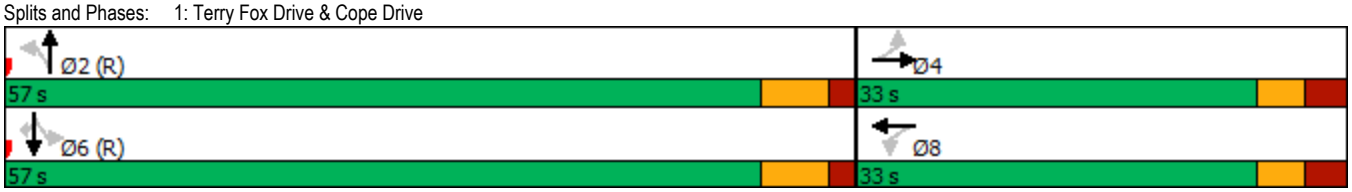
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	26	2	36	21	211	4	528	49	193	321	38
Future Volume (vph)	34	26	2	36	21	211	4	528	49	193	321	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.98		1.00					0.98
Frt		0.990			0.863			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1729	1743	0	1601	1493	0	1729	1684	0	1712	1640	1473
Flt Permitted	0.306			0.737			0.547			0.369		
Satd. Flow (perm)	557	1743	0	1240	1493	0	994	1684	0	665	1640	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			234			8				42
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		7.2			11.3			17.2			14.3	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	50%	8%	5%	3%	0%	6%	14%	1%	11%	5%
Adj. Flow (vph)	38	29	2	40	23	234	4	587	54	214	357	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	31	0	40	257	0	4	641	0	214	357	42
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		28.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	26.8	26.8		26.8	26.8		50.6	50.6		50.6	50.6	50.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2		2	2	2
Act Effct Green (s)	13.4	13.4		13.4	13.4		64.0	64.0		64.0	64.0	64.0
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
v/c Ratio	0.46	0.12		0.22	0.61		0.01	0.53		0.45	0.31	0.04
Control Delay	50.9	29.8		34.0	12.4		6.2	9.4		11.2	6.8	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.9	29.8		34.0	12.4		6.2	9.4		11.2	6.8	2.4
LOS	D	C		C	B		A	A		B	A	A
Approach Delay		41.4			15.3			9.4			8.0	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	6.4	4.6		6.5	3.7		0.2	35.8		11.1	16.0	0.0
Queue Length 95th (m)	13.5	10.0		12.6	20.5		1.6	107.2		44.8	49.4	4.0
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	165	520		369	608		706	1200		473	1166	1036
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.23	0.06		0.11	0.42		0.01	0.53		0.45	0.31	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 55 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Terry Fox Drive & Cope Drive

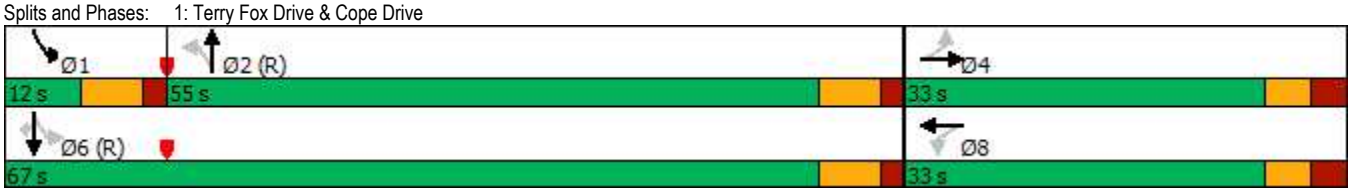


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	84	35	279	5	547	31	245	612	58
Future Volume (vph)	80	53	2	84	35	279	5	547	31	245	612	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995			0.867			0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1578	0	1729	1758	0	1729	1784	1547
Flt Permitted	0.200			0.717			0.406			0.227		
Satd. Flow (perm)	360	1809	0	1220	1578	0	739	1758	0	413	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			300			4				64
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	89	59	2	93	39	310	6	608	34	272	680	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	61	0	93	349	0	6	642	0	272	680	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8		48.6	48.6		5.6	60.6	60.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2			2	2
Act Effct Green (s)	20.0	20.0		20.0	20.0		51.7	51.7		67.4	67.4	67.4
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.52	0.52		0.67	0.67	0.67
v/c Ratio	1.24	0.17		0.38	0.63		0.02	0.71		0.68	0.57	0.06
Control Delay	220.3	30.3		37.1	11.6		13.6	24.6		20.6	12.2	2.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	220.3	30.3		37.1	11.6		13.6	24.6		20.6	12.2	2.3
LOS	F	C		D	B		B	C		C	B	A
Approach Delay		143.0			16.9			24.5			13.9	
Approach LOS		F			B			C			B	
Queue Length 50th (m)	~20.6	9.4		15.5	7.8		0.6	96.3		19.0	64.7	0.0
Queue Length 95th (m)	#47.0	18.6		27.9	31.3		2.7	141.0		#51.6	112.7	4.8
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	96	486		326	642		382	910		400	1202	1063
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.93	0.13		0.29	0.54		0.02	0.71		0.68	0.57	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 96.2%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	84	35	279	5	547	31	245	612	58
Future Volume (vph)	80	53	2	84	35	279	5	547	31	245	612	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		75.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1820	1547	1729	1758	0	1729	1784	1547
Flt Permitted	0.732			0.717			0.406			0.248		
Satd. Flow (perm)	1319	1809	0	1220	1820	1547	739	1758	0	451	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				300		4				64
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	89	59	2	93	39	310	6	608	34	272	680	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	61	0	93	39	310	6	642	0	272	680	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2	32.2	28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0	33.0	55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%	33.0%	55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8	26.8	48.6	48.6		5.6	60.6	60.6
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2	6.2	6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0	19.0	15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2			2	2
Act Effct Green (s)	15.1	15.1		15.1	15.1	15.1	54.6	54.6		72.3	72.3	72.3
Actuated g/C Ratio	0.15	0.15		0.15	0.15	0.15	0.55	0.55		0.72	0.72	0.72
v/c Ratio	0.45	0.22		0.51	0.14	0.64	0.01	0.67		0.58	0.53	0.06
Control Delay	43.9	35.5		46.8	35.0	10.9	12.8	21.6		13.2	9.2	1.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	43.9	35.5		46.8	35.0	10.9	12.8	21.6		13.2	9.2	1.9
LOS	D	D		D	C	B	B	C		B	A	A
Approach Delay		40.5			20.6			21.5			9.8	
Approach LOS		D			C			C			A	
Queue Length 50th (m)	16.4	10.5		17.2	6.8	1.7	0.5	82.8		13.3	45.4	0.0
Queue Length 95th (m)	26.9	18.8		28.2	13.8	22.0	2.7	141.0		#42.7	110.1	4.7
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0		75.0	35.0			15.0		130.0
Base Capacity (vph)	353	486		326	487	634	403	962		469	1289	1135
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.25	0.13		0.29	0.08	0.49	0.01	0.67		0.58	0.53	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

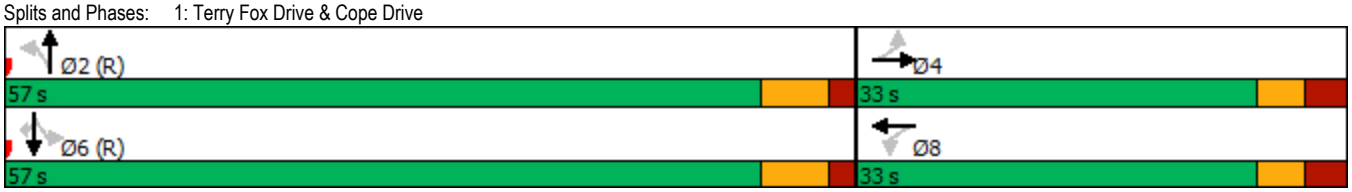
Splits and Phases: 1: Terry Fox Drive & Cope Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	26	2	66	21	262	4	581	59	242	347	38
Future Volume (vph)	34	26	2	66	21	262	4	581	59	242	347	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.98		1.00					0.98
Frt		0.989			0.861			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1729	1735	0	1601	1489	0	1729	1681	0	1712	1640	1473
Flt Permitted	0.294			0.739			0.553			0.369		
Satd. Flow (perm)	535	1735	0	1243	1489	0	1005	1681	0	665	1640	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			262			9				39
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	50%	8%	5%	3%	0%	6%	14%	1%	11%	5%
Adj. Flow (vph)	34	26	2	66	21	262	4	581	59	242	347	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	28	0	66	283	0	4	640	0	242	347	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		28.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	26.8	26.8		26.8	26.8		50.6	50.6		50.6	50.6	50.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2		2	2	2
Act Effct Green (s)	13.6	13.6		13.6	13.6		63.8	63.8		63.8	63.8	63.8
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
v/c Ratio	0.42	0.11		0.35	0.63		0.01	0.54		0.51	0.30	0.04
Control Delay	48.1	29.0		37.3	12.0		6.2	9.5		12.9	6.8	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	48.1	29.0		37.3	12.0		6.2	9.5		12.9	6.8	2.5
LOS	D	C		D	B		A	A		B	A	A
Approach Delay		39.5			16.8			9.5			8.9	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	5.7	4.1		10.9	3.3		0.2	35.8		13.4	15.5	0.0
Queue Length 95th (m)	12.6	9.3		18.7	20.8		1.6	107.0		55.4	47.8	3.8
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	159	518		370	627		711	1193		471	1161	1032
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.21	0.05		0.18	0.45		0.01	0.54		0.51	0.30	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 55 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 95.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Terry Fox Drive & Cope Drive

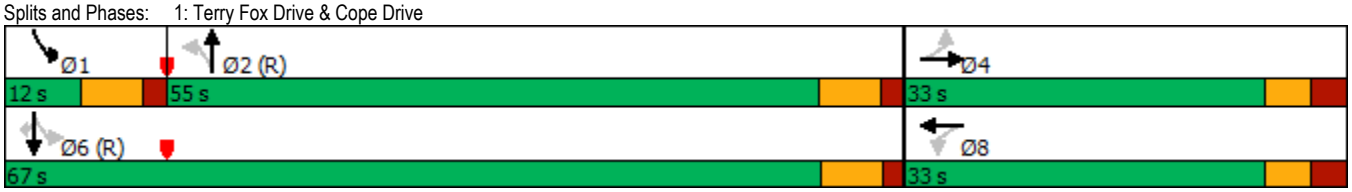


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Future Volume (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995			0.864			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1572	0	1729	1750	0	1729	1784	1547
Flt Permitted	0.202			0.721			0.413			0.195		
Satd. Flow (perm)	364	1809	0	1227	1572	0	752	1750	0	355	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			300			5				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	125	364	0	5	654	0	321	662	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		11.4	28.3	28.3
Total Split (s)	33.0	33.0		33.0	33.0		55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8		48.6	48.6		5.6	60.7	60.7
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.3	6.3
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2			2	2
Act Effct Green (s)	19.8	19.8		19.8	19.8		48.6	48.6		67.6	67.7	67.7
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.49	0.49		0.68	0.68	0.68
v/c Ratio	1.13	0.15		0.52	0.66		0.01	0.77		0.78	0.55	0.05
Control Delay	180.7	30.2		41.9	13.2		13.6	28.3		29.0	11.7	2.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	180.7	30.2		41.9	13.2		13.6	28.3		29.0	11.7	2.3
LOS	F	C		D	B		B	C		C	B	A
Approach Delay		119.4			20.5			28.1			16.5	
Approach LOS		F			C			C			B	
Queue Length 50th (m)	~17.2	8.4		21.5	10.3		0.5	99.3		22.7	60.5	0.0
Queue Length 95th (m)	#41.5	17.1		36.4	35.4		2.4	145.3		#80.4	107.8	4.6
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	97	486		328	640		365	853		413	1208	1066
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.82	0.11		0.38	0.57		0.01	0.77		0.78	0.55	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 26.6		Intersection LOS: C	
Intersection Capacity Utilization 108.2%		ICU Level of Service G	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Future Volume (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		75.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1820	1547	1729	1750	0	1729	1784	1547
Flt Permitted	0.734			0.721			0.413			0.239		
Satd. Flow (perm)	1323	1809	0	1225	1820	1547	752	1750	0	435	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				329		4				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	125	35	329	5	609	45	321	662	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	125	35	329	5	654	0	321	662	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2	32.2	28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0	33.0	57.0	57.0		30.0	87.0	87.0
Total Split (%)	27.5%	27.5%		27.5%	27.5%	27.5%	47.5%	47.5%		25.0%	72.5%	72.5%
Maximum Green (s)	26.8	26.8		26.8	26.8	26.8	50.6	50.6		23.6	80.6	80.6
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2	6.2	6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0	19.0	15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2			2	2
Act Effct Green (s)	18.2	18.2		18.2	18.2	18.2	66.0	66.0		89.2	89.2	89.2
Actuated g/C Ratio	0.15	0.15		0.15	0.15	0.15	0.55	0.55		0.74	0.74	0.74
v/c Ratio	0.40	0.20		0.68	0.13	0.64	0.01	0.68		0.64	0.50	0.05
Control Delay	50.0	42.8		64.8	42.0	10.5	18.4	26.9		12.0	8.8	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	50.0	42.8		64.8	42.0	10.5	18.4	26.9		12.0	8.8	1.7
LOS	D	D		E	D	B	B	C		B	A	A
Approach Delay		47.1			26.7			26.8			9.4	
Approach LOS		D			C			C			A	
Queue Length 50th (m)	17.2	11.2		28.1	7.2	0.0	0.5	106.7		20.9	55.6	0.0
Queue Length 95th (m)	30.1	21.4		44.9	15.2	23.7	3.2	#208.6		40.6	102.9	4.1
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0		75.0	35.0			15.0		130.0
Base Capacity (vph)	295	404		273	406	601	413	964		578	1326	1165
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.14		0.46	0.09	0.55	0.01	0.68		0.56	0.50	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 69 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 20.1		Intersection LOS: C	
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive

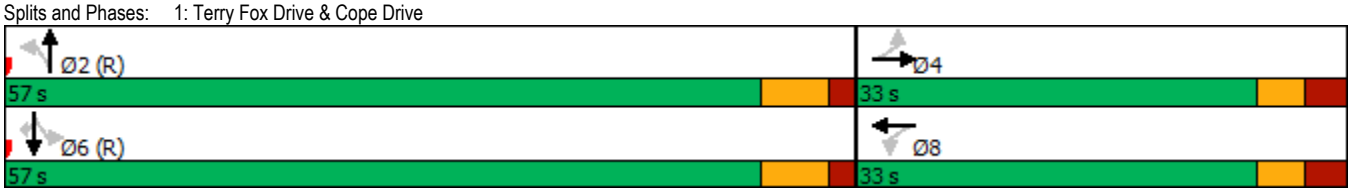
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	26	2	70	21	286	4	640	65	264	384	38
Future Volume (vph)	34	26	2	70	21	286	4	640	65	264	384	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.98		1.00					0.98
Frt		0.989			0.860			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1729	1735	0	1601	1488	0	1729	1681	0	1712	1640	1473
Flt Permitted	0.286			0.739			0.527			0.330		
Satd. Flow (perm)	521	1735	0	1243	1488	0	958	1681	0	595	1640	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			248			9				39
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	50%	8%	5%	3%	0%	6%	14%	1%	11%	5%
Adj. Flow (vph)	34	26	2	70	21	286	4	640	65	264	384	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	28	0	70	307	0	4	705	0	264	384	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		28.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	26.8	26.8		26.8	26.8		50.6	50.6		50.6	50.6	50.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2		2	2	2
Act Effct Green (s)	14.0	14.0		14.0	14.0		63.4	63.4		63.4	63.4	63.4
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.70		0.70	0.70	0.70
v/c Ratio	0.42	0.10		0.36	0.70		0.01	0.59		0.63	0.33	0.04
Control Delay	47.7	28.5		37.1	16.5		6.5	10.8		18.7	7.3	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.7	28.5		37.1	16.5		6.5	10.8		18.7	7.3	2.5
LOS	D	C		D	B		A	B		B	A	A
Approach Delay		39.0			20.3			10.8			11.4	
Approach LOS		D			C			B			B	
Queue Length 50th (m)	5.7	4.1		11.5	9.5		0.2	43.0		17.1	18.0	0.0
Queue Length 95th (m)	12.6	9.3		19.5	29.0		1.6	126.7		#80.0	53.8	3.8
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	155	518		370	617		674	1186		418	1154	1025
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.05		0.19	0.50		0.01	0.59		0.63	0.33	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 55 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 100.8% ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Terry Fox Drive & Cope Drive



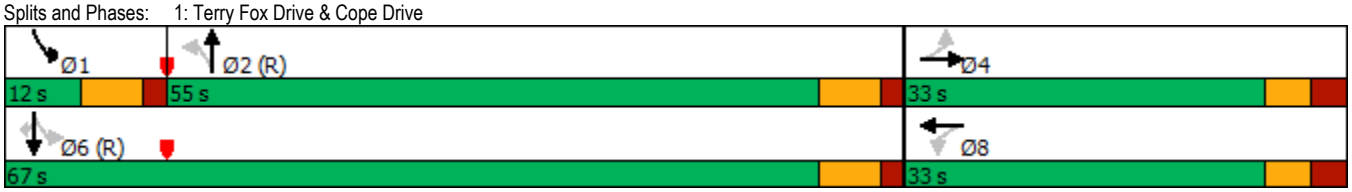
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Future Volume (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995			0.863			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1571	0	1729	1751	0	1729	1784	1547
Flt Permitted	0.186			0.721			0.388			0.148		
Satd. Flow (perm)	335	1809	0	1227	1571	0	706	1751	0	269	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			270			5				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	134	395	0	5	719	0	349	731	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8		48.6	48.6		5.6	60.6	60.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2			2	2
Act Effct Green (s)	21.5	21.5		21.5	21.5		48.6	48.6		65.9	65.9	65.9
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.49	0.49		0.66	0.66	0.66
v/c Ratio	1.13	0.14		0.51	0.72		0.01	0.84		1.04	0.62	0.06
Control Delay	181.3	28.9		40.1	18.8		13.6	33.3		81.0	14.1	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	181.3	28.9		40.1	18.8		13.6	33.3		81.0	14.1	2.4
LOS	F	C		D	B		B	C		F	B	A
Approach Delay		119.3			24.2			33.1			34.0	
Approach LOS		F			C			C			C	
Queue Length 50th (m)	15.3	8.0		22.0	19.8		0.5	116.1		~45.0	82.5	0.0
Queue Length 95th (m)	#43.0	17.1		38.7	51.1		2.4	#186.0		#105.3	127.5	4.6
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	89	486		328	618		343	853		337	1176	1039
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.90	0.11		0.41	0.64		0.01	0.84		1.04	0.62	0.06

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 36.3 Intersection LOS: D
Intersection Capacity Utilization 115.5% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Terry Fox Drive & Cope Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Future Volume (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		75.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1820	1547	1729	1751	0	1729	1784	1547
Flt Permitted	0.734			0.721			0.388			0.151		
Satd. Flow (perm)	1323	1809	0	1225	1820	1547	706	1751	0	275	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				360		4				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	134	35	360	5	671	48	349	731	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	134	35	360	5	719	0	349	731	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2	32.2	28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0	33.0	57.0	57.0		30.0	87.0	87.0
Total Split (%)	27.5%	27.5%		27.5%	27.5%	27.5%	47.5%	47.5%		25.0%	72.5%	72.5%
Maximum Green (s)	26.8	26.8		26.8	26.8	26.8	50.6	50.6		23.6	80.6	80.6
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2	6.2	6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0	19.0	15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2			2	2
Act Effct Green (s)	18.8	18.8		18.8	18.8	18.8	59.3	59.3		88.6	88.6	88.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16	0.16	0.49	0.49		0.74	0.74	0.74
v/c Ratio	0.39	0.19		0.70	0.12	0.66	0.01	0.83		0.73	0.56	0.05
Control Delay	48.9	42.1		65.7	41.4	10.4	20.2	38.1		25.0	9.9	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.9	42.1		65.7	41.4	10.4	20.2	38.1		25.0	9.9	1.7
LOS	D	D		E	D	B	C	D		C	A	A
Approach Delay		46.1			26.5			38.0			14.1	
Approach LOS		D			C			D			B	
Queue Length 50th (m)	17.0	11.1		30.1	7.1	0.0	0.6	148.6		36.2	67.8	0.0
Queue Length 95th (m)	30.0	21.4		47.7	15.2	24.9	3.2	#242.8		76.1	122.1	4.1
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0		75.0	35.0			15.0		130.0
Base Capacity (vph)	295	404		273	406	625	348	866		504	1316	1157
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.14		0.49	0.09	0.58	0.01	0.83		0.69	0.56	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 69 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 25.3		Intersection LOS: C	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive

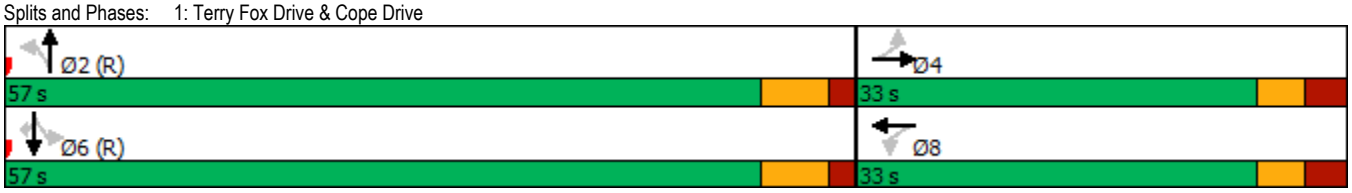
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	26	2	70	21	262	4	582	60	254	347	38
Future Volume (vph)	34	26	2	70	21	262	4	582	60	254	347	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.98		1.00					0.98
Frt		0.989			0.861			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1729	1735	0	1601	1489	0	1729	1681	0	1712	1640	1473
Flt Permitted	0.290			0.739			0.553			0.367		
Satd. Flow (perm)	528	1735	0	1243	1489	0	1005	1681	0	661	1640	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			262			9				39
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	50%	8%	5%	3%	0%	6%	14%	1%	11%	5%
Adj. Flow (vph)	34	26	2	70	21	262	4	582	60	254	347	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	28	0	70	283	0	4	642	0	254	347	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		28.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	26.8	26.8		26.8	26.8		50.6	50.6		50.6	50.6	50.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2		2	2	2
Act Effct Green (s)	13.8	13.8		13.8	13.8		63.6	63.6		63.6	63.6	63.6
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
v/c Ratio	0.42	0.11		0.37	0.63		0.01	0.54		0.54	0.30	0.04
Control Delay	48.2	28.9		37.8	11.9		6.2	9.6		14.0	6.8	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	48.2	28.9		37.8	11.9		6.2	9.6		14.0	6.8	2.5
LOS	D	C		D	B		A	A		B	A	A
Approach Delay		39.5			17.0			9.6			9.4	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	5.7	4.1		11.5	3.3		0.2	36.6		14.8	15.8	0.0
Queue Length 95th (m)	12.6	9.3		19.5	20.8		1.6	107.6		#61.0	47.8	3.8
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	157	518		370	627		710	1191		467	1159	1030
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.05		0.19	0.45		0.01	0.54		0.54	0.30	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 55 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 96.7% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

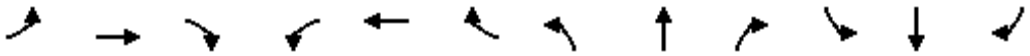
Splits and Phases: 1: Terry Fox Drive & Cope Drive



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	33	877	1	0	639
Future Volume (Veh/h)	0	33	877	1	0	639
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	33	877	1	0	639
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.83	0.83			0.83	
vC, conflicting volume	1516	878			878	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1520	754			754	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			100	
cM capacity (veh/h)	109	341			714	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	878	639
Volume Left	0	0	0
Volume Right	33	1	0
cSH	341	1700	1700
Volume to Capacity	0.10	0.52	0.38
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	16.7	0.0	0.0
Lane LOS	C		
Approach Delay (s)	16.7	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	305	22	31	324	6	25	0	36	17	0	4
Future Volume (Veh/h)	13	305	22	31	324	6	25	0	36	17	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	305	22	31	324	6	25	0	36	17	0	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	330			327			732	734	316	756	742	327
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330			302			716	718	291	740	726	327
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			92	100	95	94	100	99
cM capacity (veh/h)	1229			1233			327	335	733	301	332	714

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	13	327	31	330	61	21
Volume Left	13	0	31	0	25	17
Volume Right	0	22	0	6	36	4
cSH	1229	1700	1233	1700	486	339
Volume to Capacity	0.01	0.19	0.03	0.19	0.13	0.06
Queue Length 95th (m)	0.2	0.0	0.6	0.0	3.2	1.5
Control Delay (s)	8.0	0.0	8.0	0.0	13.5	16.3
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.7		13.5	16.3
Approach LOS					B	C

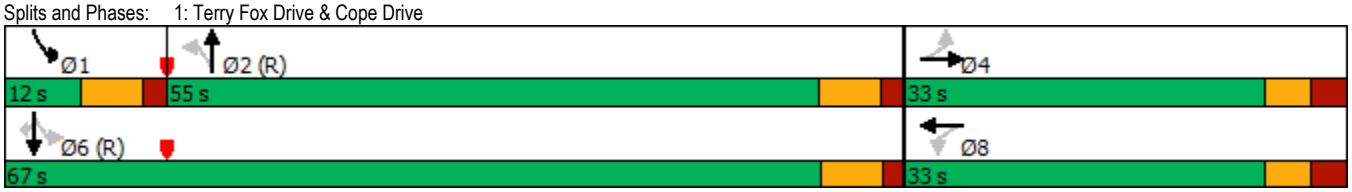
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	35.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Future Volume (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995			0.864			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1572	0	1729	1748	0	1729	1784	1547
Flt Permitted	0.202			0.721			0.413			0.191		
Satd. Flow (perm)	364	1809	0	1227	1572	0	752	1748	0	348	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			299			6				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	127	364	0	5	659	0	360	662	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		11.4	28.3	28.3
Total Split (s)	33.0	33.0		33.0	33.0		55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8		48.6	48.6		5.6	60.7	60.7
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.3	6.3
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2			2	2
Act Effct Green (s)	19.8	19.8		19.8	19.8		48.6	48.6		67.6	67.7	67.7
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.49	0.49		0.68	0.68	0.68
v/c Ratio	1.13	0.15		0.52	0.66		0.01	0.77		0.88	0.55	0.05
Control Delay	180.7	30.2		42.2	13.3		13.6	28.6		40.3	11.7	2.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	180.7	30.2		42.2	13.3		13.6	28.6		40.3	11.7	2.3
LOS	F	C		D	B		B	C		D	B	A
Approach Delay		119.4			20.7			28.5			20.8	
Approach LOS		F			C			C			C	
Queue Length 50th (m)	~17.2	8.4		21.9	10.5		0.5	100.4		28.0	60.5	0.0
Queue Length 95th (m)	#41.5	17.1		36.8	35.6		2.4	147.1		#99.5	107.8	4.6
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	97	486		328	640		365	852		409	1208	1066
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.82	0.11		0.39	0.57		0.01	0.77		0.88	0.55	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 110.8%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

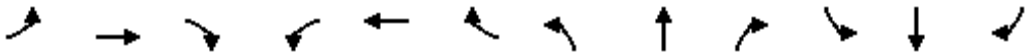
Splits and Phases: 1: Terry Fox Drive & Cope Drive



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	17	1018	2	0	1080
Future Volume (Veh/h)	0	17	1018	2	0	1080
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	17	1018	2	0	1080
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.69	0.69			0.69	
vC, conflicting volume	2099	1019			1020	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2369	802			804	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	27	265			565	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	1020	1080
Volume Left	0	0	0
Volume Right	17	2	0
cSH	265	1700	1700
Volume to Capacity	0.06	0.60	0.64
Queue Length 95th (m)	1.6	0.0	0.0
Control Delay (s)	19.5	0.0	0.0
Lane LOS	C		
Approach Delay (s)	19.5	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	387	32	47	446	21	43	0	66	9	0	2
Future Volume (Veh/h)	42	387	32	47	446	21	43	0	66	9	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	42	387	32	47	446	21	43	0	66	9	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	467			419			1029	1048	403	1088	1054	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	467			344			996	1016	327	1059	1022	456
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			78	100	90	94	100	100
cM capacity (veh/h)	1094			1136			196	205	668	160	203	604

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	42	419	47	467	109	11
Volume Left	42	0	47	0	43	9
Volume Right	0	32	0	21	66	2
cSH	1094	1700	1136	1700	342	185
Volume to Capacity	0.04	0.25	0.04	0.27	0.32	0.06
Queue Length 95th (m)	0.9	0.0	1.0	0.0	10.2	1.4
Control Delay (s)	8.4	0.0	8.3	0.0	20.4	25.7
Lane LOS	A		A		C	D
Approach Delay (s)	0.8		0.8		20.4	25.7
Approach LOS					C	D

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Future Volume (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		75.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1820	1547	1729	1747	0	1729	1784	1547
Flt Permitted	0.734			0.721			0.413			0.217		
Satd. Flow (perm)	1323	1809	0	1225	1820	1547	752	1747	0	395	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				329		4				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	127	35	329	5	611	48	360	662	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	127	35	329	5	659	0	360	662	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2	32.2	28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0	33.0	57.0	57.0		30.0	87.0	87.0
Total Split (%)	27.5%	27.5%		27.5%	27.5%	27.5%	47.5%	47.5%		25.0%	72.5%	72.5%
Maximum Green (s)	26.8	26.8		26.8	26.8	26.8	50.6	50.6		23.6	80.6	80.6
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2	6.2	6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0	19.0	15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2			2	2
Act Effct Green (s)	18.3	18.3		18.3	18.3	18.3	62.7	62.7		89.1	89.1	89.1
Actuated g/C Ratio	0.15	0.15		0.15	0.15	0.15	0.52	0.52		0.74	0.74	0.74
v/c Ratio	0.40	0.20		0.68	0.13	0.64	0.01	0.72		0.70	0.50	0.05
Control Delay	49.7	42.6		65.0	41.8	10.4	19.4	30.3		16.3	8.8	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.7	42.6		65.0	41.8	10.4	19.4	30.3		16.3	8.8	1.7
LOS	D	D		E	D	B	B	C		B	A	A
Approach Delay		46.8			26.8			30.2			10.9	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	17.2	11.2		28.5	7.2	0.0	0.6	118.1		24.2	56.1	0.0
Queue Length 95th (m)	30.0	21.4		45.6	15.2	23.6	3.2	#211.4		60.4	103.4	4.1
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0		75.0	35.0			15.0		130.0
Base Capacity (vph)	295	404		273	406	601	393	915		561	1324	1163
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.14		0.47	0.09	0.55	0.01	0.72		0.64	0.50	0.05

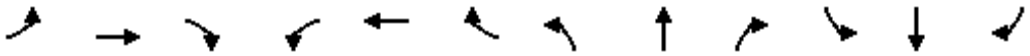
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 69 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 88.0%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	17	1018	2	0	1080
Future Volume (Veh/h)	0	17	1018	2	0	1080
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	17	1018	2	0	1080
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.70	0.70			0.70	
vC, conflicting volume	2099	1019			1020	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2358	811			813	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	27	265			568	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	1020	1080
Volume Left	0	0	0
Volume Right	17	2	0
cSH	265	1700	1700
Volume to Capacity	0.06	0.60	0.64
Queue Length 95th (m)	1.6	0.0	0.0
Control Delay (s)	19.5	0.0	0.0
Lane LOS	C		
Approach Delay (s)	19.5	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	387	32	47	446	21	43	0	66	9	0	2
Future Volume (Veh/h)	42	387	32	47	446	21	43	0	66	9	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	42	387	32	47	446	21	43	0	66	9	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	467			419			1029	1048	403	1088	1054	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	467			361			1004	1024	344	1065	1030	456
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			78	100	90	94	100	100
cM capacity (veh/h)	1094			1137			196	206	663	161	204	604

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	42	419	47	467	109	11
Volume Left	42	0	47	0	43	9
Volume Right	0	32	0	21	66	2
cSH	1094	1700	1137	1700	342	186
Volume to Capacity	0.04	0.25	0.04	0.27	0.32	0.06
Queue Length 95th (m)	0.9	0.0	1.0	0.0	10.2	1.4
Control Delay (s)	8.4	0.0	8.3	0.0	20.4	25.6
Lane LOS	A		A		C	D
Approach Delay (s)	0.8		0.8		20.4	25.6
Approach LOS					C	D

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A	
Analysis Period (min)	15			

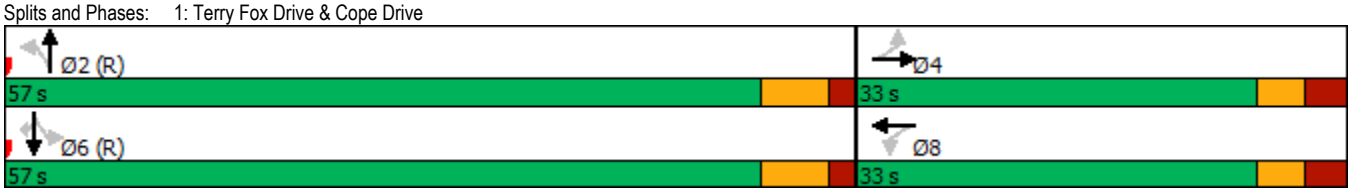
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	26	2	74	21	286	4	641	66	273	384	38
Future Volume (vph)	34	26	2	74	21	286	4	641	66	273	384	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.98		1.00					0.98
Frt		0.989			0.860			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1729	1735	0	1601	1488	0	1729	1681	0	1712	1640	1473
Flt Permitted	0.284			0.739			0.527			0.328		
Satd. Flow (perm)	517	1735	0	1243	1488	0	958	1681	0	591	1640	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			247			9				39
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	50%	8%	5%	3%	0%	6%	14%	1%	11%	5%
Adj. Flow (vph)	34	26	2	74	21	286	4	641	66	273	384	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	28	0	74	307	0	4	707	0	273	384	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		28.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	26.8	26.8		26.8	26.8		50.6	50.6		50.6	50.6	50.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2		2	2	2
Act Effct Green (s)	14.1	14.1		14.1	14.1		63.3	63.3		63.3	63.3	63.3
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.70		0.70	0.70	0.70
v/c Ratio	0.42	0.10		0.38	0.70		0.01	0.60		0.66	0.33	0.04
Control Delay	47.6	28.5		37.6	16.6		6.5	10.9		20.1	7.3	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.6	28.5		37.6	16.6		6.5	10.9		20.1	7.3	2.5
LOS	D	C		D	B		A	B		C	A	A
Approach Delay		39.0			20.7			10.9			12.1	
Approach LOS		D			C			B			B	
Queue Length 50th (m)	5.6	4.1		12.2	9.7		0.2	43.8		18.6	18.4	0.0
Queue Length 95th (m)	12.6	9.3		20.4	29.1		1.6	127.3		#84.4	53.8	3.8
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	153	518		370	616		673	1184		415	1153	1024
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.05		0.20	0.50		0.01	0.60		0.66	0.33	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 55 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 101.5% ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

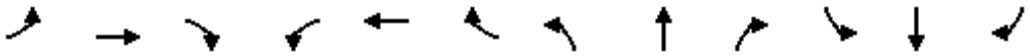
Splits and Phases: 1: Terry Fox Drive & Cope Drive



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	33	960	1	0	698
Future Volume (Veh/h)	0	33	960	1	0	698
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	33	960	1	0	698
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	1658	960			961	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1700	821			822	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	89			100	
cM capacity (veh/h)	80	298			642	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	961	698
Volume Left	0	0	0
Volume Right	33	1	0
cSH	298	1700	1700
Volume to Capacity	0.11	0.57	0.41
Queue Length 95th (m)	2.8	0.0	0.0
Control Delay (s)	18.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	18.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	333	22	31	352	6	25	0	36	17	0	4
Future Volume (Veh/h)	13	333	22	31	352	6	25	0	36	17	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	333	22	31	352	6	25	0	36	17	0	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.97			0.97	0.97	0.97	0.97	0.97	
vC, conflicting volume	358			355			788	790	344	812	798	355
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	358			321			767	769	309	791	777	355
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			92	100	95	94	100	99
cM capacity (veh/h)	1201			1203			300	310	709	275	307	689

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	13	355	31	358	61	21
Volume Left	13	0	31	0	25	17
Volume Right	0	22	0	6	36	4
cSH	1201	1700	1203	1700	455	311
Volume to Capacity	0.01	0.21	0.03	0.21	0.13	0.07
Queue Length 95th (m)	0.2	0.0	0.6	0.0	3.5	1.6
Control Delay (s)	8.0	0.0	8.1	0.0	14.1	17.4
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.6		14.1	17.4
Approach LOS					B	C

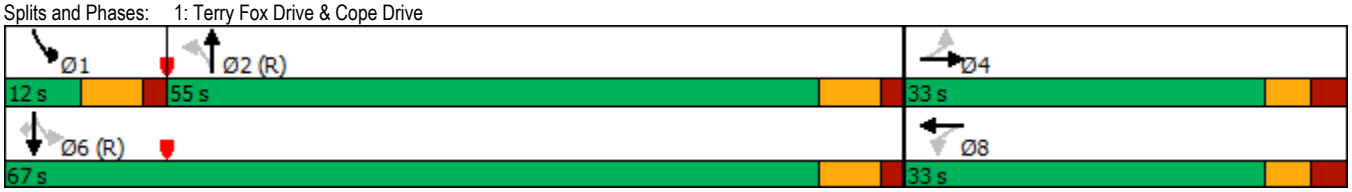
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	36.9%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Future Volume (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		0.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995			0.863			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1571	0	1729	1748	0	1729	1784	1547
Flt Permitted	0.186			0.721			0.388			0.145		
Satd. Flow (perm)	335	1809	0	1227	1571	0	706	1748	0	264	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			269			5				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	136	395	0	5	724	0	388	731	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2		28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0		55.0	55.0		12.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		55.0%	55.0%		12.0%	67.0%	67.0%
Maximum Green (s)	26.8	26.8		26.8	26.8		48.6	48.6		5.6	60.6	60.6
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9		1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2		6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2		2	2			2	2
Act Effct Green (s)	21.5	21.5		21.5	21.5		48.6	48.6		65.9	65.9	65.9
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.49	0.49		0.66	0.66	0.66
v/c Ratio	1.13	0.14		0.52	0.72		0.01	0.85		1.16	0.62	0.06
Control Delay	181.3	28.9		40.4	18.9		13.6	33.9		122.9	14.1	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	181.3	28.9		40.4	18.9		13.6	33.9		122.9	14.1	2.4
LOS	F	C		D	B		B	C		F	B	A
Approach Delay		119.3			24.4			33.7			49.4	
Approach LOS		F			C			C			D	
Queue Length 50th (m)	15.3	8.0		22.3	20.0		0.5	117.5		~59.2	82.5	0.0
Queue Length 95th (m)	#43.0	17.1		39.4	51.3		2.4	#188.4		#125.6	127.5	4.6
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0			35.0			15.0		130.0
Base Capacity (vph)	89	486		328	617		343	852		334	1176	1039
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.90	0.11		0.41	0.64		0.01	0.85		1.16	0.62	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 69 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 43.5		Intersection LOS: D	
Intersection Capacity Utilization 118.1%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

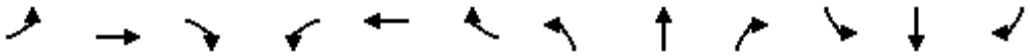
Splits and Phases: 1: Terry Fox Drive & Cope Drive



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	17	1111	2	0	1177
Future Volume (Veh/h)	0	17	1111	2	0	1177
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	17	1111	2	0	1177
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.63	0.63			0.63	
vC, conflicting volume	2289	1112			1113	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2750	886			887	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	14	217			482	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	1113	1177
Volume Left	0	0	0
Volume Right	17	2	0
cSH	217	1700	1700
Volume to Capacity	0.08	0.65	0.69
Queue Length 95th (m)	1.9	0.0	0.0
Control Delay (s)	23.0	0.0	0.0
Lane LOS	C		
Approach Delay (s)	23.0	0.0	0.0
Approach LOS	C		

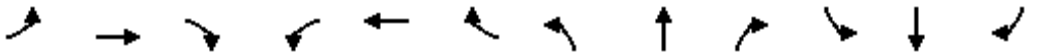
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	418	32	47	486	21	43	0	66	9	0	2
Future Volume (Veh/h)	42	418	32	47	486	21	43	0	66	9	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	42	418	32	47	486	21	43	0	66	9	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	507			450			1100	1119	434	1158	1124	496
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			356			1064	1085	339	1128	1091	496
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			75	100	90	94	100	100
cM capacity (veh/h)	1058			1104			172	183	646	140	181	573

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	42	450	47	507	109	11
Volume Left	42	0	47	0	43	9
Volume Right	0	32	0	21	66	2
cSH	1058	1700	1104	1700	310	163
Volume to Capacity	0.04	0.26	0.04	0.30	0.35	0.07
Queue Length 95th (m)	0.9	0.0	1.0	0.0	11.7	1.6
Control Delay (s)	8.5	0.0	8.4	0.0	22.8	28.7
Lane LOS	A		A		C	D
Approach Delay (s)	0.7		0.7		22.8	28.7
Approach LOS					C	D

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Future Volume (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	30.0		75.0	35.0		0.0	15.0		130.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	55.0			55.0			75.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99				1.00				
Frt		0.995				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	1809	0	1631	1820	1547	1729	1748	0	1729	1784	1547
Flt Permitted	0.734			0.721			0.388			0.116		
Satd. Flow (perm)	1323	1809	0	1225	1820	1547	706	1748	0	211	1784	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				360		4				58
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		159.6			156.9			382.3			318.7	
Travel Time (s)		11.5			11.3			17.2			14.3	
Confl. Peds. (#/hr)			5	5					3	3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	6%	0%	0%	0%	2%	13%	0%	2%	0%
Adj. Flow (vph)	80	53	2	136	35	360	5	673	51	388	731	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	55	0	136	35	360	5	724	0	388	731	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	32.2	32.2		32.2	32.2	32.2	28.4	28.4		11.4	28.4	28.4
Total Split (s)	33.0	33.0		33.0	33.0	33.0	57.0	57.0		30.0	87.0	87.0
Total Split (%)	27.5%	27.5%		27.5%	27.5%	27.5%	47.5%	47.5%		25.0%	72.5%	72.5%
Maximum Green (s)	26.8	26.8		26.8	26.8	26.8	50.6	50.6		23.6	80.6	80.6
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	1.8	1.8		1.8	1.8	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		6.2	6.2	6.2	6.4	6.4		6.4	6.4	6.4
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0	19.0	15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2			2	2
Act Effct Green (s)	19.0	19.0		19.0	19.0	19.0	55.4	55.4		88.4	88.4	88.4
Actuated g/C Ratio	0.16	0.16		0.16	0.16	0.16	0.46	0.46		0.74	0.74	0.74
v/c Ratio	0.38	0.19		0.70	0.12	0.66	0.02	0.89		0.79	0.56	0.05
Control Delay	48.6	42.0		65.9	41.3	10.4	20.6	46.3		36.3	10.0	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.6	42.0		65.9	41.3	10.4	20.6	46.3		36.3	10.0	1.7
LOS	D	D		E	D	B	C	D		D	B	A
Approach Delay		45.9			26.6			46.1			18.3	
Approach LOS		D			C			D			B	
Queue Length 50th (m)	17.0	11.1		30.5	7.1	0.0	0.7	164.4		55.1	68.3	0.0
Queue Length 95th (m)	30.0	21.4		48.5	15.2	24.9	3.2	#245.2		#116.7	122.1	4.1
Internal Link Dist (m)		135.6			132.9			358.3			294.7	
Turn Bay Length (m)	30.0			30.0		75.0	35.0			15.0		130.0
Base Capacity (vph)	295	404		273	406	625	325	809		494	1314	1155
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.14		0.50	0.09	0.58	0.02	0.89		0.79	0.56	0.05

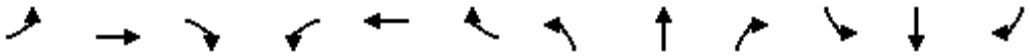
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 93.8%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Terry Fox Drive & Cope Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	17	1111	2	0	1177
Future Volume (Veh/h)	0	17	1111	2	0	1177
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	17	1111	2	0	1177
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			
pX, platoon unblocked	0.60	0.60			0.60	
vC, conflicting volume	2289	1112			1113	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2810	856			857	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	12	215			472	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	1113	1177
Volume Left	0	0	0
Volume Right	17	2	0
cSH	215	1700	1700
Volume to Capacity	0.08	0.65	0.69
Queue Length 95th (m)	1.9	0.0	0.0
Control Delay (s)	23.1	0.0	0.0
Lane LOS	C		
Approach Delay (s)	23.1	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	418	32	47	486	21	43	0	66	9	0	2
Future Volume (Veh/h)	42	418	32	47	486	21	43	0	66	9	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	42	418	32	47	486	21	43	0	66	9	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		157										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	507			450			1100	1119	434	1158	1124	496
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			381			1074	1094	364	1136	1100	496
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			75	100	90	94	100	100
cM capacity (veh/h)	1058			1105			173	185	639	141	183	573

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	42	450	47	507	109	11
Volume Left	42	0	47	0	43	9
Volume Right	0	32	0	21	66	2
cSH	1058	1700	1105	1700	310	164
Volume to Capacity	0.04	0.26	0.04	0.30	0.35	0.07
Queue Length 95th (m)	0.9	0.0	1.0	0.0	11.6	1.6
Control Delay (s)	8.5	0.0	8.4	0.0	22.8	28.5
Lane LOS	A		A		C	D
Approach Delay (s)	0.7		0.7		22.8	28.5
Approach LOS					C	D

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX J

Transportation Demand Management (TDM)
Measures Checklist

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

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

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

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

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

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☒
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☒

APPENDIX K

Intersection MMLOS Analysis

Pedestrian Level of Service (PLOS)

Criteria	North Approach		South Approach		East Approach		West Approach	
Terry Fox Drive/Cope Drive								
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	55	No	72	No	72	No	72
Lanes Crossed (3.5m Lane Width)	6		5		5		5	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Perm + Prot	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**18**		**35**		**35**		**35**
LOS		**F**		**E**		**E**		**E**
DELAY SCORE								
Cycle Length		95		95		95		95
Pedestrian Walk Time		14.8		14.8		31.7		53.7
DELAY SCORE		**33.9**		**33.9**		**21.1**		**9**
LOS		**D**		**D**		**C**		**A**
OVERALL		**F**		**E**		**E**		**E**

Bicycle Level of Service (BLOS)

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Terry Fox Drive/Cope Drive				
North Approach	Pocket Bike Lane	Right Turn Lane Characteristics	Right turn lane >50m long	D
		Left Turn Accommodation	One lane crossed, 90 km/hr	E
South Approach	Bike Lane	Right Turn Lane Characteristics	No impact on LTS	A
		Left Turn Accommodation	One lane crossed, 90 km/hr	E
East Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact on LTS	A
		Left Turn Accommodation	One lane crossed, 60 km/hr	F
West Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact on LTS	A
		Left Turn Accommodation	One Lane Crossed, 60 km/hr	F

Transit Level of Service (TLOS)

Approach	Facility Type	Delay[1]	TLOS
Terry Fox Drive/Cope Drive			
North Approach	Mixed Traffic (No TSP)	7 seconds	B
South Approach	Mixed Traffic (No TSP)	18 seconds	C
East Approach	Mixed Traffic (No TSP)	23 seconds	D
West Approach	Mixed Traffic (No TSP)	N/A[2]	N/A

1. Mixed traffic delay based on the critical approach delay in Synchro analysis
2. No OC Transpo Service on Cedarview Road north of Fallowfield Road

Truck Level of Service (TkLOS)

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	LOS
Terry Fox Drive/Cope Drive			
North Approach	> 15m	One	C
South Approach	> 15m	One	C
East Approach	> 15m	One	C
West Approach	> 15m	One	C

Auto LOS

Approach	AM Peak			PM Peak		
	V/C or Delay	LOS	Mvmt	V/C or Delay	LOS	Mvmt
Terry Fox Drive/Cope Drive						
North Approach	0.45	A	SBL	0.68	B	SBL
South Approach	0.53	A	NBT/R	0.71	C	NBT/R
East Approach	0.61	B	WBT/R	0.63	B	WBT/R
West Approach	0.46	A	EBL	1.24	F	EBL

MMLOS Summary Table

	Intersection	Terry Fox Drive/Cope Drive North Approach	South Approach	East Approach	West Approach
Pedestrian	Median > 2.4m in Width	No	No	No	No
	Lanes (3.5m Lane Width)	Six	Five	Five	Five
	Conflicting Left Turns	Permissive	Permissive	Perm + Prot	Permissive
	Conflicting Right Turns	Permissive	Permissive	Permissive	Permissive
	Right Turn on Red	Permitted	Permitted	Permitted	Permitted
	Pedestrian Leading Interval	No	No	No	No
	Parallel Radius	15m to 25m	15m to 25m	15m to 25m	15m to 25m
	Parallel Channel	No Channel	No Channel	No Channel	No Channel
	Perpendicular Radius	N/A	N/A	N/A	N/A
	Perpendicular Channel	N/A	N/A	N/A	N/A
	Crosswalk Type	Standard	Standard	Standard	Standard
	PETSI Score	20	37	37	37
	Delay Score	40	40	18.5	22
	Level of Service	F	E	E	E
		F			
	Target	C			
Cyclist	Type of Bikeway	Pocket Bike Land	Bike Lane	Mixed Traffic	Mixed Traffic
	Turning Speed	≤ 30km/hr	N/A	N/A	N/A
	Right Turn Storage	> 50m	N/A	N/A	N/A
	Dual Right Turn Lanes	No	No	No	No
	Shared Through-Right Lane	No	Yes	Yes	Yes
	Bike Box	No	No	No	No
	Lanes Crossed for Left Turns	One	One	One	One
	Dual Left Turn Lanes	No	No	No	No
	Approach Speed	90 km/hr	90 km/hr	60 km/hr	60 km/hr
	Level of Service	E	E	F	F
		F			
	Target	B			
Transit	Facility Type	Mixed Traffic	Mixed Traffic	Mixed Traffic	N/A
	Average Signal Delay	7 seconds	18 seconds	23 seconds	N/A
	Level of Service	B	C	D	-
		D			
	Target	-			
Truck	Turning Radius	> 15m	> 15m	> 15m	> 15m
	Receiving Lanes	One	One	One	One
	Level of Service	C	C	C	C
		C			
	Target	D			
Auto	Volume to Capacity Ratio	0.68	0.71	0.63	1.24
	Level of Service	B	C	B	F
		F			
	Target	D			